

Measuring Mindfulness-Related Constructs and the Role of Meditation in the Association  
Between Mindfulness-Related Constructs and Mental Health Among U.S. Adults

By

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## ABSTRACT

Mindfulness is a concept derived from the Buddhist discourses of the *Satipaṭṭhāna*. Interventions that draw on mindfulness have been shown to reduce psychologically distressing symptoms in clinical settings. It has become widely used as a therapeutic technique in counseling, so it is important to develop an instrument measuring mindfulness-related constructs. This study presents a new instrument measuring the importance of mindfulness-related constructs. Results from an exploratory factor analysis revealed a clear two-factor structure, with the factors named “Present Moment Awareness”, and “Compassion and Ethical Behavior.” These items were positively correlated with each other and, as expected, negatively correlated with depression. Finally, hours of meditation moderated this association such that the association was stronger among participants who reported higher levels of meditation practice.

*Keywords:* mindfulness, meditation, measure, mental health, depressive symptom

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# **MEASURING MINDFULNESS-RELATED CONSTRUCTS AND THE ROLE OF MEDITATION IN THE ASSOCIATION BETWEEN MINDFULNESS-RELATED CONSTRUCTS AND MENTAL HEALTH AMONG U.S. ADULTS**

The concept of mindfulness has traditionally been associated with Buddhist philosophy. Techniques associated with mindfulness have recently entered the mental health counselor's toolkit for improving mental health, particularly among U.S. counselors and practitioners (Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Kabat-Zinn, 1982; Linehan, 1993; Segal, Williams, & Teasdale, 2002). Kabat-Zinn (1982) opened the door for efficacious therapeutic interventions based on mindfulness concepts in the United States when he introduced the practice of mindfulness meditation in a stress reduction and relaxation program for chronic pain patients. Other mindfulness-based interventions have since been used to decrease relapse in major depressive disorder, cognitive vulnerability, and generalized anxiety disorder (Roemer & Orsillo, 2002; Segal, Williams, & Teasdale, 2002). This is believed to occur because mindfulness allows individuals to reframe their focus to the inherent meaning of an activity, which reduces their propensity to feel anxious about the outcome (Borkovec, 2002). The individual reframes their perception of experience, becoming cognitively and behaviorally more flexible, reducing psychological distress (Chiesa, 2011). Thus, as clinicians, it is important to understand the mechanisms of mindfulness-based interventions and how they specifically relate to symptom reduction.

One of the criticisms of mindfulness in Western culture is the simplification of the construct (Dimidjian & Linehan, 2003), and that mindfulness is not just an understanding of mental states but rather something that requires rigorous training and contemplation

(Grossman, 2008; Van Dam, Earleywine, & Borders, 2010). The original concept connects attention and awareness to the valuing of kindness, compassion, ethical behavior, and an acceptance of impermanence (Grossman, 2008). These concepts are unaccounted for by current self-report questionnaires (Bergomi, Tschacher, & Kupper, 2012). Furthermore, existing measures fail to consider the extent to which individuals value these elements of mindfulness. The purpose of this study is to develop and test the psychometric properties of a new scale that assesses the extent to which individuals *value* mindfulness related constructs, including: (1) present moment awareness, and (2) compassion and ethical behavior. The study will then explore the association between these constructs, meditation practice and self-reported symptoms of depression.

In the following sections, I discuss (1) the importance of mindfulness-related constructs to mental health, and (2) how each of the two aforementioned mindfulness-related constructs have been defined, as well as why each are important elements of mindfulness that can, and should be measured. It is important to note the distinction between mindfulness and mindfulness meditation. Mindfulness is a skill, a persistent effort that can be honed through practice, and therefore may be considered a trait (Kabat-Zinn, 2003; Thompson & Waltz, 2007). Mindfulness meditation refers to a technique employed to achieve a state of mindfulness (Anālayo, 2003; Dhiman, 2008; Thompson & Waltz, 2007). In this paper, I discuss the mental health implications of mindfulness meditation and mindfulness, with specific attention to presenting new ways of measuring the latter.



## **The Importance of Mindfulness and Mindfulness Meditation in Mental Health**

Mindfulness-based interventions appear to reduce psychological distress, with several studies linking various interventions to improved mental health (Baer, 2003; Coffey & Hartman, 2008; Grossman, Niemann, Schmidt, & Walach, 2004). Zeidan, Johnson, Gordon, and Goolkasian (2010) found that even brief, 3-day mindfulness meditation interventions can reduce symptoms of depression, fatigue, and confusion. Mindfulness meditation also has benefits in stress reduction, enhanced cognitive control, and emotion regulation (Zeidan et al, 2010). Brain imaging studies have demonstrated that mindfulness may offer cognitive protection from rumination, negative bias, and depression, which was reflected by reduced anterior insula activation during periods of stress, meaning practitioners were not reacting as strongly and automatically to thoughts and emotions (Paul, Stanton, Greeson, Smoski, & Wang, 2012). This can lead to improved emotion regulation for the individual. In addition, two therapeutic approaches: Mindfulness-Based Cognitive Therapy (MBCT) and Mindfulness-Based Stress Reduction (MBSR) have been shown to improve symptoms of psychological distress (Goldin & Gross, 2010; Kabat-Zinn, Massion, Kristeller, Peterson, Fletcher, Pbert, & Santorelli, 1992; Teasdale, Segal, Williams, Ridgeway, Soulsby, & Lau, 2000).

MBCT was developed as a training program to prevent relapses and recurrence in major depression (Segal, Williams, & Teasdale, 2002). The focus is to teach clients to become more aware and detached from their ruminative depressive thought patterns (Segal, Williams, and Teasdale, 2002). The approach combines cognitive therapy with mindfulness training. MBCT was found to prevent relapse in depression for individuals with three or more recurrent episodes by intervening with the reactivation of depressive

thinking patterns (Ma & Teasdale, 2004). Finucane and Mercer (2006) reported qualitative and quantitative evidence to support that MBCT could be used to treat depression and anxiety in clinical patients. Their study further found qualitative evidence that interviewees saw improvements in restless leg syndrome, insomnia, and quitting smoking.

MSBR was developed by John Kabat-Zinn to train chronic pain patients in self-regulation (Kabat-Zinn, 1982). The purpose was to bring a technique to those with chronic illness who have exhausted other treatment methods (Kabat-Zinn, 1982). Kabat-Zinn (1982) used a combination of concentration meditation on the breath, body scanning, hatha yoga postures, and traditional mindfulness meditation in the stress reduction and relaxation program. In addition, didactic material on the psychology of stress was given in the form of psychoeducation in group format (Kabat-Zinn, 1982). Goldin and Gross (2010) found that MSBR might have benefits for individuals with social anxiety disorder by decreasing amygdala activity (an area of the brain that shows responses to stressors) activity, and improving engagement to the present task. The program may increase attentional allocation, which may be beneficial in redirecting attention to thoughts, emotions, and sensations, which in turn may enhance exposure based therapies for these clients (Goldin & Gross, 2010).

Given the beneficial effects of mindfulness training on mental and physiological measures of wellbeing, it is critical that we turn attention to how mindfulness can be measured and understood. In the following section, I discuss two mindfulness related constructs that inform the measurement goals of the present study.

### *Present Moment Awareness*

The goal of mindfulness is to free one from suffering through enlightened awareness (Dimidjian & Linehan, 2003; Rapgay & Bystrisky, 2009). Clinical psychology has primarily focused research on the present moment awareness or immediate experience ( , Lau, Shapiro, Carlson, Anderson, & Carmody, 2004; Kabat-Zinn, 2003; Thompson & Waltz, 2007). Brown and Ryan (2004) describe it as attention to and awareness of our present moment thoughts, feelings, and sensations. It is akin to watching yourself through a screen without the ability to interrupt the flow of action and script. Brown and Ryan (2003) describe awareness as a sort of background, sub-consciousness, with attention to the focusing of awareness. In particular, attention is a focus on the immediately observable, such as the feeling of rain splashing against the skin, while awareness is an understanding of the nature of rain as temporary to the current moment. Bishop et al. (2004) describes attention as the ability to concentrate on a particular object of focus, such as one's breath. The opposite of attention would be divided attention, someone engaged in multiple tasks at the same time (Brown & Ryan, 2003). This person would be distracted from the present moment. Bishop et al. (2004) describes this type of self-observation as reflective as opposed to reflexive.

### *Compassion and Ethical Behavior*

Kraus and Sears (2008) call for new measures to emphasize the positive aspects of loving kindness and compassion, as existing measures of mindfulness do not address these elements. Mindfulness requires the subjective, empathic experiencing of the self and others (Anālayo, 2003). Kabat-Zinn (1990) describes compassion and empathy for the self and others as essential to mindfulness training. Kraus and Sears (2008) describe

this attitude as being open with loving kindness, joy, and compassion toward the self and others. Hoffman, Grossman, and Hinton (2011) describe loving compassion as a foundation for achieving a state of mindfulness, as one would be trapped in rumination without it. Loving compassion involves the directing of unconditional love toward the self, good friends, neutral parties, and enemies (Hoffman, Grossman, & Hinton, 2011; Pace et al. 2008), through meditative practice. The common theme for compassion is love superseding judgment for the self and others. In the path toward freedom from suffering, the right mindfulness also demonstrates an ethical approach and judgment of what is wholesome (Chiesa, 2013; Dhiman, 2008). Inherent to ethical behavior is the concept of doing no harm (Gunaratana, 2002; Thera, 1973). The ethical individual emanates warmth and compassion toward all persons and experiences in the world (Rapgay & Bystrisky, 2009).

### **The Role of Meditation Practice, Mindfulness and Links to Mental Health**

Meditation practice is used to enhance the quality of mindfulness (Hayes & Wilson, 2003). The practice advances the basic practice of *Samtha Meditation* (concentration or calm meditation), which is the focus of attention on a single object such as the breath, a word, or a flickering candle, by allowing the mind to wander in an unrestricted manner (Bishop et al., 2004; Chiesa, 2013; Dhiman 2008). Returning to the object of attention allows one to come back to the present moment if the meditator notices the mind wandering too far (Bishop et al., 2004). The mind moves from concentration, to meditation, and culminates in absorption, in distinct stages (Awasthi, 2013). Meditation practice has been extensively researched over the past decade and has

demonstrated improvements in cognitive and psychological functioning (Sedlmeier, Ebert, Schwarz, Zimmermann, Haarig, Jaeger, & Kunze, 2012).

Meditation practice has been shown to improve various neurological functioning, such as enhancing activation and structural plasticity of fronto-parietal and fronto-limbic networks, which has long term benefits of improved emotional stability, resilience from stressful events, and improved attention skills (Rubia, 2009). It has been shown to change the physical structure of the brain, increasing cortical thickness and preventing frontal cortex thinning, which can improve sensory, emotional, and cognitive processing (Lazar, Kerr, Wasserman, Gray, Greve, Treadway, McGarvey, Quinn, Dusek, Benson, Rauch, Moor, & Fischl, 2005). Meditation has been shown to reduce concentrates of cortisol secretion supporting the efficacy of medication as a stress reduction technique (Mohan, Sharma, & Bijlani, 2011). It appears that meditation practice can have drastic, long-term benefits to the physical structure of the brain.

Meditation practice demonstrated significant increases in brain integration scores, an indicator that meditation can decrease anxiety, improve emotional stability, and enhance reasoning skills (Travis, Haaga, Hagelin, Tanner, Nidich, King, Grosswald, Rainforth, & Schneider, 2009). Travis et al. (2009) also found reductions in sleepiness and habituation rates in college students after practicing this mantra meditation twice per day for 15 to 20 minute intervals for a ten-week trial. Dakar and Levin (2009) have extended meditation practice to alleviate cravings and compulsions in substance abusers. They argue meditation practice can reduce emotional reactivity and improve executive functioning, which can help individuals make healthier choices. Thus, meditation is an

important practice associated with mindfulness that may help promote mental and physical wellbeing.

### **The Present Study**

The current study aims to alleviate some of the concerns presented by the critics of current mindfulness measurement instruments by incorporating some of the more abstract concepts not currently measured; namely, 1) Present Moment Awareness and 2) Compassion and Ethical Behavior. The goal of the study is to develop and test the psychometric properties of this new scale that assesses individuals' valuing of these mindfulness-related constructs. The instrument is intended to allow researchers to measure the extent to which value systems are changed after training in mindfulness based interventions, mindfulness retreats, and formal mindfulness meditation practice. Finally, it may also give an understanding of the relation between values of mindfulness-related constructs and certain pathological symptoms, and how changes in values alter such symptoms. Understanding values of mindfulness may also allow clinicians to determine an individual's readiness for change and commitment to therapy.

The second goal of the study is to provide information between the associations of valuing of mindfulness-related constructs and mental health. It is hypothesized that 1) There will be a positive association between valuing of mindfulness-related constructs and mental health as research has shown mindfulness to promote mental health (Hoffman, Sawyer, Witt, & Oh, 2010). In addition, the study explores whether meditation practice (i.e., measured as hours of meditation practice per week) serves a moderating role in the association between valuing of mindfulness-related constructs and mental health. It is hypothesized that 2) the association between valuing of mindfulness-related

constructs and mental health will be stronger among individuals who engage in more meditation, thus linking the cognitive valuing of mindfulness with the behavioral practice of meditation in promoting wellbeing. These patterns are hypothesized as research has shown that increased meditation time may improve mindfulness skills and reduce ruminative thinking (Ma & Teasdale, 2004) and symptoms of depression (Zeiden et al., 2010).

## **METHOD**

### **Procedure**

The study relied on a web-based survey. Participants had to be eighteen years of age or older to participate and were invited to participate via the personal networks of the study's authors and through email distribution lists, student groups' contact lists and social media network. Participants completing the survey were eligible to participate in a raffle for online gift cards from an online retailer including one \$50.00 gift card, two \$25.00 gift cards, and five \$5.00 gift cards. The study was approved by the university's Institutional Review Board. Informed consent indicating that participation was voluntary and confidential was obtained from all participants.

### **Sample**

The sample was comprised of 349 participants. 24 were removed from the sample because they only provided partial demographic data and did not complete any of the study's measures. Thus, the final analytic sample was composed of 325 participants; 57 males (18.10%) and 258 females (81.90%). The mean age of the sample was approximately 27 years of age. In terms of race/ethnicity, 193 (61.27%) participants identified as White, 52 (16.51%) identified as Latino, 23 (7.30%) as Asian, 21 (6.67%) as

Black, 3 (0.95%) as Native Hawaiian or other Pacific Islander, 3 (0.95%) as American Indian or Alaskan Native 3 (0.95%), and 20 (6.35%) with varying biracial self-identifications. Given the small sample size across racial/ethnic categories, for analytic purposes, we collapsed the race/ethnicity variable into a dummy coded variable of 1 = ethnic minority, 0 = Whites. In terms of levels of education, 7 (2.22%) participants reported being high school graduates, 89 (28.25%) having some college, 44 (13.97%) having an associates or technical degree, 23 (7.30%) having a bachelor's degree, 27 (8.57%) having some post-graduate work, and 125 (39.68%) having a graduate or professional degree.

### **Scale Development**

The Values of Mindfulness Related Views Scale item pool consisted of 60 items based on constructs related to traditional and clinical aspects of mindfulness. Items were created such that they captured two constructs that were identified as related to mindfulness from a thorough review of the literature, these included: 1) Present Moment Awareness and Observation and 2) Compassion and Ethical Behavior. Items were later reviewed by experts who considered face validity and the wording of each item.

**Present Moment Awareness (PMA).** This subscale refers to an individual's valuing of present moment awareness, which refers to paying attention to one's immediate experiences in terms of thoughts, emotions, and body sensations. Some of the sensations measured in this construct include sounds, tastes, and temperature. The individual also values attention to present tasks, giving their undivided attention to the immediate experience. The value of observing the self includes recognition of changes in



emotions, thoughts, and body sensations, and finding it important to recognize how they interrelate.

**Compassion and Ethical Behavior (CEB).** This subscale taps into an individual's valuing of compassion, kindness toward the self and others. The person values empathy, acceptance, and generosity. Furthermore, an individual valuing ethical behavior will find it important to do deeds of positive merit and live with high moral standards. This individual finds it important to behave ethically in all situations, such as refraining from violence or participating in gossiping.

**Items.** Each created item was rated on a 7-point Likert scale ranging from (1) *Strongly Disagree* to (7) *Strongly Agree*. Items are written in a simplistic manner; previous experience in mindfulness training was not required to understand the question. Each item is prefaced with the statement "It is important for me to..." and then the individual indicates level of agreement with each item. Example of items in the Present Moment Awareness subscale includes: "It is important for me to pay attention to different sounds in my surroundings" and "It is important for me to recognize how certain thoughts affect my mood." Example of items related to the Compassion and Ethical Behavior subscale includes: "It is important for me to be kind to those around me" and "It is important for me to refrain from violence."

### **Additional Measures**

**Depressive Symptoms.** The short form for the Center for Epidemiologic Studies Depression Scale (CES-D-SF) was used to assess depressive symptoms. The CES-D-SF is a 7-item test using a 4-point Likert scale (Levine, 2013). The survey prompt is "Below is a list of the ways you might have felt or behaved. Please tell me how often you have

felt this way during the past week.” Example items include “I felt depressed” and “I could not get going.” A higher score on this scale indicates higher levels of depressive symptoms (Levine, 2013). The scale in this study was found to have an internal consistency reliability of 0.79. It is expected that individuals scoring higher on mindfulness related construct valuation will score lower on the depressive symptoms scale.

**Demographic Variables.** One of the goals of the present study is to explore how mindfulness subscales and mindfulness practice predicted depressive symptomatology using multiple linear regression techniques. Given that depression has been shown to vary according to sex—that is women are more likely than men to report higher levels of depressive symptoms (Bebbington, 1996; Maier, Gänssicke, Gater, Rezaki, Tiemens, & Urzúa, 1999), we included sex as a control variable in the regression analyses. In addition, given depression has also been shown to vary among racial/ethnic groups, we included controls for being of minority status in each of the regression analyses (González, Tarraf, Whitfield, Vega, 2010; Williams, González, Neighbors, Nesse, Abelson, Sweetman, & Jackson, 2007). Given that young adults are more likely than older adults to report depression and anxiety (Center for Behavioral Health Statistics and Quality, 2014), we included a control for age to account for the contribution of any age differences in predicting depression. Given that having low levels of education and being of low socio-economic status can add stressors to individual’s lives, we also included controls for levels of education and levels of socio-economic status. We assessed socio-economic status using the MacArthur Subjective Social Status Scale, which measures subjective social status on a scale from 1 (lower class) to 10 (upper class). Given that we

expected to sample at least some students, we felt that a measure of subjective socio-economic status was a better measure of income than income itself. The measure of social affluence showed a normal distribution averaged at 5.34 ( $SD = 1.97$ ). Finally, since we are interested in assessing how meditation interacts with the values of mindfulness scale and the role it plays in the association between our subscales and depression, we assessed meditation practice using a 1-item question that asked how many hours individuals practiced meditation and defined meditation practice as “any form of mental activity in which you are inducing a state of consciousness, such as to relax, developing loving compassion, or energize the mind. Some common forms of meditation include: concentration meditation, yoga, loving compassion meditation, mantra meditation, guru meditation, wisdom meditation, guided meditation, among others.” Response options ranged from 0 (never) to more than 5 hours per week. Participants reported practicing meditation on average about 1-2 hours per week.

## **RESULTS**

### **Exploratory Factor Analysis**

An exploratory factor analysis (EFA) was conducted to explore the factor structure of the 60 items created for the purposes of the present study. There are a relatively high number of indicators for each factor. MacCallum, Widaman, Zhang, and Hong suggest a higher number of items per factor, especially if initial communalities are low or unknown. Items were written using a theory of mindfulness so communalities were expected to be moderate to high, since communality is the variance explained by the factors (Pett & Lackey, 2003). These items were subjected to an EFA with IBM SPSS (Version 22) statistics software with no restrictions to gain an understanding of the factor

structure. Factors were extracted using a combination of theory and an analysis of the scree plot, and the EFA was rerun using principle axis factoring and direct oblimin rotation. Other rotation methods were dismissed due to the high correlation between the factors (Pett & Lackey, 2003). Items not loading significantly on one factor (factor loading less than 0.40) or having equivocal loadings (two factor loadings greater than 0.30) were removed. Results from this EFA demonstrated a clear two-factor solution. Table 1 shows the factor structure for the two-factor test. The eigenvalues were 8.27 and 3.21, respectively, accounting for 41.03% of the variance in the solution. The total number of items was reduced from 60 to 28 items based on the criteria of removing items that did not significantly load on any one factor or that demonstrated equivocal loading patterns. The means, standard deviations, internal consistency, and percentage of variance accounted for of each item or subscale can also be found in Table 1. As expected factors tapped into the aforementioned constructs and were named as such: Factor 1 was named “Present Moment Awareness”, and Factor 2 “Compassion and Ethical Behavior.” The internal consistency, Cronbach’s alpha, of each of these subscales were strong, with Factor 1  $\alpha = .88$ , and Factor 2  $\alpha = .86$ .

Factor 1, “Present Moment Awareness,” has 8 statements beginning with the term “recognize” and 3 that begin with “pay attention”, and 1 that starts with “notice”. These statements are directly related to attention and observation of the present moment. Factor 2, “Compassion and Ethical Behavior,” measures the extent to which individual’s place value in showing empathy towards others. Participants generally endorsed items from the Present Moment Awareness ( $M=5.70$ ,  $SD = 0.66$ ; range of endorsement across items =

56.31% to 96.31% and the Ethical Behavior and Compassion (M=6.11, SD = 0.59; range of endorsement across items = 81.23 % to 96.31%) scales.

**Missing Data.** There was some missing data that appeared to be missing at random (MAR; Schafer, 1999), and we addressed missingness by using multiple imputation procedures. This method reduces error by averaging data from many imputations. We created a pooled dataset based on 20 datasets with imputed values arrived at from 200 iterations.

### **Correlations**

As expected the two subscales correlated significantly with each other (see Table 2) in the expected direction. The Present Moment Awareness scale was positively correlated with age and meditation hours per week. In other words, older individuals tended to report higher levels of present moment awareness and greater amount of hours per week spent on meditation. This subscale was also negatively correlated with depression, such that individuals who reported higher levels of present moment awareness, reported fewer symptoms of depression. The Ethical Behavior and Compassion subscale had a positive correlation with sex and meditation hours per week. Individuals who reported higher levels of ethical behavior and compassion towards others tended to identify as female and report meditating for more hours per week. In addition, the ethical behavior and compassion scale was negatively correlated with depression such that individuals who endorsed higher levels of ethical behavior and compassion towards others tended to report lower levels of depression.

## **Regression Analysis**

Hierarchical linear regression analyses revealed that when accounting for sex of participant, minority status, age, levels of education and socio-economic status, there was a negative association between meditation hours per week and depression (Tables 3 and 4). Keeping all of the above variables in the model, there was also a significant and negative association between present moment awareness and depression (Table 3) and ethical behavior and compassion and depression (Table 4), providing additional evidence of concurrent validity between the newly proposed scales of mindfulness and depression (with all demographic variables included in the model as well as meditation practice). This finding reveals that individuals reporting higher levels of valuing ethical behavior and compassion as well as present moment awareness, tended to also report fewer symptoms of depression. Additionally, meditation practice moderated the association between ethical behavior and compassion and depression (Figure 1). The simple slopes test revealed that the regression slopes were significantly different from zero at low levels of meditation practice (i.e., 1 SD below mean;  $t(314) = -3.10, p < .01$ ) and at high levels of meditation practice (i.e., 1 SD above mean;  $t(314) = -3.80, p < .001$ ). These results suggest that the association between ethical behavior and compassion and depression was strongest among participants who reported practicing meditation more frequently.

## **DISCUSSION**

The purpose of this study was to develop and test the psychometric properties of a new instrument intended to measure how much an individual values the mindfulness related constructs of present moment awareness and ethical compassion and behavior. The second goal of the study is to provide information regarding the association between

mindfulness and depression and whether this association is moderated by the practice of meditation. The instrument is intended to add to the study of mindfulness a focus on valuation of mindfulness related concepts as opposed to achievement, which is a focus of existing measures of mindfulness (e.g., Grossman, 2011). The results of the study have important implications for counselors as results demonstrate that the valuing of mindfulness-related constructs is correlated positively with mental health. Clinicians may find it useful to educate clients about the benefits of valuing mindfulness as means of improving one's mental health and as a complementary goal to meditation practice.

### **Exploratory Factor Analysis**

The exploratory factor analysis demonstrates a two-factor structure, including present moment awareness and compassion and ethical behavior. From a descriptive standpoint, these two factors were empirically derived and then supported by the EFA. Factor 1, "Present Moment Awareness," has 8 statements beginning with the term "recognize" and 3 that begin with "pay attention", and 1 that starts with "notice". These statements are directly related to attention and observation of the present moment. Factor 2, "Compassion and Ethical Behavior," measures the extent to which individual's place value in showing empathy towards others. Current measurement instruments purporting to measure mindfulness have been designed from various operational definitions. The measure in the present study is unique in that it measures individuals' valuation of these mindfulness-related constructs as opposed to achievement and includes compassion and ethical behavior as one of the related constructs.

## **Correlations**

Results revealed that valuing present moment awareness was negatively correlated with depression, which is consistent with previous research linking mindfulness to mental health (Baer, 2003; Segal, Williams, & Teasdale, 2002). Clinical interventions using mindfulness primarily focus on present moment living to achieve a mindful state and improve mental health, so the findings here are consistent with the idea of cultivating present moment awareness to reduce symptoms of depression. Programs such as Acceptance and Commitment Therapy (Hayes, Luoma, Bond, Masuda, & Lillis, 2006) and Mindfulness-Based Cognitive Therapy (Segal, Williams, & Teasdale, 2002) specifically focus on increasing present moment awareness. However, these programs require multiple sessions of instruction before an individual is able to master the concept. Perhaps merely training in the philosophy of present moment awareness is one route to incite improvements in symptoms of depression. Additionally, the Present Moment Awareness subscale is significantly correlated with age, indicating that older individuals are more likely to value present moment living. Older individuals may have more life experience and find value in paying attention to the details of the present moment compared to younger individuals. Socioemotional selectivity (Carstensen, 1995) may play a role, as younger individuals tend to be more future-oriented, while older individuals tend to focus more on emotion regulation in the present moment.

Females were more likely to endorse items from the Ethical Behavior and Compassion subscale than males. Various researchers have conducted ethical behavior comparisons. Whitley, Nelson, and Jones (1999) found that women have less favorable attitudes toward cheating on academic tests than men. Robinson, Lewicki, Roy, and



Donahue (2000) found that female MBA students are less likely to endorse unethical negotiation tactics than men, such as attacking an opponent's network, making false promises, misrepresentation, and inappropriate information gathering. Various studies support the hypothesis that females value compassionate behavior more than males. Feingold (1994) found in a meta-analysis that females scored higher than males on tender-mindedness as measured by thirteen personality inventories, which is consistent with females valuing compassion more so than males in the present study. These studies demonstrate a philosophical endorsement similar to the scale from the current study. From a physiological standpoint, Mercadillo, Diaz, Pasaye, and Barrios (2011) demonstrated using fMRI test that women show more activation in the cerebellum, thalamus, and putamen when looking at photos that would evoke compassion, such as a war scene. The results indicate that women demonstrate more complex brain response activity to these situations, meaning they are more emotionally-attuned than men (Mercadillo, Diaz, Pasaye, & Barrios, 2011). These results may help explain why females are more likely to endorse items on the Ethical Behavior and Compassion subscale compared to males.

There was also a negative correlation between the Ethical Behavior and Compassion subscale and depression, which indicates that individuals who value ethical behavior and compassion are less likely to report symptoms of depression. Self-compassion has been shown to be a protective factor against depressive symptoms (Raes, 2011). The results of the present study concerning the link of ethical behavior valuing and lower depression furthers existing research by showing that self compassion as well as compassion towards others may be associated with lower depressive symptoms.

Further research is necessary to determine if changing one's value of compassion and ethical behavior can reduce depressive symptoms. It will be important to understand this association with the increased popularity in Compassion Focused Therapies, a therapy focused on cultivating compassion toward the self and others to help the individual function in a prosocial manner (Gilbert, 2014).

The two subscales also have a strong correlation with number of hours of meditation per week, which is consistent with mindfulness as a state theory. Meditation is used as a vehicle to cultivate mindfulness, so it is expected that these related constructs would correlate with number of hours one meditates per week. Also expected, was the negative association between depression and number of meditation hours per week. These results are consistent with research that demonstrates meditation can decrease depressive symptoms (Zeidan et al, 2010), and counselors can utilize meditation practice as means of depressive symptomology reduction.

A final finding was that the negative association between the compassion and ethical behavior subscale and depressive symptoms was moderated by number of hours of meditation practice per week, such that the association was stronger among individuals who engaged in more meditation practice. Hoffman, Grossman, and Hinton (2006) concluded that loving-kindness and compassion meditation might be effective in the treatment of depression and the ability to achieve a state of loving-kindness and compassion is enhanced through meditation practice. The results indicate that interventions focused on compassion and ethical behavior should include meditation practice in the program to have a more significant impact on depressive symptoms.

### **Suggestions for Clinical Practice**

The research supports the idea of a multi-dimensional view of mindfulness, and demonstrates that other, less prominent constructs of mindfulness, such as compassion and ethical behavior, may be important to explore during mindfulness training. A new training program in mindfulness could be developed incorporating these constructs, and compare the new program with the traditional programs. Pilot training programs can be tested to gauge changes in participant valuation of mindfulness related constructs after completing the program. The scales may also be used to identify specific aspects of training programs that increase individual valuation of mindfulness related constructs. Finally, the scale may be used to understand how various training settings, such as classroom, meditation retreat, monastery, or in a clinical session, affect valuation of mindfulness related constructs.

### **Suggestions for Research**

Additional validation may be conducted to compare the results of mindfulness values to results of other achievement style questionnaires, such as the Kentucky Inventory of Mindfulness Skills Scale (KIMS). High correlation between the tests would indicate significant overlap between values of mindfulness and subjective achievement of mindfulness related skills. A hierarchical regression including this measure could indicate the additional variance explained by scales of the present study. Comparing the compassion and ethical behavior subscale to other measures of compassion may provide additional discriminant validity. Test-retest reliabilities at various time intervals is needed as an index of stability. Qualitative research, such as journaling activities and interviews, could be used in conjunction with this to understand underlying mechanisms for

fluctuations in individual valuation. In addition, causal associations between study variables cannot be ascertained, as longitudinal data would be required to explore the direction and causal relation between study variables. Finally, a cross validation study with a new sample is needed for further examination of the factor structure using a confirmatory factor analysis (CFA) to determine goodness of model fit.

### **Limitations**

While the research offers a promising and innovative tool for the assessment of mindfulness, there are limitations that should be considered in the context of the present study's findings. The majority of participants were inexperienced in mindfulness; more than half of respondents indicated having less than a year of mindfulness training. The sample was highly educated with nearly 40% reporting having a graduate or professional degree. The population was also fairly young, with about 80% below the age of 34. As previously indicated, younger individuals are more likely to be future-oriented, which may have an effect on the results in this study. Lastly, the majority of the population (over 80%) was female. Only 57 participants in the sample identified as male, which makes it difficult to make clear conclusions about their behavior, especially with such high endorsement rates for the scales. There were few participants who did not endorse items, making comparisons between male and female a challenge for this sample. A larger, more heterogeneous sample in terms of sex, education and age would be necessary to further test the applications of this scale to samples that differ from the one in the present study.

## CONCLUSION

Findings of this study suggest that the Values of Mindfulness Related Constructs Scale may be useful for researchers and clinicians trying to understand the construct of mindfulness and its related constructs. This scale expands on the current clinical view of mindfulness by adding concepts of compassion, and ethical behavior. These have traditionally been included in mindfulness training and appear to have potentially positive therapeutic benefits in clinical settings; however, no existing scales measured this particular construct. The inclusion of a measure of valuation of these constructs may be useful in assessing whether therapeutic interventions are successful at increasing valuation of mindfulness related constructs among individuals. Finally, interventions including elements of compassion and ethical behavior may want to consider including meditation practice in the program to have a more significant impact on depressive symptoms.

## REFERENCES

- Anālayo. (2003). *Satipaṭṭhāna, the direct path to realization*. Windhorse Publications.
- Awasthi, B. (2013). Issues and perspectives in meditation research: In search for a definition. *Frontiers in Psychology, 3*, 1-9.
- Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice, 10*(2), 125-143.
- Bebbington, P. (1996). The origins of sex differences in depressive disorder: Bridging the gap. *International Review of Psychiatry, 8*(4), 295-332.
- Bergomi C., Tschacher W., & Kupper Z. (2012). The assessment of mindfulness with self-report measures: existing scales and open issues. *Mindfulness, 4*(3), 191-202.
- Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice, 11*, 230-241.
- Borkovec, T. D. (2002). Life in the future versus life in the present. *Clinical Psychology: Science and Practice, 9*(1), 76-80.
- Brown, K. W., and Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*, 822-848.
- Carstensen, L. L. (1995). Evidence for a life-span theory of socioemotional selectivity. *Current Directions in Psychological Science, 4*(5), 151-156.
- Center for Behavioral Health Statistics and Quality. (2014). *The CBHSQ Report: Serious Mental Health Challenges among Older Adolescents and Young Adults*. Rockville, MD.
- Chiesa, A., and Malinowski, P. (2011). Mindfulness-based approaches: Are they all the same? *Journal of Clinical Psychology, 67*, 404-424.
- Chiesa, A. (2013). The difficulty of defining mindfulness: Current thought and critical issues. *Mindfulness, 4*(3), 255-268.
- Coffey, K. A., & Hartman, M. (2008). Mechanisms of action in the inverse relationship between mindfulness and psychological distress. *Complementary Health Practice Review, 13*(2), 79-91.

- Dakwar, E., & Levin, F. R. (2009). The emerging role of meditation in addressing psychiatric illness, with a focus on substance use disorders. *Harvard Review of Psychiatry, 17*(4), 254-267.
- Dhiman, D (2008). Cultivating Mindfulness: The Buddhist art of paying attention to attention. *Interbeing, Fall 2008; 2,2, pg. 35.*
- Dimidjian, S., and Linehan, M. M. (2003). Defining an agenda for future research on The clinical application of mindfulness practice. *Clinical Psychology: Science and Practice, 10*, 166-171.
- Eagly, A. H., Diekmann, A. B., Johannesen-Schmidt, M., & Koenig, A. M. (2004). Gender gaps in sociopolitical attitudes: A social psychological analysis. *Journal of Personality and Social Psychology, 87*(6), 796-816.
- Feingold, A. (1994). Gender differences in personality: A meta-analysis. *Psychological Bulletin, 116*(3), 429-456.
- Finucane, A., & Mercer, S. W. (2006). An exploratory mixed methods study of the acceptability and effectiveness of mindfulness-based cognitive therapy for patients with active depression and anxiety in primary care. *BMC Psychiatry, 6*.
- Gilbert, P. (2014). The origins and nature of compassion focused therapy. *British Journal of Clinical Psychology, 53*(1), 6-41.
- Goldin, P. R., & Gross, J. J. (2010). Effects of mindfulness-based stress reduction (MBSR) on emotion regulation in social anxiety disorder. *Emotion, 10*(1), 83-91.
- González, H. M., Tarraf, W., Whitfield, K. E., & Vega, W. A. (2010). The epidemiology of major depression and ethnicity in the united states. *Journal of Psychiatric Research, 44*(15), 1043-1051.
- Grossman, P. (2008). On measuring mindfulness in psychosomatic and psychological research. *Journal of Psychosomatic Research, 64*, 405–408.
- Grossman, P. (2011). Defining mindfulness by how poorly I think I pay attention during everyday awareness and other intractable problems for psychology's (re)invention of mindfulness: Comment on Brown et al. (2011). *Psychological Assessment, 23*, 1034–1040.
- Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2004). Mindfulness-based stress reduction and health benefits: A meta-analysis. *Journal of Psychosomatic Research, 57*(1), 35-43.
- Gunaratana, H. (2002). *Mindfulness in plain English*. Boston: Wisdom.

- Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., and Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour Research and Therapy*, 44(1), 1-25.
- Hofmann, S. G., Sawyer, A. T., Witt, A. A., & Oh, D. (2010). The effect of mindfulness-based therapy on anxiety and depression: A meta-analytic review. *Journal of Consulting and Clinical Psychology*, 78(2), 169-183.
- Hofmann, S. G., Grossman, P., & Hinton, D. E. (2011). Loving-kindness and compassion meditation: Potential for psychological interventions. *Clinical Psychology Review*, 31(7), 1126-1132.
- Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results. *General Hospital Psychiatry*, 4, 33-47.
- Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain and illness*. New York: Dell.
- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, 10, 144-156.
- Kabat-Zinn, J., Massion, A. O., Kristeller, J., Peterson, L. G., Fletcher, K. E., Pbert, L., Santorelli, S. F. (1992). Effectiveness of a meditation-based stress reduction program in the treatment of anxiety disorders. *The American Journal of Psychiatry*, 149(7), 936-943.
- Kraus, S., & Sears, S. (2009). Measuring the immeasurables: Development and initial validation of the self-other four immeasurables (SOFI) scale based on buddhist teachings on loving kindness, compassion, joy, and equanimity. *Social Indicators Research*, 92(1), 169-181.
- Hayes, S. C., and Wilson, K. G. (2003). Mindfulness: Method and process. *Clinical Psychology: Science and Practice*, 10, 161-165.
- Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., and Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour Research and Therapy*, 44(1), 1-25.
- Hofmann, S. G., Grossman, P., & Hinton, D. E. (2011). Loving-kindness and compassion meditation: Potential for psychological interventions. *Clinical Psychology Review*, 31(7), 1126-1132.



- Lazar, S. W., Kerr, C. E., Wasserman, R. H., Gray, J. R., Greve, D. N., Treadway, M. T., . . . Fischl, B. (2005). Meditation experience is associated with increased cortical thickness. *NeuroReport: For Rapid Communication of Neuroscience Research*, *16*(17), 1893-1897.
- Lau, M. A., Bishop, S. R., Segal, Z. V., Buis, T., Anderson, N. D., Carlson, L., . . . Devins, G. (2006). The toronto mindfulness scale: Development and validation. *Journal of Clinical Psychology*, *62*(12), 1445-1467.
- Levine, S. Z. (2013). Evaluating the seven-item center for epidemiologic studies depression scale short-form: A longitudinal US community study. *Social Psychiatry and Psychiatric Epidemiology*, *48*(9), 1519-1526.
- Linehan, M. (1993). *Cognitive behavioural treatment of borderline personality disorder*. New York: Guilford.
- Ma, S. H., & Teasdale, J. D. (2004). Mindfulness-based cognitive therapy for depression: Replication and exploration of differential relapse prevention effects. *Journal of Consulting and Clinical Psychology*, *72*(1), 31-40.
- MacCallum, R. C., Widaman, K. F., Zhang, S., and Hong, S. (1999). Sample size in factor analysis. *Psychological Methods*, *4*(1), 84-99.
- Maier, W., Gänssicke, M., Gater, R., Rezaki, M., Tiemens, B., & Urzúa, R. F. (1999). Gender differences in the prevalence of depression: A survey in primary care. *Journal of Affective Disorders*, *53*(3), 241-252.
- Mercadillo, R. E., Díaz, J. L., Pasaye, E. H., & Barrios, F. A. (2011). Perception of suffering and compassion experience: Brain gender disparities. *Brain and Cognition*, *76*(1), 5-14.
- Mohan, A., Sharma, R., & Bijlani, R. L. (2011). Effect of meditation on stress-induced changes in cognitive functions. *The Journal of Alternative and Complementary Medicine*, *17*(3), 207-212.
- Pace, T. W. W., Negi, L. T., Adame, D. D., Cole, S. P., Sivilli, T. I., Brown, T. D., . . . Raison, C. L. (2009). Effect of compassion meditation on neuroendocrine, innate immune and behavioral responses to psychosocial stress. *Psychoneuroendocrinology*, *34*(1), 87-98.
- Paul, N. A., Stanton, S. J., Greeson, J. M., Smoski, M. J., & Wang, L. (2013). Psychological and neural mechanisms of trait mindfulness in reducing depression vulnerability. *Social Cognitive and Affective Neuroscience*, *8*(1), 56-64.
- Pett, M.A., and Lackey, N.R. (2003). *Making sense of factor analysis: The use of factor Analysis for instrument development in health care research*. Thousand Oaks.

- Rapgay, L., and Bystrisky, A. (2009). Classical mindfulness: An introduction to its theory and practice for clinical application. *Annals of the New York Academy of Science*, 1172, 148–162.
- Raes, F. (2011). The effect of self-compassion on the development of depression symptoms in a non-clinical sample. *Mindfulness*, 2(1), 33-36.
- Robinson, R. J., Lewicki, R. J., & Donahue, E. M. (2000). Extending and testing a five factor model of ethical and unethical bargaining tactics: Introducing the SINS scale. *Journal of Organizational Behavior*, 21(6), 649-664.
- Roemer, L., & Orsillo, S. M. (2002). Expanding our conceptualization of and treatment for generalized anxiety disorder: Integrating mindfulness/acceptance-based approaches with existing cognitive-behavioral models. *Clinical Psychology: Science and Practice*, 9(1), 54-68.
- Rosch, E. (2007). More than mindfulness: When you have a tiger by the tail, let it eat you. *Psychological Inquiry*, 18(4), 258-264.
- Rubia, K. (2009). The neurobiology of meditation and its clinical effectiveness in psychiatric disorders. *Biological Psychology*, 82(1), 1-11.
- Schafer, J. L. (1999). Multiple imputation: a primer. *Statistical methods in medical research*, 8(1), 3-15.
- Sedlmeier, P., Eberth, J., Schwarz, M., Zimmermann, D., Haarig, F., Jaeger, S., & Kunze, S. (2012). The psychological effects of meditation: A meta-analysis. *Psychological Bulletin*, 138(6), 1139-1171.
- Segal, Z. V., Williams, J. M. G., and Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse*. New York: Guilford.
- Teasdale, J. D., Segal, Z. V., Williams, J. M., Ridgeway, V. A., Soulsby, J. M., & Lau, M. A. (2000). Prevention of relapse/recurrence in major depression by mindfulness-based cognitive therapy. *Journal of Consulting and Clinical Psychology*, 68(4), 615-623.
- Thera, N. (1973). *The heart of Buddhist meditation* (3rd ed.). London: Rider.
- Thompson, B. L., and Waltz, J. (2007). Everyday mindfulness and mindfulness meditation: Overlapping constructs or not? *Personality and Individual Differences*, 43, 1875–1885.

- Travis, F., Haaga, D. A. F., Hagelin, J., Tanner, M., Nidich, S., Gaylord-King, C., . . . Schneider, R. H. (2009). Effects of transcendental meditation practice on brain functioning and stress reactivity in college students. *International Journal of Psychophysiology*, *71*(2), 170-176.
- Van Dam, N. T., Earleywine, M., and Borders, A. (2010). Measuring mindfulness? an item response theory analysis of the mindful attention awareness scale. *Personality and Individual Differences*, *49*(7), 805-810.
- Van Dam, N. T., Sheppard, S. C., Forsyth, J. P., & Earleywine, M. (2011). Self-compassion is a better predictor than mindfulness of symptom severity and quality of life in mixed anxiety and depression. *Journal of Anxiety Disorders*, *25*(1), 123-130.
- Whitley, B. E., Jr., Nelson, A. B., & Jones, C. J. (1999). Gender differences in cheating attitudes and classroom cheating behavior: A meta-analysis. *Sex Roles*, *41*(9-10), 657-680.
- Williams, D. R., González, H., Neighbors, H., Nesse, R., Abelson, J. M., Sweetman, J., & Jackson, J. S. (2007). Prevalence and distribution of major depressive disorder in african americans, caribbean blacks, and non-hispanic whites: Results from the national survey of american life. *Archives of General Psychiatry*, *64*(3), 305-315.
- Zeidan, F., Johnson, S. K., Gordon, N. S., & Goolkasian, P. (2010). Effects of brief and sham mindfulness meditation on mood and cardiovascular variables. *The Journal of Alternative and Complementary Medicine*, *16*(8), 867-873.

Table 1

## Exploratory Factor Analysis of the Values of Mindfulness Related Constructs Scale

Item	Factor loading	Mean	SD	% Agree*
<i>Factor I: Present Moment Awareness (<math>\alpha = .88</math>)</i>				
It is important for me to ...				
1. Recognize how certain bodily sensations affect my mood.	0.75	5.61	1.11	85.85%
2. Recognize different sensations in my body as they occur within me.	0.73	5.56	1.13	86.15%
3. Recognize how certain bodily sensations affect my thoughts.	0.70	5.58	1.08	84.00%
4. Recognize how certain thoughts affect my mood.	0.64	6.06	0.86	96.00%
5. Pay attention to different sounds in my surroundings.	0.61	5.39	1.26	79.38%
6. Recognize the different thoughts that occur within me.	0.58	5.98	0.81	95.69%
7. Recognize when my mood begins to change.	0.58	5.94	0.85	95.38%
8. Recognize my emotions as they come up within me.	0.58	6.00	0.88	96.31%
9. Recognize that my thoughts are constantly changing.	0.56	5.91	0.94	89.85%
10. Recognize that my emotions are constantly changing.	0.53	5.87	0.91	89.54%
11. Notice changes in the temperature when I move from one place to the next.	0.50	4.73	1.51	56.31%
12. Break automatic responses to situations, taking each one in as a unique situation	0.48	5.46	1.18	81.54%
13. Pay attention to events that are happening in the present moment.	0.47	6.04	0.83	96.00%
14. Pay attention to the taste of food while I am eating.	0.44	5.65	1.15	86.15%
<i>Factor II: Ethical Behavior and Compassion (<math>\alpha = .86</math>)</i>				
It is important for me to ...				
1. Work on <u>self improvement</u> .	0.46	6.37	0.83	96.31%
2. Have unconditional love toward others.	0.52	5.75	1.21	85.85%
3. Show compassion for those around me.	0.68	6.42	0.68	96.31%
4. Be kind to those around me.	0.73	6.43	0.65	96.31%
5. Help others when they are in need.	0.72	6.36	0.71	95.69%
6. Forgive those who I feel have wronged me.	0.48	5.59	1.28	82.15%
7. Show concern for the <u>well-being</u> of others.	0.68	6.43	0.69	95.38%
8. Accept others even if they do not like me.	0.43	5.44	1.18	81.23%
9. Imagine how others feel.	0.48	6.23	0.84	93.54%
10. Have high moral standards.	0.57	6.12	0.95	90.15%
11. Do deeds of positive merit.	0.43	6.12	0.83	93.54%
12. Do the right thing.	0.56	6.20	0.89	91.38%
13. Be well versed in ethical conduct.	0.44	6.03	0.90	91.69%
14. Refrain from violence.	0.40	6.29	0.99	91.08%

\* "Strongly Agree", "Slightly Agree", and "Agree" responses were collapsed; R = reverse coded item □

Table 2

Correlations, Means, and Standard Deviations of Study Variables ( $N = 325$ )

	1	2	3	4	5	6	7	8	9	<i>M</i>	<i>SD</i>
1. Sex <sup>1</sup>	1									1.18	0.38
2. Minority <sup>2</sup>	.01	--								0.38	0.49
3. Age	-.10	-0.01	--							3.95	2.21
4. Education	-.10	0.07	.51**	--						5.09	1.78
5. Socio-economic Status	-.00	-.21**	-0.10	-0.08	--					5.34	1.97
6. Meditation Hours Per Week	-.07	0.01	0.09	0.07	0.02	--				2.40	1.54
7. Present Moment Awareness	.02	0.07	.12*	0.00	-0.04	.24**	--			5.70	.66
8. Ethical Behavior and	.17**	-0.01	-0.03	-0.04	-0.06	.11*	.49**	--		6.11	.59
9. Depression	.08	0.00	-.18**	-.23**	-.13*	-.15**	-.18**	-.19**	--	1.85	.58

<sup>1</sup>1 = Female, 0 = Male; <sup>2</sup>1 = U.S. Racial/Ethnic Minority, 0 = Whites

\*  $p < .05$ , \*\*  $p < .01$ .

Table 3

Meditation Hours Per Week and Ethical Behavior and Compassion Predicting Depressive Symptoms ( $N = 325$ )

	$\beta$	$R^2$	$R^2$ Change	F Change	$Df$
Step 1: Sex <sup>1</sup>	.15	.09	.09	5.92	309
Minority <sup>2</sup>	-.07				
Age	-.10				
Education	-.19**				
SES	-.14*				
Step 2: Meditation Hours Per Week	-.12*	.10	.01	4.97	308
Step 3: Ethical Behavior and Compassion	-.18**	.13	.03	10.04	307
Step 4: Meditation x Ethical Behavior and Compassion	-.17**	.14	.01	4.78	306

<sup>1</sup>1 = Female, 0 = Male; <sup>2</sup>1 = U.S. Racial/Ethnic Minority, 0 = Whites  
 \*  $p < .05$ , \*\*  $p < .01$ .

Table 4

Meditation Hours Per Week and Present Moment Awareness Predicting Depressive Symptoms ( $N = 325$ )

	$\beta$	$R^2$	$R^2$ Change	F Change	Df
Step 1: Sex <sup>1</sup>	.15	.09	.09	5.92	309
Minority <sup>2</sup>	-.07				
Age	-.10				
Education	-.19**				
SES	-.14*				
Step 2: Meditation Hours Per Week	-.12*	.10	.01	4.97	308
Step 3: Present Moment Awareness	-.13*	.09	.01	4.73	307
Step 4: Meditation x Present Moment Awareness	-.03	.09	.00	.29	306

<sup>1</sup>1 = Female, 0 = Male; <sup>2</sup>1 = U.S. Racial/Ethnic Minority, 0 = Whites  
 \*  $p < .05$ , \*\*  $p < .01$ .

Table 5

Center for Epidemiologic Studies Depression Scale (CES-D-SF), NIMH

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

Rating Scale:

1. Rarely or none of the time (less than 1 day)
2. Some or a little of the time (1-2 days)
3. Occasionally or a moderate amount of time (3-4 days)
4. Most or all of the time (5-7 days)

1. I did not feel like eating; my appetite was poor.
2. I had trouble keeping my mind on what I was doing.
3. I felt depressed.
4. I felt that everything I did was an effort.
5. My sleep was restless.
6. I felt sad.
7. I could not get going.



Table 6

Values of Mindfulness-Related Constructs Question Bank

Instructions: Use the scale below to answer how much you value or how important the statement is to you.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree

It is important for me to ...

- 1 Be aware of everything in my surroundings.
- 2 Pay attention to the task at hand without becoming distracted.
- 3 Pay attention to events that are happening in the present moment.
- 4 Recognize my emotions as they come up within me.
- 5 Recognize the different thoughts that occur within me.
- 6 Recognize different sensations in my body as they occur within me.
- 7 Break automatic responses to situations, taking each one in as a unique situation.
- 8 Recognize how certain bodily sensations affect my mood.
- 9 Recognize how certain bodily sensation affect my thoughts.
- 10 Recognize how certain thoughts affect my mood.
- 11 Pay attention to the taste of food while I am eating.
- 12 Notice changes in the temperature when I move from one place to the next.
- 13 Recognize when my mood begins to change.
- 14 Pay attention to different sounds in my surroundings.
- 15 Be open to all experiences whether good, bad, or neutral.
- 16 Face my problems head on, rather than avoid them.
- 17 Take a moment and reflect and to absorb information, rather than immediately react.
- 18 Try to distract myself when I feel unpleasant emotions.
- 19 Be in complete control of my emotions.
- 20 Change negative emotions when they come up.
- 21 Change negative thoughts when they come up.
- 22 Push away bad memories.
- 23 Avoid unpleasant situations.
- 24 Always be happy.
- 25 Evaluate my perceptions as right or wrong.
- 26 Remove painful life experiences.
- 27 Allow myself to suffer.
- 28 Live a life free of laziness
- 29 Turn my mind off.
- 30 Have a clear understanding of myself.
- 31 Work on self-improvement

Table 6

Values of Mindfulness-Related Constructs Question Bank (continued)

- 32 Ask myself why I do certain things.
- 33 Have others tell me what kind of person I am.
- 34 Be able to describe my feelings.
- 35 Be curious about how things happen.
- 36 Learn about the nature of the world.
- 37 Live forever if I can.
- 38 Stick to a strict set of beliefs and principles.
- 39 Have ownership of things.
- 40 Be physically beautiful.
- 41 Indulge in my desires.
- 42 Live with certainty.
- 43 Act on my sexual desires.
- 44 Understand that my body will deteriorate and eventually pass on.
- 45 Recognize that my emotions are constantly changing.
- 46 Recognize that my thoughts are constantly changing.
- 47 Have unconditional love toward others
- 48 Be kind to those around me.
- 49 Show compassion for those around me.
- 50 Help others when they are in need
- 51 Forgive those who I feel have wronged me
- 52 Show concern for the well-being of others
- 53 Accept others even if they do not like me
- 54 Imagine how others feel
- 55 Have high moral standards.
- 56 Do deeds of positive merit
- 57 Do the right thing
- 58 Not engage in gossiping.
- 59 Be well versed in ethical conduct.
- 60 Refrain from violence.
- 61 Work in groups than to work alone.

Figure 1

Ethical Behavior and Compassion Interacting with Meditation Practice as a Predictor of Depressive Symptoms

