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IS THE RELATIONSHIP BETWEEN TRAIT MINDFULNESS AND PSYCHOLOGICAL DISTRESS INDIRECT?

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IS THE RELATIONSHIP BETWEEN TRAIT MINDFULNESS AND PSYCHOLOGICAL DISTRESS INDIRECT?

A Thesis

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San Bernardino

In Partial Fulfillment

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in

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ABSTRACT

Mindfulness, purposeful attention without judgment or acceptance, and related practices are increasingly popular with a large number of people and have been incorporated into many western psychotherapies (e.g., Mindfulness-Based Stress Reduction, Dialectical Behavior Therapy, Acceptance and Commitment Therapy and Mindfulness Based Cognitive Therapy). There is considerable debate over whether mindfulness is best studied as a state, trait or procedure. Although many studies have found that trait mindfulness is related to physical and mental health outcomes, less is known about the mechanism(s) through which mindfulness enhances clinical outcomes. The current study explored the role of potential mediators of the relationship between trait mindfulness and psychological outcomes, i.e., psychological distress. Specifically, we examined whether the relationship between trait mindfulness and psychological distress is indirect, with mediators such as emotion regulation (i.e., cognitive reappraisal and emotion suppression, experiential avoidance, cognitive flexibility (i.e., alternative), and psychological inflexibility accounting for the relationship. We measured trait mindfulness, psychological distress, emotion regulation, cognitive flexibility, experiential avoidance and acceptance in a large sample of undergraduate students. We hypothesized that the relationship between trait mindfulness and psychological outcomes is indirect and may be due to enhanced acceptance, flexibility, and emotion regulation. We conducted a sequential regression, simple mediational, and multiple mediational analyses to

test hypotheses. Results revealed that the proposed mediators explained additional variances in psychological distress above and beyond trait mindfulness. The simple mediational analyses indicated that individually, psychological inflexibility, emotion regulation (only cognitive reappraisal), and experiential avoidance mediated the relationship between trait mindfulness and psychological distress. Finally, the multiple mediational analysis revealed that, when tested simultaneously, only psychological inflexibility mediated the association between trait mindfulness and psychological distress. Implications of results for developing treatment packages that include mindfulness practices are discussed. Limitations of the cross-sectional design, the measurements, and definitional issues of trait mindfulness are discussed as well.

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DEDICATION

My Mother, Shila Maharjan

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CHAPTER ONE

IS THE RELATIONSHIP BETWEEN TRAIT MINDFULNESS AND PSYCHOLOGICAL OUTCOMES DIRECT OR INDIRECT?

Mindfulness has become one of the hottest topics that is broadly discussed as a clinical intervention for various psychiatric problems. Cultivation of the mind into the present moment awareness without clinging to an internal or external stimulus is the trademark characteristic of mindfulness (Kabat-Zinn, 2000). Originally, mindfulness was a Buddhist meditation method where intentional attention was directed to the present moment, without making judgment – positive or negative – of the experience (Kabat-Zinn, 2000). In the past three decades, clinical and cognitive psychologists have rigorously studied mindfulness. Even though multiple studies address the impact of mindfulness on psychological outcomes (Baer, 2011), less is known about the mechanism(s) which make mindfulness effective in reducing psychological distress. Specifically, more research is required to delineate the mechanisms that account for the effectiveness of mindfulness interventions for the attenuation of psychological symptoms.

First, the general purpose of studying mindfulness is to contextualize the eastern concept of this meditation technique into the West through scientific methodology. Formulating or identifying an operational definition seems an essential task before studying mindfulness as a psychological intervention. Nevertheless, there is an ongoing debate about an operational

definition of mindfulness (Bishop et al., 2004). Although mindfulness has become a component of various psychological interventions, such as Mindfulness Based Stress Reduction (MBSR; Kabat-Zinn, 1970); Mindfulness Based Cognitive Therapy; (Segal et al., 2002), Dialectical Behavior Therapy (DBT; Linehan, 1993), Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999), psychologists, researchers, and clinicians have yet to come to a consensus about a specific operational definition of mindfulness. Assessment of mindfulness relies on a definition, description, and instruction of mindfulness (Baer, 2011).

Definitional Issues in Mindfulness

There are several operational definitions of mindfulness based upon four well-known mindfulness interventions in the western psychotherapies. Jon Kabat-Zinn (1979) established MBSR, a psychotherapy protocol that teaches mindfulness to reduce stress through adopting a nonjudgmental and accepting approach to daily life experiences. MBCT, an alteration of MBSR, utilizes mindfulness as a response to negative thoughts and low mood that contribute to relapse in depressive disorders (Segal, Williams, & Teasdale, 2002). DBT is another psychological approach that incorporates mindfulness as a component of the cognitive behavioral approach to address problems with emotion regulation, impulse control, interpersonal relationships, and self-image (Linehan, 2014). Lastly, ACT emphasizes the importance of the use of

mindfulness toward the acceptance of the adversities of life and committing to the activities that enrich life. (Hayes, Strosahl, & Wilson, 1999). Although these four approaches incorporate a similar operational definition of mindfulness, the targets of each approach vary across interventions.

Like many psychological phenomena, a proper operational definition of the construct is essential to understanding mindfulness as a construct and psychological intervention. In the past two decades, researchers have successfully developed several measurement scales to assess the construct of trait mindfulness. It is essential to develop a measurement that assesses the various components or aspects of mindfulness, such as observing, nonjudgmental, non-reacting (Baer 2011). Such measuring tools will allow researchers to evaluate the impact of mindfulness as an experiential intervention for psychological problems. Several studies over the past two decades have provided some clarification about trait mindfulness and its assessment.

Trait Mindfulness

In comparison to other aspects of mindfulness, measuring trait mindfulness has been popular and convenient in current studies. Trait mindfulness refers to a general, dispositional tendency to be aware of one's daily experience (Brown & Ryan 2004). The measurement of trait mindfulness requires the memory of one's dispositional awareness, not necessarily in-the-moment awareness. In the general population, it is challenging to find many

people with formal meditational experience. Therefore, these people may vary in the propensity of being mindful. Moreover, Brown and Ryan (2003) argued that being mindful is an inherent ability. With an intention to measure mindfulness objectively, and based on the presumption that people are capable to be mindful in daily life without meditational experience, we intend to use trait mindfulness in the current study.

Several studies have addressed the relationship between trait mindfulness and mental health outcomes (Baer, Smith, & Allen 2004; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Bond et al. 2011; Luberto, Cotton, McLeish, Mingione, & O'Bryan 2014; Moore & Malinowski 2009; Schirda, Nicholas, & Prakash 2015). In general, these studies have shown that trait mindfulness was negatively associated with various psychological symptoms such as anxiety, depression, and somatization. Using the findings of empirical research, clinicians are implementing mindfulness in their practices. Specifically, in the 1970s, Kabat-Zinn introduced MBSR which incorporated mindfulness for chronic pain and other health conditions. Although the popularity and utility of mindfulness have received a broad acceptance among clinicians and consumers, the exact mechanisms by which mindfulness enhances well-being and alleviates psychological symptoms remain unclear.

Potential Mechanisms of Mindfulness

The current study was designed to explore the possible underlying

mechanisms (mediators) that account for the relationship between trait mindfulness and psychological distress. Primarily, the study examined whether the relationship between trait mindfulness and psychological distress was indirect, with mediators such as emotion regulation (cognitive reappraisal and emotion suppression, experiential avoidance, cognitive flexibility (alternative), and psychological flexibility (acceptance) accounting for the relationship. The study measured mindfulness, psychological distress, emotion regulation, cognitive flexibility, experiential avoidance and psychological inflexibility in a convenience sample of undergraduate students at the California State University, San Bernardino (CSUSB).

We hypothesized that trait mindfulness would be predictive of psychological distress. An individual's ability to be aware of one's experience with acceptance negatively correlates with one's psychological distress level (Baer et al., 2006). Moreover, we hypothesized that the association between trait mindfulness and psychological outcomes was indirect, and mediated by enhanced acceptance of experiences, psychological flexibility, cognitive flexibility and emotion regulation. Results of this study have vast implications for improving treatment packages that include mindfulness practices. Despite the direct relationship between trait mindfulness and psychological distress, there are several potential mechanisms (mediators) that are accountable for this relationship. The current study was the first in the literature to simultaneously assess several researched psychological mechanisms that

could account for the trait mindfulness/psychological distress relationship. Knowledge of these mechanisms could lead to improved understanding of the benefits of mindfulness as a psychotherapeutic intervention.

Studies of Trait Mindfulness and Potential Mechanisms

Baer et al. (2006) examined psychometric characteristics of the facet structure of mindfulness questionnaires in a sample of 881 undergraduate students to determine the overall relationship between mindfulness and other available mindfulness constructs. Baer et al. (2006) compared the existing mindfulness questionnaires: the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), the Freiburg Mindfulness Inventory (FMI; Buchheld, Grossman, & Walach, 2001), the Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004), the Cognitive and Affective Mindfulness Scale (CAMS; Feldman, Hayes, Kumar,& Greeson, 2004; S. C. Hayes & Feldman, 2004), and the Mindfulness Questionnaire (MQ; Chadwick, Hember, Mead, Lilley, & Dagnan, 2005). Based on a factorial analysis, Baer et al. (2006) identified five factors/facets of mindfulness: observing (e.g., an ability to notice the bodily sensation or movement), describing (e.g., an ability to describe feelings and ideas), acting with awareness (e.g., an ability to be aware of one's mind when it wanders), non-judging (e.g., an openness to one's feelings and emotions), and non-react (e.g., an ability to accept feelings and

emotions without reacting to them. They used these five facets of mindfulness to create the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006). These five facets of trait mindfulness were consistently related to the elements of overarching mindfulness constructs.

In addition to comparing various scales of mindfulness, Baer et al. (2006) conducted a regression analysis to examine the relationship between mindfulness and psychological symptoms as measured by the Brief Symptoms Inventory; (BSI; Derogatis, 1992) respectively. This part of the study was designed to examine the helpfulness of the new constructed FFMQ in understanding the relationship between mindfulness and psychological symptom level. Results reflected that three facets of mindfulness (acting with awareness, nonjudging, and non-reacting) are individually significant predictors of psychological symptoms. Results also revealed that measuring facets of mindfulness predicts potential mechanisms of mindfulness such as acceptance of thoughts and feelings. In the current study, we utilize the FFMQ (Baer et al., 2006) to measure the predictor variable or trait mindfulness. The FFMQ has become the frequently used tool to assess the overarching elements of mindfulness in people with and without meditative experience. In addition to Baer et al. (2006) study, other studies have examined the potential mechanisms of mindfulness in relationship to psychological symptoms and well-being.

Previous studies have examined associations between these possible

mechanisms and psychological outcomes: cognitive flexibility, emotion regulation, experiential avoidance, and psychological inflexibility. However, there is a paucity of research that simultaneously examines the mediational role of these hypothesized mechanisms in the relationship between trait mindfulness and psychological distress. The current study examined four putative mechanisms that could be accountable for the relationship between mindfulness and psychological outcomes.

The Role of Emotion Regulation in Mindfulness. Schirda, Nicholas, & Prakash, (2015) conducted a cross-sectional study to examine if enhanced emotion regulation abilities (i.e., attempts to influence or modulate emotional experience and emotional expression; Gross, 2002), mediated the association between dispositional mindfulness and quality of life. Their sample was comprised of 95 individuals with multiple sclerosis (MS). Trait mindfulness was measured using the FFMQ (Baer et al., 2006), emotion dysregulation was measured with the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), quality of life was measured by using the World Health Organization Quality of Life-BREF (WHO-QOL-BREF; WHOQoL Group, 1998) and The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985), and depressive symptoms were measured by using the self-report Beck Depression Inventory-II scale (BDI-II; Beck, Steer, Ball, & Ranieri, 1996).

Results indicated that trait mindfulness was positively associated with quality of life and emotion dysregulation was negatively related to the quality of life. Moreover, emotion dysregulation mediated the relationship between trait mindfulness and quality of life. These results suggest that effective emotion regulation may represent a possible mechanism through which mindfulness is associated with quality of life. In our study, we simultaneously examined the mediational role of emotion regulation and other three mechanisms in the relationship between trait mindfulness and psychological distress.

In addition, Desrosiers, Vine, Klemanski, and Nolen-Hoeksema (2013) conducted multiple mediation analyses with 187 adults in Connecticut to identify the role of emotion regulatory mechanisms in anxiety and depression. They simultaneously employed rumination, non-acceptance, worry, and reappraisal as the mediators of the relationship between mindfulness and anxiety and depression. Results of multiple mediation analyses indicated the total indirect effect of mindfulness on depression and anxiety was significant. Moreover, rumination and reappraisal were significant mediators of the relationship between mindfulness and depression, and worry was a significant mediator for the impact of mindfulness on anxiety (Desrosiers et al., 2013).

There are additional studies that examined the mediational role of emotion regulation in the association between mindfulness and emotional differentiation (Tong & Keng, 2016; Hill & Updegraff, 2012), psychological wellbeing (MacDonald & Baxter, 2016; Coffey, Hartman, & Fredrickson, 2010),

psychopathology (Pepping, Duvenage, Cronin, & Lyons, 2016), neurological change (Hölzel, Lazar, Gard, Schuman-Olivier, Vago, & Ott, 2011), assessing the timing and sequence change in cancer patients (Labelle, Campbell, Faris, & Carlson, 2015), and perceived stress (Arch & Craske, 2006). These studies indicated that mindfulness was associated with enhanced identification of origins and influences of experienced emotions and this process was responsible for improved health outcomes. Perhaps, being able to reframe negative emotions may mitigate reactions toward those emotions which will, in turn, improves health and psychological outcomes. In the current study, emotion regulation was proposed as a mediator of the mindfulness-psychological distress relationship.

Experiential Avoidance and Trait Mindfulness. Baer, Smith, & Allen (2004) assessed the relationship between trait mindfulness and other psychological constructs with 130 undergraduate students utilizing the Kentucky Inventory of Mindfulness Scale (KIMS; Baer et al., 2004). Results revealed that trait mindfulness facets were negatively associated with neuroticism and experiential avoidance and positively related to mental health. However, the study did not suggest possible mechanisms for the association between trait mindfulness and psychological outcomes. Therefore, the role of experiential avoidance in the relationship between trait mindfulness and psychological distress requires further systematic study (Baer, Smith, & Allen, 2004). In the current study, we examined whether experiential avoidance or

the inability to be attentive to a negative experience, and a general tendency to avoid, escape, control, suppress, modify, and not accept negative affective states could be a mediator of the mindfulness- psychological distress relationship.

Psychological Inflexibility and Trait Mindfulness. The current survey also examined the role of psychological inflexibility, the inability to be mindful of the adversity of life and acceptance or willingness to experience such adversities while pursuing one's values and goals (Hayes et al., 2006). The current study proposed that psychological inflexibility mediated the association between trait mindfulness and psychological distress.

Silberstein, Tirch, Leahy, and McGinn (2012) assessed the relationship between dispositional mindfulness, psychological flexibility and emotion schemas in a sample of outpatients (Silberstein et al., 2012). Psychological flexibility was measured by using AAQ-II (Bond et al., 2011), dispositional mindfulness was measured using the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), and emotional schemas was assessed by using the Leahy Emotional Schema Scale (LESS; Leahy, 2002). One hundred and seven cognitive behavioral outpatients completed these self-report questionnaires assessing mindfulness, psychological distress, and psychological flexibility. Results indicated that psychological flexibility was positively related to dispositional mindfulness (Silberstein et al., 2012). However, they did not evaluate psychological flexibility as a mediator of the

relationship between mindfulness and psychological distress. In other words, the study suggested a direct relationship between dispositional mindfulness and psychological flexibility. The current study predicts that psychological flexibility could be a potential mediator or a mechanism, rather than a criterion, for the relationship between dispositional mindfulness and distress. Thus, the relationship between trait mindfulness and psychological outcome would be indirect.

Ruiz (2014) studied whether psychological inflexibility mediated the relationship between trait mindfulness and worry in a sample of 139 university students in Spain. Ruiz (2014) measured trait mindfulness with the Kentucky Inventory of Mindfulness Skills (KIMS; Baer et al, 2004), Psychological Inflexibility with the Acceptance and Action Questionnaire-II (AAQ-II; Bond et al, 2011) and worry with the Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990). Results revealed that trait mindfulness was negatively associated with worry and psychological inflexibility. Specifically, the relationship between mindfulness (i.e., two of the four mindfulness subscales; acceptance without judgment & acting with awareness) and worry was fully mediated by psychological inflexibility. These results suggest that the relationship between mindfulness and worry is indirect with increased psychological flexibility being the mechanism through which mindfulness may reduce pathological worry. In the current study, simultaneously we tested the mediational role of psychological inflexibility, experiential avoidance, emotion regulation, and

cognitive flexibility in the relationship between mindfulness and psychological distress.

Cognitive Flexibility and Trait Mindfulness. Cognitive flexibility, as measured by the CFI (Denniz & Vander Wal, 2010), is another possible mechanism in the relationship between trait mindfulness and psychological symptoms. Cognitive flexibility refers to the ability to challenge negative thoughts successfully and replace maladaptive thoughts with more realistic alternative thoughts (Dennis & Vander Wal, 2010). In contrast, cognitive rigidity intensifies depressed state because there is little room for alternatives and high acceptance of maladaptive beliefs (Teasdale et al., 1995). Mindfulness and psychological distress both have a strong reference to cognition. Therefore, the current study suggested cognitive flexibility could be another mediator in the mindfulness/distress relationship.

Moore & Malinowski (2009), studied the relationship between trait mindfulness and cognitive flexibility. They measured trait mindfulness using the Kentucky Inventory of Mindfulness Skills (KIMS; Baer et al., 2004), the degree of automatization/de-automatization was measured by using paper-pencil version of the Stroop Task (MacLeod, 1991), and attentional performance and flexibility was administered by using the d2-concentration and endurance test (d2-test; Brickenkamp, 1962). The results revealed a positive correlation between attentional performance and cognitive flexibility. Even though Moore et al., (2009) found a strong correlation between mindfulness and cognitive

flexibility, the study did not assess the mediational effect of cognitive flexibility in the relationship between trait mindfulness and psychological distress.

In addition, Brown, Bravo, Roos, and Pearson (2014) conducted a multiple pathway study to find the association between five facets of mindfulness and psychological symptoms through decentering - an ability to perceive thoughts and feelings as short-living, objective experiences of the mind (Fresco, et al., 2007) - in a sample of 944 US southwestern and US southeastern university. They used the FFMQ to measure mindfulness, (FFMQ; Baer et al., 2006), the Difficulties in Emotion Regulation Scale to measure emotion regulation (DERS; Gratz & Roemer, 2004), the World Health Organization Quality of Life-BREF (WHOQOL-BREF; WHOQOL Group, 1998) and the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) to measure quality of life, the Beck Depression Inventory-II scale to measure depressive symptoms (BDI-II; Beck, Steer, Ball, & Ranieri, 1996). Brown et al., (2014) proposed cognitive flexibility, values clarification, self-regulation, and exposure as mediators in the relationship between mindfulness and psychological outcomes.

Results revealed that four mechanisms (cognitive behavioral flexibility, self-regulation, values clarification and distress tolerance) significantly mediated the association between four mindfulness facets (except observing) and depressive symptoms and stress. Moreover, the double mediated path through decentering significantly mediated the relationship between four facets

of mindfulness and depressive symptoms and stress (Brown et al., 2014). These results indicated that the relationship between mindfulness and psychological symptoms is indirect which is intervened by five proposed mechanisms. Mindfulness increased value clarification, self-regulation, cognitive behavioral flexibility, and exposure through decentering which, in turn, reduces psychological symptoms. Even though the current study was similar to the Brown et al., (2014) study, we tested four mediators that are correlated with mindfulness and psychological distress.

Most of the studies have been conducted to examine the correlation between trait mindfulness, psychological constructs (i.e., cognitive flexibility, emotion regulation, etc.), and psychological distress. However, there is a paucity of studies that simultaneously tested multiple mechanisms which explain how mindfulness work to reduce psychological distress (Moore & Malinowski, 2009). Nevertheless, mindfulness is a commonly used and effective intervention of psychotherapy, particularly in the CBT paradigm. Therefore, recognizing how mindfulness work, i.e., mechanisms of mindfulness was highly warranted.

The current study was designed to simultaneously examine multiple mechanisms that could mediate the relationship between trait mindfulness and psychological distress. Thus, the present study deployed mediation analyses to test the hypotheses that the relationship between trait mindfulness and

psychological distress is indirect, and the relationship is examined by the shared variance among several potential mediators, i.e., emotion regulation, experiential avoidance, psychological flexibility, cognitive flexibility, and acceptance of experience. We hypothesized that the relationship between trait mindfulness and psychological distress is indirect with one or more of the aforementioned psychological mechanisms accounting for this relationship.

CHAPTER TWO

METHOD

Participants

Participants were 392 students (277 females and 115 males) recruited from Psychology, Human Development, and Social Science courses at CSUSB through the SONA research management system. Three hundred and ninety-two participants received extra course credit for their participation. Participants were 61% Hispanic-Latino, 6% African Americans, 20% European-Americans, 5% Asian Americans, 1% Pacific Islander and 7% other. The age range was 18-68, and the age mean 23.02 with 5.81 standard deviations.

Design

The study was a cross-sectional and correlational design. The predictor variable was trait mindfulness as measured by the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006). The outcome variable was psychological distress as measured by the Brief Symptom Inventory 18 (BSI-18; Derogatis, 2000). The proposed mediators were experiential avoidance as measured by the Multidimensional Experiential Avoidance Questionnaire (MEAQ; Gamez, Chmielewski, Kotov, Ruggero, & Watson, 2011); psychological inflexibility as measured by the Acceptance and Action Questionnaire-II. (AAQ-II; Bond et al., 2011); cognitive flexibility as measured

by the Cognitive Flexibility Inventory (CFI; Dennis & Vander Wal, 2010); and emotion regulation as measured by the Emotion Regulation Questionnaire (ERQ; Gross & John. 2003). All study hypotheses were tested utilizing multiple regression and an SPSS statistical macro program for testing multiple mediation models called PROCESS (Preacher & Hayes, 2008).

Procedure

Participants completed an informed consent before being directed to a series of questionnaires completed online using Qualtrics.com. The questionnaires were presented in a randomized order with informed consent presented first, and a demographics form was presented last. After completing the questionnaires, participants were given a post-study information form describing the study purpose in more detail.

Materials

A demographics form assesses participants' age, gender, ethnicity, primary caretaker, primary language spoken by and education level of primary caretakers and student income. See Appendix A.

The Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006) consists of 39 items that represent elements of mindfulness across five factors. The five factors are **observing, describing, acting with awareness, non-judging of inner experience,** and **non-reactivity to inner experience**. The FFMQ uses a five-point Likert scale (1 = *never or very rarely true*, 5 = *very*

often or always true) to rate the degree of trait mindfulness. The overall alpha coefficient for the FFMQ was .85 which suggested good internal consistency. According to Baer et al., (2006), the scale also has good convergent and predictive validity in comparison to other validated trait mindfulness inventories such as the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), Freiburg Mindfulness Inventory (FMI; Buchheld, Grossman, & Walach, 2001), and Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004).

The Multidimensional Experiential Avoidance Questionnaire (MEAQ; Gamez, Chmielewski, Kotov, Ruggero, & Watson, 2011) is a 62 item, six-point Likert scale (1= *completely untrue of me*, 6= *describes me perfectly*) that measures experiential avoidance across six factors: **behavioral avoidance, distress aversion, procrastination, distraction/suppression, repression/denial,** and **distress endurance**. The mean alpha coefficient of the total score ranged from .92 to .95 in samples of students, patients, and the community, and the alpha coefficients ranged from .79 to .90 across the subscales. (Gamez et. al., 2011). The MEAQ also provided strong evidence of construct and concurrent validity in comparison to other scales that measures experiential avoidance such as AAQ-II (Gamez et. al., 2011).

The Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011) is a 10 item, seven-point Likert scale (1 = *never true*, 7 = *always true*) measuring the degree of **psychological inflexibility** defined as the **lack of**

acceptance of experience and lack of commitment to one's values or goals in life**.** The alpha coefficient for the one-factor solution with seven items was .87, and confirmatory alpha coefficients in three samples ranged from .78 to .81. In addition, The AAQ-II has a strong concurrent and convergent validity with other measures that assess similar constructs (Bond et al., 2011).

The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003) is a ten item, seven-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*) assessing emotion regulation across two subscales: **cognitive reappraisal** and **emotion suppression** (Gross & John, 2003). The alpha coefficient for cognitive reappraisal subscale was .79 and .73 for emotion suppression. Test-retest reliability for both subscales was r = .69, across three months (Gross & John, 2003). The scale has a strong convergent and discriminant validity with other relevant constructs such as Palfai's (1995) Trait Meta-Mood Scale (Gross & John, 2003).

The Cognitive Flexibility Inventory (CFI; Dennis & Vander Wal, 2010) is a 20 item, seven-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*) measuring cognitive flexibility, the ability to challenge negative thoughts successfully and replace maladaptive thoughts with more realistic alternative thoughts (Dennis & Vander Wal, 2010). The alpha coefficients for two subscales, **alternatives**, and **control**, were .91 and .84 respectively. The CFI scale has .73 for 7-week test-retest reliability. There was strong evidence for convergent construct validity for the CFI in compared to other scales such as

Cognitive flexibility scale (CFI; Martin & Rubin, 1995) that measured cognitive flexibility (Dennis & Vander Wal, 2010).

The Brief Symptom Inventory- 18 (BSI-18; Derogatis, 2000) is a 5-point, Likert scale (0 = *not at all*, 4 = *extremely*) with 18 self-report items that assess symptoms of **depression, somatization,** and **anxiety**. These three subscales are combined to produce a Global Severity Index (GSI) score, which measures overall psychological distress. The BSI-18 has a reported .89 alpha coefficient for the total score (Derogatis, 2000; Zabora et al., 2001) and its subscales have adequate alpha coefficients of .88, .70, and .79, for depression, somatization, and anxiety, respectively. Moreover, there is strong support for the concurrent validity of the BSI 18 with the SCL-90-R (r = .93; Derogatis, 2000).

CHAPTER THREE

RESULTS

Data Analysis

Descriptive statistics, internal consistency coefficients, and correlational analyses for all study variables are presented in Table 1. First, a sequential (hierarchical) regression analysis was conducted to determine whether trait mindfulness and the four hypothesized mechanisms predicted psychological distress. Second, four simple mediation analyses were performed to determine if the four hypothesized mechanisms, i.e., psychological inflexibility, experiential avoidance, emotion regulation (i.e., cognitive reappraisal and emotion suppression), and cognitive flexibility. We entered one mediator at a time to examine if they individually mediated the relationship between trait mindfulness and psychological distress. Lastly, a multiple mediation analysis was performed where all four proposed mediators were tested simultaneously. All analyses and assumption evaluations were performed utilizing SPSS 24. Mediation analyses were performed utilizing a statistical macro program in SPSS for testing mediation models called PROCESS (Hayes, 2013).

A Sequential Regression Analysis of Trait Mindfulness and Four Mechanism

The sequential regression analysis was conducted to discern if trait mindfulness and the four mechanisms predicted psychological distress. Trait mindfulness was entered first and significantly predicted psychological distress, Multiple R^2 = .22, $F(1,390) = 109.07$, $p<.05$. In sum, trait mindfulness accounted 22% of the variance in psychological distress.

Next, the four potential mechanisms were added in the second model. The four potential mechanisms in aggregate significantly improved prediction of psychological distress, R^2_{change} = .21, $F_{change}(5, 384) = 28.42$, $p<.05$. After accounting for the variance of psychological distress that was explained by trait mindfulness, an additional 21% of the variance was explained by psychological inflexibility (β = -.59, use $p<.05$), emotion regulation [cognitive reappraisal (β = -.08, p =.09), emotion suppression (β = .01, p =.91), experiential avoidance (β = -.01, p =.92), and cognitive flexibility (β = .04, p =.39). Psychological inflexibility, however, was the only significant unique predictor of psychological distress which individually accounted for 16% of the variance in psychological distress. The full prediction of psychological distress was significant, R^2 = .43, $F(6,384) = 48.26$, $p<.05$, where 43% of the variance in psychological distress was explained by trait mindfulness and the four potential mechanisms.

Simple Mediation Analyses

To replicate findings in the literature, the four proposed mechanisms were subjected to simple mediational analyses to discern the indirect effect of each of the four potential mechanisms **individually** (i.e., psychological inflexibility, emotion regulation, experiential avoidance, and cognitive flexibility) on the relationship between trait mindfulness and psychological distress. A resampling bootstrapping technique with 10,000 re-samples was utilized in both simple and multiple mediational analyses for a formal confirmatory test of the indirect effect (Preacher & Hayes 2008b). We employed the bootstrapping test in mediational analyses for a better estimation of power and Type I error and an inclusion of covariates (MacKinnon, Lockwood, & Williams, 2004; Preacher & Hayes, 2008a; 2008b). A confidence level of 95% for mediation analyses was used. Moreover, to determine a mediational effect and significance of the indirect effect, the confidence interval should not include zero (Preacher & Hayes, 2004, 2008a, 2008b; Shrout & Bolger, 2002).

A simple mediational analysis was conducted to test the hypothesis that each potential mechanism individually mediated the relationship between trait mindfulness and psychological distress. Results revealed that individually psychological inflexibility (*b* =-.27, [*CI: LL* -.34; *UL* -.21]) fully mediated the trait mindfulness-psychological distress relationship, and trait mindfulness no longer had a direct effect on psychological distress, (*b* = -.04, *p* = *.21,* [*CI: LL* -.11; *UL* .03]). Furthermore, although experiential avoidance (*b* = .06, [*CI: LL* -

.11; *UL* -.03]) and emotion regulation: cognitive reappraisal (*b* = -.02, [*CI: LL* -.04; *UL* -.01]), were significant mediators of the relationship between trait mindfulness and psychological distress, the direct effects remained significant (*b* = -.25, *p <.05,* [*CI: LL* -.32; *UL* -18]; *b* = -.27, *p<.05,* [*CI: LL* -.34; *UL* -.20] respectively). Lastly, cognitive flexibility: alternatives (*b* = -.01, [*CI: LL* -.02; *UL* .05] and emotion regulation: emotion suppression (*b* = -.02, [*CI: LL* -.05; *UL* .00] did not mediate the trait mindfulness – psychological distress relationship, and thus, the direct effects remained significant in these analyses (*b* = -.32, *p<.05,* [*CI: LL* -.39; *UL* -26]; *b* = -.27, *p<.05,* [*CI: LL* -.34; *UL* -.20] respectively).

Multiple Mediation Analysis

To extend findings in the literature, the four proposed mechanisms were subjected to a multiple mediational analysis to discern the indirect effect of the four potential mechanisms **simultaneously** (i.e., psychological inflexibility, emotion regulation: cognitive reappraisal, and emotion suppression, experiential avoidance, and cognitive flexibility: alternative) on the relationship between trait mindfulness and psychological distress.

When the four mediators were entered in the model simultaneously, there was a significant indirect effect of trait mindfulness on psychological distress through psychological inflexibility, *b* = -.27, [*CI:* LL -.33; UL -.20], but trait mindfulness no longer had a direct effect on psychological distress, *b* = -.04, *p* = *.27,* [*CI: LL* -.12; *UL* .03]. None of the other mediators mediated the relationship, i.e., emotion regulation: cognitive reappraisal, *b* = -.02, [*CI: LL* -

.04; *UL* .00]; emotion regulation: emotion suppression, *b* = -.00, [*CI: LL* -.02; *UL* .02]; experiential avoidance, *b* = -.00, [*CI: LL* -.04; *UL* .04]; and cognitive flexibility: alternative, *b* = .01, [*CI: LL* -.02; *UL* .05].

CHAPTER FOUR

DISCUSSION

Summary of Main Findings

The present study was the first to simultaneously examine the four potential mechanisms identified in the literature shown to mediate the relationship between trait mindfulness and psychological distress. Trait mindfulness accounted for 22% of the variance in psychological distress, and the four mechanisms accounted for 21% of the variance in psychological distress, mainly due to the effect of psychological inflexibility. Results revealed that individually, cognitive reappraisal of emotion regulation, experiential avoidance, and psychological inflexibility mediated the relationship between trait mindfulness and psychological distress. However, when the relationship was simultaneously tested with the four mechanisms, only psychological inflexibility significantly mediated the relationship between trait mindfulness and psychological distress. Specifically, the multiple mediation model suggested that an increase in trait mindfulness reduces psychological inflexibility; a decrease in psychological inflexibility, then, reduces psychological distress. Although mindfulness was a strong predictor of psychological distress, this relationship may be to a great extent due to the mechanism of psychological inflexibility.

Trait Mindfulness, Cognitive Reappraisal, of Negative Emotional Experience and Psychological Distress

Results revealed that, when examined individually in a mediational model, cognitive reappraisal (emotion regulation) serves as a potential mechanism accounting for the relationship between trait mindfulness and psychological distress. Although mindfulness does not directly promote cognitive reappraisal of negative thoughts and emotions, the practice of perceiving thoughts and feelings with a nonjudgmental/accepting stance may facilitate the process of positively reframing negative emotional experiences (cognitive reappraisal). Subsequently, an ability to positively reframe negative emotion-eliciting experiences mitigates the impact of the experience which reduces psychological distress.

Results of the simple mediation analysis should be interpreted with caution as the multiple mediation analysis failed to support cognitive reappraisal as a mediator when entered with other potential mediators suggesting that the constructs share some core features (e.g., awareness and acceptance of negative experience).

Trait Mindfulness, Experiential Avoidance, and Psychological Distress

When examined individually, experiential avoidance significantly mediated the association between trait mindfulness and psychological distress. Acting with awareness is a crucial ingredient of mindfulness which may facilitate the reduction of repression/denial (lack of awareness about distress)

and distress aversion (avoidance responses toward distress; Gamez et al., 2011). In addition, non-reacting to unwelcoming experiences, another mindfulness skill, helps to increase distress endurance (engaging in effective behaviors in the face of distress) and emotional regulation (attempting to modify or soothe distress). Results indicated that acceptance of and openness to unpleasant experiences, which are the central components of mindfulness and the opposite qualities of experiential avoidance, are both related to reduced psychological distress. Thus, mindfulness skill may serve as a precursor for the improvement/reduction in experiential avoidance and the subsequent reduction in psychological distress. Despite the mediational role of experiential avoidance in the simple mediation analysis, it was not a significant mediator in the multiple mediation analysis when entered with other proposed mediators suggesting that the constructs are inversely related and share some core features (e.g., the similarity between the AAQ and the MEAQ, awareness vs. non-awareness; acceptance vs. non-acceptance of experience).

For instance, the psychological inflexibility measurement (AAQ-II; Bond et al., 2011) consists of only two aspects of experiential avoidance, i.e., non-acceptance of distress (e.g., I worry about not being able to control my worries and feelings) and interference with values (e.g., My painful memories prevent me from having a fulfilling life) (Gamez et al., 2011). Although the AAQ-II (psychological inflexibility) is not as comprehensive a measurement of experiential avoidance as the MEAQ, the AAQ-II includes

commitment/persistence towards one's values in life and this (psychological inflexibility) seems to be the main mechanism responsible for the trait mindfulness – psychological distress relationship and is consistent with prior research (Ruiz, 2014). This persistence in the pursuit of one's values/goals despite the adversities of life is unique to psychological inflexibility and not routinely assessed in measures of experiential avoidance.

Trait Mindfulness, Cognitive Flexibility, and Psychological Distress

Although cognitive flexibility was correlated with both trait mindfulness and psychological distress, cognitive flexibility, when examined as an individual mediator, did not mediate the relationship between trait mindfulness and psychological distress. One possible explanation could be found in the function of cognitive flexibility as measured by the CFI (Dennis & Vander Wal, 2010), which is to examine problems and generate alternative adaptive realistic thoughts in the context of problem-solving (Dennis et al., 2010). It is possible that trait mindfulness does not directly affect problem-solving which requires use of judgement in considering different alternative solutions to problems.

When examined as a mediator both Individually and simultaneously with other potential mediators, psychological inflexibility mediated the association between trait mindfulness and psychological distress. This finding was consistent with prior research indicating that trait mindfulness and psychological inflexibility are not only negatively correlated (Baer et al., 2004) but also the relationship between trait mindfulness on reducing psychological distress was mediated by a decrease in psychological inflexibility (Ruiz, 2014). Acting with awareness and accepting without judgment are paradoxical to psychological inflexibility. Therefore, an increase in mindfulness is predictive of a decrease of psychological inflexibility. From the ACT point-of-view, psychological inflexibility consists of maladaptive avoidance of experience that interferes with one's life values/goals and is associated with psychopathology, whereas psychological flexibility consists of acceptance/openness of experience and commitment to one's life/goals and is related to healthy functioning.

Psychological inflexibility is an attempt to avoid the form, frequency, and situational sensitivity of unwanted private events, i.e., thoughts, feelings, and physiological sensations. A significant amount of time and energy is spent avoiding those events rather than engaging in valued behaviors (Bond et al., 2011). When attempts are made to avoid experiencing unwanted internal

events, fusion with those thoughts and feelings occur; thus, psychological distress is intensified (Wenzlaff & Wegner, 2000). Consequently, experiential avoidance is associated with lack of connection with the present moment and concern for value-based actions.

In contrast, psychological flexibility is the willingness to experience stressful private events to achieve values and goals of life (Bond et al., 2011). Psychological flexibility allows an individual to accept experience and remain open to pursuing one's values/goals despite the adversities of life (e.g., to approach in the face of fear). Mindfulness enables the person to become fully aware of the present thoughts and feelings without clinging to pleasant ones or avoiding unpleasant ones. Moreover, mindfulness also enhances one's attentiveness to the ongoing stream of internal (mental) and external (physical) stimuli (Baer, 2003).

Results revealed that mindfulness interventions may be effective through the facilitation of psychological flexibility. The relationship between trait mindfulness and psychological flexibility confirms that trait mindfulness does not reduce psychological distress per se; however, it is an openness to and acceptance of adversities of life that enables a person to live a valued life (i.e., psychological flexibility), which attenuates psychological distress.

Connecting Current Findings to the Literature

From the ACT perspective, psychological inflexibility involves the

avoidance of unwanted feelings, thoughts, and emotions and is at the heart of psychological dysfunction (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Individuals, when in the face of adversities of life, become highly preoccupied seeking explanations for those negative experiences rather than living more efficiently (Hayes et al., 2006). People lose contact between what is happening in the present moment (i.e., mindfulness) and what they value in life (e.g., meaningful connection with significant others, the pursuit of satisfying work, leisure or educational opportunities) because they are preoccupied in resolving/avoiding psychological pain (i.e., distress).

Similar to Silberstein et al. (2012) and Ruiz (2014) findings, our results revealed that psychological inflexibility was a mechanism through which trait mindfulness reduced psychological distress. Perhaps, improvement of five facets of mindfulness, i.e., describing, (e.g., I'm good at finding words to describe my feelings), non-judging (e.g., I criticize myself for having irrational or inappropriate emotions – R[1]), acting with awareness, (e.g., I rush through activities without being really attentive to them – R), and non-reacting, (e.g., In difficult situations, I can pause without immediately reacting.), enables one to be more psychologically flexible in the face of negative experiences and persist in pursuing what is important in life (Baer et al., 2006). Furthermore, improvement in trait mindfulness is predictive of an individual's ability to attend

[1] Reversed score

to present experience with openness and acceptance (i.e., psychological flexibility) and to be more flexible and to persist in behaviors that have valued ends (Hayes et al., 2006).

The current mediational model is consistent with prior research to explain that an increase in trait mindfulness helps a person to be aware of the present moment and make behavioral choices. Thus, psychological flexibility facilitates to choose or change behaviors towards living an effective life, disregarding adversities which ultimately reduces psychological distress.

A key ingredient of mindfulness is to "*be aware of*" one's feelings and thoughts, rather than regulating them in order to change their directions or contents. Schirda et al., (2015) found emotion regulation partially mediated in the relationship between trait mindfulness and quality of life and Desrosiers et al., (2013) established partial mediational roles of rumination and emotion regulation in the relationship between trait mindfulness and depression. However, in the current study, emotion regulation (i.e., cognitive reappraisal and suppression) did not mediate in our multiple mediation analysis; this may be due to a significant amount of shared variance between psychological inflexibility and emotion regulation.

Baer et al., (2004) found a significant role of experiential avoidance in the relationship between trait mindfulness and psychological outcomes. Once again, avoiding distressful experiences (experiential avoidance) and not accepting unpleasant internal experiences (psychological inflexibility) share

some variance in the equation. In our analysis, experiential avoidance did not mediate in the relationship between trait mindfulness and psychological distress.

Clinical Implications

Results strongly supported the ACT model of psychopathology and intervention. Characteristics of psychological inflexibility (i.e., cognitive fusion; experiential avoidance; the dominance of the conceptualized past and future and future limited self-knowledge; attachment to conceptualized self; lack of values; and unworkable actions) are the core issues in the development of psychopathologies, such as anxiety, depression, and other pathological behaviors. Fusion with thoughts and feelings influences one's ability to be aware of thoughts/feelings and to choose adaptive behaviors. Subsequently, lack of openness, awareness, and values in life increases experiential avoidance. Thus, excessive experiential avoidance paves the way for psychological disorders such as generalized anxiety disorder, depression, and substance abuse (Harris, 2013).

Psychological inflexibility is a core mechanism in ACT that helps to conceptualize psychological disorders. For instance, the core problem in depression is perceived as a secondary emotion that arises as reactions to primary distressing life events (Folke et al., 2012). A psychologically inflexible/rigid individual hastens to entangle or fuse with the content of negative thoughts and feelings. Fusion hijacks the mind from the present

moment and preoccupies the mind to resolve the problems that occurred in the past. Also, the inflexible individual is highly likely to engage in experiential avoidance in order to avoid negative, unpleasant experiences such as anxiety, sadness, fatigue, anger, guilt, loneliness, and lethargy (Harris, 2009). The individual, motivated by experiential avoidance, chooses unworkable behaviors like using drugs and alcohol, withdrawing socially, being physically inactive, giving up previously enjoyable behaviors, sleeping and eating too much, attempting suicide, and procrastinating meaningful events of life (Harris, 2009). In contrast, an increase in psychological flexibility through mindfulness skills could be beneficial to the reduction of experiential avoidance and cognitive fusion.

The three characteristics of psychological flexibility, i.e., awareness, openness and acceptance, and valued actions, are developed through mindfulness skills which in turn reduces depressive symptoms. Mindfulness skills, such as acting with awareness and non-judging, enhance psychological flexibility which increases cognitive defusion from and openness to experiences. Cognitive defusion and acceptance give some room to the mind to identify values in life. Moreover, psychological flexibility activates adaptive and meaningful behaviors. Thus, improvement of psychological flexibility through mindfulness skills may play a crucial role in reducing psychological distress instigated by negative life events. Psychological inflexibility can be applicable to many other psychological conditions, such as generalized anxiety

disorders, (Hayes-Skelton et al., 2013) dysfunctional child anxiety (Simon & Verboon, 2016), obsessive compulsive disorders, (Delin et al., 2013), eating disorders, (Parling et al., 2016), and substance abuse (Lanza et al., 2013) which can be treated with mindfulness as a part of broad treatment packages (i.e., Mindfulness Based Stress Reduction (MBSR; Kabat-Zinn, 1970); Mindfulness Based Cognitive Therapy; (Segal et al., 2002), Dialectical Behavior Therapy (DBT; Linehan, 1993), Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999).

Limitations

The current study had a few limitations which place limits on deriving strong conclusions based on results. The study was correlational and limited by the cross-sectional survey design, which limits the ability to draw causal inferences and infer directionality between variables. In addition to the four proposed mechanisms, there are more mechanisms, not tested in the current model, by which mindfulness may influence psychological outcomes. A few examples include coping self-efficacy (Luberto et al., (2015); self-control (Luberto, et al., 2011); decentering, values clarification, self-regulation, exposure (Brown et al., 2014); rumination, worry, (Desrosiers et al., 2013), nonattachment (Bhambhani et al., 2016); cognitive fusion (Nitzan-Assayag et al., 2015); emotion dysregulation, thought suppression, and distress tolerance (Lisle et al., 2014). The outcome variable was limited to psychological distress. The model could have used to explain the mechanisms of trait mindfulness for

specific psychological outcomes, e.g., anxiety, depression, stress etc., physical health outcomes and quality of life.

There were some other limitations of the study related the definition of mindfulness, measurement of mindfulness, multicollinearity of variables, and sampling. There is an ongoing argument for a substantiated operational definition of mindfulness (Shapiro et al., 2006). Although in the simplest sense, mindfulness can be understood as a skill of being aware of whatever occurs in the mind and body, there is a paucity of definitive, validated measurements that could capture the accurate picture of a person's level of mindfulness. According to Shapiro et al., (2006), measurements of trait mindfulness are difficult to justify because the scales like the FFMQ (Baer et al., 2004) assesses trait mindfulness as a multidimensional construct. In contrast, they presented three axioms or components of mindfulness, i.e., intention, attention, and attitude (Shapiro et al., 2006).

There was another limitation relating to the selection of tools to assess mechanisms of mindfulness. For instance, the MEAQ and AAQ-II measurements are used as measures of experiential avoidance in the literature (e.g., Riley, 2014). The proposed mechanisms are correlated in the study and may have problems with issues of multicollinearity. For example, cognitive reappraisal, experiential avoidance, and psychological inflexibility have similar definitions and subtle differences. In addition, the AAQ-II measurement has been criticized by researchers because the items of the

scale are highly related to items designed to measure distress which influences outcomes (Wolgast, 2014). The data was collected from the convenient sample of college students who have unknown meditative experience. Further study is required that could include a diverse sample which will allow a broader interpretation and generalization.

Given the prominent indirect effect of psychological inflexibility in the model, the AAQ-II measurement consisted of items that assessed commitment to valued life, which may be the most critical mechanism in the association between trait mindfulness and psychological distress and was not comprehensively assessed in the current study.

Future studies should address whether psychological flexibility or/and commitment to values of life mediates the relationship between trait mindfulness and psychological distress.

In summary, results partially supported the study hypothesis, i.e., the relationship between trait mindfulness and psychological distress was indirect; psychological inflexibility was the only proposed mechanism that fully mediated the relationship. Results of mediational analyses indicated that trait mindfulness and the openness to positive, negative, and neutral experiences is associated with psychological flexibility and the required behavioral changes to achieve life values and goals (Hayes et al., 2006) which are associated with reduced psychological distress.

In conclusion, we found that trait mindfulness is accountable for the

improvement of psychological flexibility which attenuates psychological distress. This is not to suggest that psychological flexibility should be the intervention tool per se; it is sheer a mechanism of mindfulness and perhaps other interventions. The intervention is mindfulness which contributes to the enhancement of psychological flexibility. Moreover, identifying that psychological flexibility as a mechanism of mindfulness gives a clear direction to mindfulness based interventions (i.e., ACT, MBCT, and DBT).

APPENDIX A:

STUDY MEASURES

I. DEMOGRAPHICS

Please answer each question to the best of your knowledge.

1. Age: _____

2. Gender: M ___ F ___

3. Ethnicity:

Asian (Asian American) ____

African American (Black) ____

Caucasian (White)____

Native American ____

Latino (Hispanic) _____

Please specify Hispanic origin_____ (e.g., Mexican,

Puerto Rican, Columbian etc.)

Bi-cultural ____ (please specify multiple ethnic origins)

_____

Other ____ (please specify) _____

4. Primary caretaker

Mother_____

Father_____

Mother and Father_____

5. Primary Language(s) spoken by parents or primary caretakers

_____

6. Student Yearly Income: $0 - $14,999 _____ $15,000-$29,999 _____

$30,000-$44,999 _____ $45,000-$59,999 _____

$60,000-$74,999 _____ $75,000-$89,999 _____

$90,000-$99,999 _____ Over $100,000 _____

7. Highest education level completed by parent or caretaker (Check one):

Grade school ____

Middle school ____

Some High school ____

High school diploma or GED____

Some College ____

College Degree ____

Post-Graduate ____

II. Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006)

1. When I'm walking, I deliberately notice the sensations of my body moving.
2. I'm good at finding words to describe my feelings.
3. I criticize myself for having irrational or inappropriate emotions.
4. I perceive my feelings and emotions without having to react to them.
5. When I do things, my mind wanders off and I'm easily distracted.
6. When I take a shower or bath, I stay alert to the sensations of water on my body.
7. I can easily put my beliefs, opinions, and expectations into words.
8. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.
9. I watch my feelings without getting lost in them.
10. I tell myself I shouldn't be feeling the way I'm feeling.
11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.
12. It's hard for me to find the words to describe what I'm thinking.
13. I am easily distracted.
14. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.
15. I pay attention to sensations, such as the wind in my hair or sun on my face.

16. I have trouble thinking of the right words to express how I feel about things
17. I make judgments about whether my thoughts are good or bad.
18. I find it difficult to stay focused on what's happening in the present.
19. When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.
20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.
21. In difficult situations, I can pause without immediately reacting.
22. When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.
23. It seems I am "running on automatic" without much awareness of what I'm doing.
24. When I have distressing thoughts or images, I feel calm soon after.
25. I tell myself that I shouldn't be thinking the way I'm thinking.
26. I notice the smells and aromas of things.
27. Even when I'm feeling terribly upset, I can find a way to put it into words.
28. I rush through activities without being really attentive to them.
29. When I have distressing thoughts or images I am able just to notice them without reacting.
30. I think some of my emotions are bad or inappropriate and I shouldn't feel them.

31. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.
32. My natural tendency is to put my experiences into words.
33. When I have distressing thoughts or images, I just notice them and let them go.
34. I do jobs or tasks automatically without being aware of what I'm doing.
35. When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.
36. I pay attention to how my emotions affect my thoughts and behavior.
37. I can usually describe how I feel at the moment in considerable detail.
38. I find myself doing things without paying attention.
39. I disapprove of myself when I have irrational ideas.

III. Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011)

1. It’s OK if I remember something unpleasant.
2. My painful experiences and memories make it difficult for me to live a life that I would value.
3. I'm afraid of my feelings.
4. I worry about not being able to control my worries and feelings.
5. My painful memories prevent me from having a fulfilling life.
6. I am in control of my life.
7. Emotions cause problems in my life.
8. It seems like most people are handling their lives better than me.
9. Worries get in the way of my success.
10. My thoughts and feelings do not get in the way of how I want to live my life.

IV. Multidimensional Experiential Avoidance Questionnaire (MEAQ; Gamez, Chmielewski, Kotov, Ruggero, & Watson, 2011)

1. I won't do something if I think it will make me uncomfortable
2. If I could magically remove all of my painful memories, I would
3. When something upsetting comes up, I try very hard to stop thinking about it
4. I sometimes have difficulty identifying how I feel
5. I tend to put off unpleasant things that need to get done
6. People should face their fears
7. Happiness means never feeling any pain or disappointment
8. I avoid activities if there is even a small possibility of getting hurt
9. When negative thoughts come up, I try to fill my head with something else
10. At times, people have told me I'm in denial
11. I sometimes procrastinate to avoid facing challenges
12. Even when I feel uncomfortable, I don't give up working toward things I value
13. When I am hurting, I would do anything to feel better
14. I rarely do something if there is a chance that it will upset me
15. I usually try to distract myself when I feel something painful
16. I am able to "turn off" my emotions when I don't want to feel
17. When I have something important to do I find myself doing a lot of

other things instead

18. I am willing to put up with pain and discomfort to get what I want
19. Happiness involves getting rid of negative thoughts
20. I work hard to avoid situations that might bring up unpleasant thoughts and feelings in me
21. I don't realize I'm anxious until other people tell me
22. When upsetting memories come up, I try to focus on other things
23. I am in touch with my emotions
24. I am willing to suffer for the things that matter to me
25. One of my big goals is to be free from painful emotions
26. I prefer to stick to what I am comfortable with, rather than try new activities
27. I work hard to keep out upsetting feelings
28. People have said that I don't own up to my problems
29. Fear or anxiety won't stop me from doing something important
30. I try to deal with problems right away
31. I'd do anything to feel less stressed
32. If I have any doubts about doing something, I just won't do it
33. When unpleasant memories come to me, I try to put them out of my mind
34. In this day and age people should not have to suffer
35. Others have told me that I suppress my feelings

36. I try to put off unpleasant tasks for as long as possible
37. When I am hurting, I still do what needs to be done
38. My life would be great if I never felt anxious
39. If I am starting to feel trapped, I leave the situation immediately
40. When a negative thought comes up, I immediately try to think of something else
41. It's hard for me to know what I'm feeling
42. I won't do something until I absolutely have to
43. I don't let pain and discomfort stop me from getting what I want
44. I would give up a lot not to feel bad
45. I go out of my way to avoid uncomfortable situations
46. I can numb my feelings when they are too intense
47. Why do today what you can put off until tomorrow
48. I am willing to put up with sadness to get what I want
49. Some people have told me that I "hide my head in the sand"
50. Pain always leads to suffering
51. If I am in a slightly uncomfortable situation, I try to leave right away
52. It takes me awhile to realize when I'm feeling bad
53. I continue working toward my goals even if I have doubts
54. I wish I could get rid of all of my negative emotions
55. I avoid situations if there is a chance that I'll feel nervous
56. I feel disconnected from my emotions

57. I don’t let gloomy thoughts stop me from doing what I want
58. The key to a good life is never feeling any pain
59. I’m quick to leave any situation that makes me feel uneasy
60. People have told me that I’m not aware of my problems
61. I hope to live without any sadness and disappointment
62. When working on something important, I won’t quit even if things get difficult

V. Emotion Regulation Questionnaire (ERQ; Gross & John. 2003)

1. I control my emotions by changing the way I think about the situation I'm in.
2. When I want to feel less negative emotion, I change the way I'm thinking about the situation.
3. When I want to feel more positive emotion, I change the way I'm thinking about the situation.
4. When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about.
5. When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about.
6. When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm.
7. I control my emotions by not expressing them.
8. When I am feeling negative emotions, I make sure not to express them.
9. I keep my emotions to myself.
10. When I am feeling positive emotions, I am careful not to express them.

VI. Cognitive Flexibility Inventory (CFI; Dennis & Vander Wal, 2010)

1. I am good at ‘‘sizing up’’ situations.
2. I have a hard time making decisions when faced with difficult situations.
3. I consider multiple options before making a decision.
4. When I encounter difficult situations, I feel like I am losing control.
5. I like to look at difficult situations from many different angles.
6. I seek additional information not immediately available before attributing causes to behavior.
7. When encountering difficult situations, I become so stressed that I cannot think of a way to resolve the situation.
8. I try to think about things from another person’s point of view.
9. I find it troublesome that there are so many different ways to deal with difficult situations.
10. I am good at putting myself in others’ shoes.
11. When I encounter difficult situations, I just don’t know what to do.
12. It is important to look at difficult situations from many angles.
13. When in difficult situations, I consider multiple options before deciding how to behave.
14. I often look at a situation from different view- points.
15. I am capable of overcoming the difficulties in life that I face.

16. I consider all the available facts and information when attributing causes to behavior.
17. I feel I have no power to change things in difficult situations.
18. When I encounter difficult situations, I stop and try to think of several ways to resolve it.
19. I can think of more than one way to resolve a difficult situation I'm confronted with.
20. I consider multiple options before responding to difficult situations.

VII. Brief Symptom Inventory- 18 (BSI-18; Derogatis, 2000)

The scale is available to purchase via following source.

http://www.pearsonclinical.com/psychology/products/100000450/brief-symptom-inventory-bsi.html#tab-pricing

APPENDIX B:

TABLE 1

Table 1

Correlations, Alpha Levels, Summary and Descriptive Statistics of Study Variables (N = 392)

Variables	Mean (SD)	Scale alpha	Correlations					
			1	2	3	4	5	6
1. Psychological Distress	31.66 (11.63)	.91						
2. Trait Mindfulness	126.73 (17.33)	.88	-.47**					
Potential Mechanisms								
3. Experiential Avoidance	49.08 (11.69)	.89	-.38**	-.54**				
4. Cognitive Flexibility (Alternatives)	70.63 (11.23)	.91	-.20**	.47**	-.24**			
5. Emotion Regulation (Cognitive Reappraisal)	31.08 (6.61)	.85	-.24**	.29**	.03	.35**		
6. Emotion Regulation (Emotion Suppression)	14.76 (5.31)	.76	.25**	-.38**	.35**	-.16*	-.09*	
7. Psychological Inflexibility	193.90 (33.31)	.88	-.65**	.66**	-.58**	.30**	.26**	-.37**

**p <.01., *p<.05.

APPENDIX C:

THE MEDIATIONAL MODEL

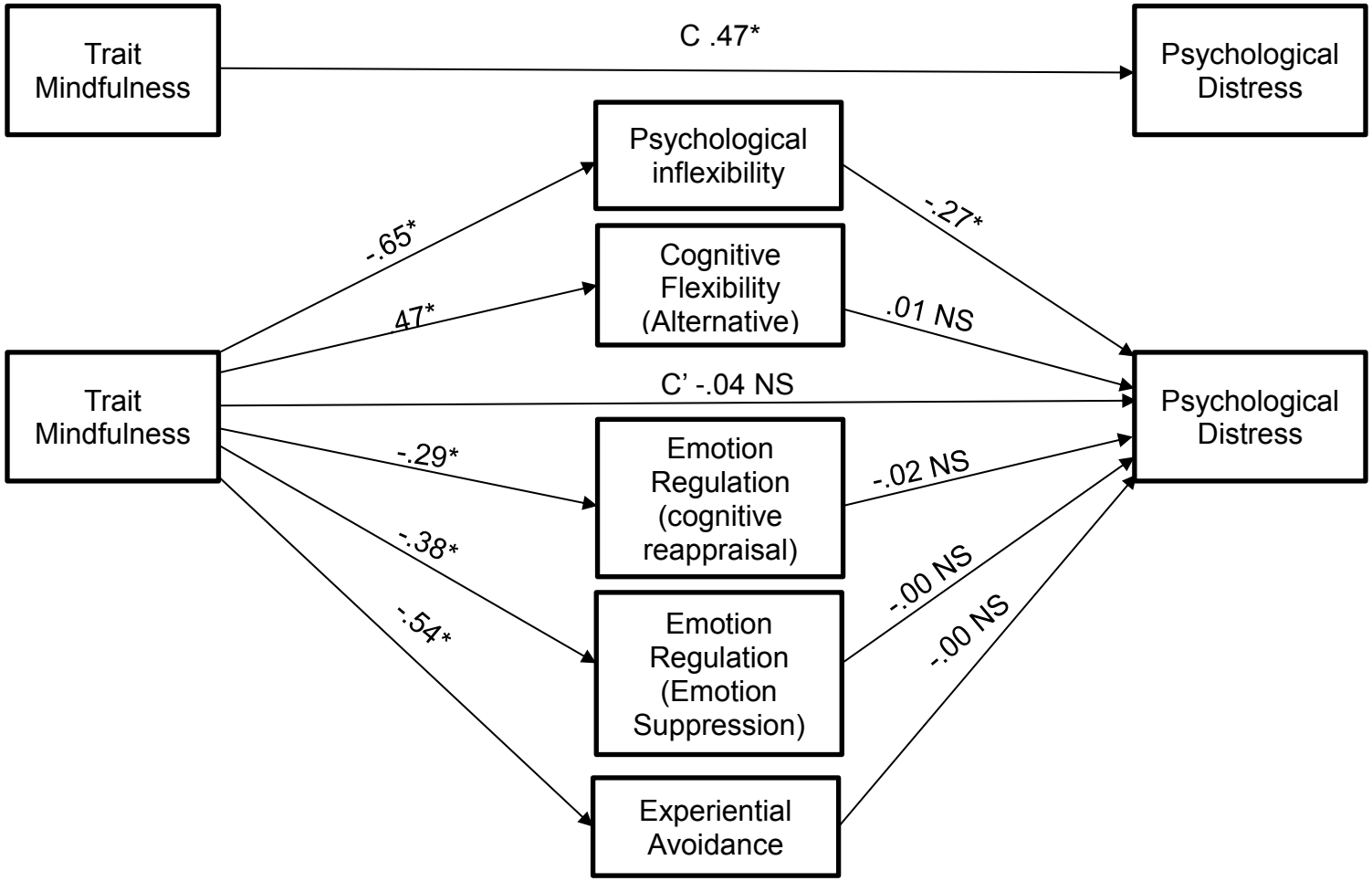

Figure 1. The mediational Model

Note: NS = Not significant

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