January 2013

The Impact Of Personality, Mindfulness, And Symptoms On Response To Brief Meditation

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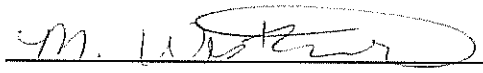
Signature 

Date 7/16/13

THE IMPACT OF PERSONALITY, MINDFULNESS, AND SYMPTOMS ON RESPONSE TO BRIEF MEDITATION

By

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2009

Submitted to the Faculty of the Graduate School of
Eastern Kentucky University
in partial fulfillment of the requirements
for the degree of
MASTER OF SCIENCE
August, 2013

DEDICATION

This thesis is dedicated to my late grandfather, Daniel A Squires,
from whom I inherited my love of numbers, work ethic, and
desire to see things through (which some might call stubbornness).

1932-2013

ACKNOWLEDGMENTS

I would like to thank my mentor, Dr. Emily Lykins, for her guidance, patience, and inspiration to complete this project. Without her, I never would have known that such therapies existed. I would also like to thank my other committee members, Dr. Dustin Wygant and Dr. MyraBeth Bundy, for their constructive comments and feedback. A special thank you goes out to my future husband, Ken Williams, for his encouragement, even when I was hours away from home, working all hours of the day and night, and for his ability to save my data when my hard drive crashed. Finally, I would like to thank my family, spread across the states of Kentucky and Ohio, without whom my education would not have been possible: Alice, Robert, and Zachary Westbrook; Joe and Laura Westbrook; Daniel and Barbara Squires; et al.

ABSTRACT

Mindful awareness is described as: (1) awareness “in the moment”; (2) that involves acceptance/non-judgment; and (3) is intentional (Kabat-Zinn, 1984). This awareness has gained popularity for use in therapeutic settings, based on consistent findings that mindfulness-based interventions have a beneficial effect on psychological and physical functioning (Baer, 2003; Grossman, et al., 2004). However, the factors that predict the extent to which one may enter into and benefit from an inducted mindful state have not been thoroughly investigated. The current study sought to investigate such factors, including personality characteristics, psychological symptoms, and dispositional mindfulness.

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I. INTRODUCTION

To conceptualize mindfulness-based therapies, one must first have a general understanding of the core Buddhist beliefs (Maex, 2011). Buddhism is centered on four noble truths: (1) there is suffering, (2) the suffering is due to a desire/thirst, (3) to end suffering, end the desire, and (4) the eightfold path to attaining this goal, which consists of experiences focused on understanding, virtue, and meditation. Since the time of the Buddha, himself, Buddhist teachings (the Dharma) have adapted for different cultures, e.g. Chinese and Tibetan Buddhism. Mindfulness-based interventions are the latest adaptation of the Dharma, created for therapeutic benefit (Maex, 2011).

Despite developing from these beliefs that have been taught for thousands of years, the use of mindfulness as a therapeutic intervention is one of the most recent developments in clinical psychology. According to Kabat-Zinn (1984), credited with the advent of mindfulness as therapy, there are three specific tenets of mindful awareness: (1) the awareness is "in the moment" and not focused on the past or future; (2) involves acceptance/non-judgment of the present moment; and (3) is intentional.

A variety of secular mindfulness-based interventions (MBIs), which dissociate the teaching and practice of mindfulness from any particular spiritual or religious practice, have been developed and demonstrated to be effective in treating an assortment of client populations and disorders (Baer, 2003; Grossman, et al., 2004). Mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1990) was the first MBI developed; MBSR has been found to help individuals utilize mindful sitting, walking, and yoga exercises to lower stress and anxiety levels (Evans, Ferrand, Carr, & Haglin, 2011; Matchim, Armer, & Stewart, 2011) and decrease psychological symptoms (Birnie, Garland, & Carlson, 2010). Since the advent of MBSR, various other MBIs have been developed to address diverse presenting problems, such as recurrent depression or binge eating, but all share a common central focus on the development of mindful awareness.

The benefits associated with the use of MBIs and higher levels of mindful awareness are widespread. Davis and Hayes (2011), for example, completed an in-depth analysis of the benefits of such interventions. Commonly experienced emotional

benefits from MBIs include emotional regulation, decreased emotional reactivity, and increased response flexibility. According to the authors, other benefits to MBIs include increased relationship satisfaction, decreased distractability, and improved physical health. Murphy, Mermelstein, Edwards, and Gidycz (2012) determined that trait (dispositional) mindfulness was correlated with better health, including healthier eating habits and better quality of sleep. The benefits of MBIs even extend beyond an individual's private life, into the workplace; Hülsheger, Alberts, Geinholdt, & Lang, (2013) found that those who participated in a mindfulness group experienced less emotional exhaustion and higher levels of job satisfaction, as compared to a control group of their peers. Additionally, Davis and Hayes (2011) found that therapists who practice meditation have increased levels of empathy, compassion, and counselling skills, while also experiencing decreased stress and anxiety. It is evident that the benefits of increased levels of mindfulness are numerous.

Research has shown that an increase in mindfulness is elicited by the meditation and mindfulness practice inherent to MBIs and that this boost in mindfulness is central to the effectiveness of these interventions (Baer, Carmody, & Hunsinger, 2012). Thus, an understanding of the processes underlying the development of mindfulness is of specific interest. However, the identification of factors that make an individual more or less able to enter into or benefit from a mindful state has not received extensive empirical attention.

One interesting aspect of mindfulness is that it can be conceptualized simultaneously as a state, trait, and skill. State mindfulness refers to how much an individual adopts mindful awareness in any given moment (Bishop et al., 2004). Inherent to the definition of any state, state mindfulness varies across time and situation. When measuring state mindfulness, self-reported data is often used in reference to a specific event, such as a guided meditation session. On the other hand, dispositional or trait mindfulness is conceptualized as a general, traitlike tendency to adopt a mindful state over many situations. Data regarding trait mindfulness is typically gathered through the self-report of general tendencies. As is true of other dispositions, trait mindfulness has

been shown to vary in the population, in the absence of any intervention (Lykins, 2013). This data also suggests that trait mindfulness in the population resembles a normal curve, with the majority of individuals naturally possessing moderate levels and few exhibiting either very high or very low levels of mindfulness. Evidence suggests that those naturally high in dispositional mindfulness, in the absense of intervention, tend to experience a variety of positive psychological effects (e.g., Murphy, Mermelstein, Edwards, & Gidycz, 2012)

As previously mentioned, mindfulness can be viewed as a skill that can be learned and developed with practice, usually within exercises such as guided breathing meditations or mindfulness in daily life (e.g., mindfully washing the dishes or taking a shower), given that these experiences provide opportunities to cultivate mindfulness. Mindfulness as a skill is often measured via changes in dispositional mindfulness. MBIs, then, teach the skill of mindfulness and provide guided, structured opportunities for individuals to better enter a mindful state, which is thought to translate to increases in dispositional mindfulness over time. As noted above, research findings support some aspects of this assertion, as the practice of mindfulness skills has been shown to lead to increases in self-reported trait mindfulness and, subsequently, to improvements in psychological and physical outcomes (e.g., Baer, 2003; Grossman et al., 2004).

Trait Mindfulness and Personality

While research clearly demonstrates that MBIs increase trait mindfulness, less research has examined the factors that explain variability in mindfulness in those with no meditation experience. Recently, in an attempt to understand factors that may contribute to the development of mindfulness, researchers have begun to investigate the relationships between trait mindfulness, personality traits, and mood characteristics. Research has clearly documented a negative association between dispositional mindfulness and the personality trait of neuroticism (Hollis-Walker & Colosimo, 2011; Thompson & Waltz, 2007; Giluk, 2009), with few exceptions (van den Hurk, et al., 2011). However, there is some disagreement among studies as to the

relationship between trait mindfulness and other personality factors. For example, Hollis-Walker and Colosimo (2011) found mindfulness to be positively correlated with agreeableness, extraversion, conscientiousness, and openness to experiences, while Thompson and Waltz (2007) failed to find a relationship between mindfulness and openness to experience or extraversion.

In an effort to clarify these conflicting results, Giluk (2009) conducted a meta-analysis which found mindfulness to be negatively correlated with neuroticism and negative affect, while positively correlated with conscientiousness, agreeableness, and positive affect. The same analysis found that extraversion and openness to experience were weakly correlated with trait mindfulness. Mandal, Arya, and Pandey (2012) corroborated Giluk's finding that trait mindfulness positively correlates with positive affect and negatively with negative affect. They also found that different facets of trait mindfulness correlated with specific aspects of affect: 'acting with awareness' was most predictive of psychological distress; 'describe' and 'non-reactivity' were predictive of positive affect; and 'describe' and ' non-judgment' were predictive of negative affect. However, this study ultimately found that the relationship between trait mindfulness and psychological distress was mediated by negative, but not positive, affect. Another study conducted by Collard, Avny, and Boniwelly (2008) found that, while use of an MBI increased mindfulness and decreased negative affect, positive affect remained unchanged.

Though there appears to be a strong inverse relationship between mindfulness and neuroticism, as well as with negative affect, this research suggests a weak or non-existent correlation with positive affect when the data are considered as a whole. However, much of the current research has looked exclusively at the postdictive relationships between personality factors in those who already participated in mindful meditation. Whether personality predicts who benefits from meditation, who chooses to engage in meditation practices, if personality changes through the use of meditation, or some combination thereof is yet to be determined. What is clear is that the practice of mindful meditation has positive effects on psychological well-being (Davis & Hayes,

2011); it is important to better understand the mechanisms behind those beneficial effects to help facilitate those changes in others.

State Mindfulness and Personality

While conclusions regarding the association of trait mindfulness with personality factors are somewhat tentative due to a relative dirth of empirical investigations, data regarding the impact of personality factors on state mindfulness are even more limited. One study, conducted by Thompson and Waltz (2007), determined state mindfulness was related to openness to experience only. However, van den Hurk et al. (2011) found a positive correlation between meditation skills and openness to experience and a negative correlation with conscientiousness. There is some suggestion that the regular practie of mindfulness can lead to significant change in personality traits over time (van den Hurk et al., 2011; McCrae, 1991), despite previous evidence that personality traits are stable across the life span (McCrae & Costa, 1982). It is important to note that these studies utilzed a postdictive design, investigating relationships between personality characteristics and mindfulness in those already possessing high levels of mindful awareness, typically developed through regular mindfulness practice. As mentioned previously, this begs the question of whether personality differences are exhibited at the onset of mindfulness training, differentiating those who will or will not be able to successfully engage in mindful practice or whether it is the actual practice of meditation that leads to these differences. Gaining an understanding of the meaning of individual differences in the benefits of meditation can help clinicians predict what effect mindful meditation is likely to have for a given client.

State and Trait Mindfulness

Despite the theoretical link posited and the research on MBIs suggesting (though not explicitly demonstrating) that the intentional cultivation of state mindfulness promotes the development of trait mindfulness over time, the relationship between state and trait mindfulness is complicated and currently imprecise due to sparse

empirical examination, contradictory findings, and varying research designs. In one of the few studies examining this relationship, Thompson and Waltz (2007) found that there was not a correlation between mindfulness meditation and daily mindfulness in a single-session intervention study of mindfulness, personality, and mood in predominately meditation-naïve college students. On the other hand, Brown and Ryan (2003) found that state and trait mindfulness were correlated among both college students and adults from the community, in an experience-sampling study, following a two-day training session. As such, one goal of the current study is to evaluate the relationship between trait and state mindfulness and determine which factors, if any, influence that relationship.

Multiple empirical questions can be asked about the relationship between state and trait mindfulness. While most intervention studies would be most concerned with whether increasing levels of state mindfulness over time would predict increased trait mindfulness, the current examination will focus on whether one's baseline level of trait mindfulness influences one's ability to enter into a mindful state within the parameters of a typical guided, albeit brief, meditation practice. The impact of state mindfulness on subsequent trait mindfulness cannot be examined in the current study, as participants are not followed over time. Additionally, the present study seeks to evaluate what, if any, impact psychological symptoms have on the relationship between state and trait mindfulness. These and other factors are important in helping determine who is a good candidate for an MBI.

Other Predictors of Mindfulness

Of course, personality and trait mindfulness are not the only constructs that may have a bearing on one's response to a brief guided meditation that would be similar to those used in an MBI, especially in the early treatment stages. While examination of all potentially relevant constructs is beyond the scope of the current project, another variables that seems important to examine, and which has an unclear relationship with mindfulness, is that of psychological symptoms. When considering the impact of

psychological symptoms on response to psychotherapeutic interventions generally, mixed results have been found, so determining a directional hypothesis regarding the relationship between symptoms and improvement is difficult. For example, Stone, Frank, Nash, and Imber (1961) found that those with higher distress levels tend to show greater improvements with psychotherapy, while Barron (1953) showed that those with lower distress levels experienced greater improvements. Yet another finding from Miller and Gross (1973) suggested that a curvilinear relationship existed, in that those with moderate symptoms experience the greatest treatment-related benefits, rather than those at either extreme.

Given that there is a demonstrated negative association between mindfulness and psychological and physical symptoms (e.g., Smith et al., 2011; Tamagawa et al., 2013) and that mindfulness-based interventions elicit clinically significant decreases in such symptoms (e.g., Piet, Würtzen, & Zachariae, 2012), it could be hypothesized that individuals with fewer psychological symptoms at baseline would be most able to enter into and benefit from a mindfulness meditation session. However, it is unclear whether the pattern of trait mindfulness' relationship with psychological variables will generalize to state mindfulness. As it is also evident that the impact of individual differences in distress on treatment outcome is an open question that has not yet definitely answered generally, much less with regard to MBIs in particular, this study seeks, in part, to investigate the impact of psychological symptoms on ability to enter into and benefit from mindfulness meditation, though it is felt that no directional hypotheses are currently warranted. Most broadly, this study seeks to determine who would receive most benefit from MBIs in a clinical setting; as most individuals do not attend therapy sessions without experiencing some sort of distress, it is important to evaluate the expected impact psychological symptoms would have on therapeutic benefit.

Hypotheses

In line with the global aim of the current study to investigate individual differences that may impact one's generalized tendency to adopt a mindful stance in

daily life, ability to enter an induced mindful state, and/or benefit from a mindful induction, the current study investigates the relationships between personality, trait mindfulness, and psychological symptoms and the impact of these variables on state mindfulness and affectual changes following a one-time mindful induction. Given the relative dearth of research on this topic, the hypotheses are as follows:

- Hypothesis 1: Trait mindfulness will be significantly predicted by multiple factors of personality, but will add incremental validity to the prediction of psychological symptoms.

- Hypothesis 2: The ability to enter into a mindful state, via induction, will be predicted by trait mindfulness, certain personality factors (as described using the five-factor model of personality), and psychological symptoms. Specifically, it is predicted that those high in trait mindfulness and openness to experience will be best able to enter into a mindful state. Psychological symptoms will also affect those best able to enter a mindful state.

- Hypothesis 3: Trait mindfulness, certain personality factors, and psychological symptoms will affect an individual's ability to benefit from a mindful state, in regard to affect. Specifically, it is predicted that openness to experience and trait mindfulness will have a positive relationship with affectual benefits. Neuroticism and psychological symptoms will have an impact on affectual benefits, as well.

The current study addresses empirical questions important to clinicians, as knowledge of these correlational relationships should allow clinicians to make informed predictions about client outcome and thus aid in treatment planning, especially as the application of mindfulness induction as a one-time clinical tool increases. For example, if trait mindfulness is found to correlate to a clinically significant degree with the ability to enter into and benefit from a one-time mindful induction, then a therapist may reconsider the use of this strategy in favor of another when working with a client possessing very low trait mindfulness. Knowledge of the sort that will be gained in this study may also be valuable to clinicians offering standard MBIs in alerting them to clients who may need more monitoring and follow-up at the onset of the standard treatment.

II. METHOD

Participants

Participants in this study were undergraduate students enrolled in an Eastern Kentucky University psychology course. A power analysis suggested 160 participants; every attempt was made to attain such participation, but only 114 participants completed the study protocol.

On average, the participant pool was comprised of young adult (m=21.16, sd = 4.99; range: 18-49) females (64%). The majority of participants were Caucasian (87.7%), though African American (7.9%) and Hispanic (3.5%) minorities were represented. Very few of the participants (n=8, 7%) had previous experience with meditation; on average, those with such experience had 162 hours (SD: 206.26; Range: 4.5-567) of lifetime meditation experience.

Measures

Demographic Questionnaire[1]

This questionnaire was created to collect data regarding a variety of demographic data, including age, class rank, and previous meditation experience. The questionnaire was created specifically for use in this study by the authors and has not been evaluated for its psychometric qualities.

Positive and Negative Affect Schedule – Extended Form (PANAS-X; Watson, & Clark, 1999)

The PANAS-X was utilized as a brief measure of both positive and negative affect. This scale was selected based on its common use in the field, its ease of administration, and its psychometric properties. The PANAS-X, comprised of 60 self-report items, such as “tired,” “excited,” or “blue,” was rated on a 5-point Likert scale ranging from very slighty/not at all (1) to extremely (5). This scale can also be broken down into other

[1] All measures can be found in Appendix A.

factors beyond the basic postive/negative affect scales, including hostility, fear, and serenity.

According to the authors, reliabilities were high for the two higher-order scales, positive affect (.83 to .90) and negative affect (.85 to .90), regardless of whether state or trait affect was assessed (Watson & Clark, 1999). Both positive and negative affect scales correlated highly with their respective factors (.89 to .95), while differing distinctly from the counter-factor (-.02 to -.18), suggestinging good convergent and divergent validities. In this study, reliability for positive affect (.87 to .92) and negative affect (.81 to .86) were also found to be good.

International Personality Item Pool (IPIP; Goldberg, 1999)

The IPIP is a pool of self-report items used to assess personality that is available in the public domain. It was selected for use in this study based on its high correlation (.90, k-corrected) with the commonly-used NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1985). The version utilized for this study was comprised of the 50 self-report items most highly correlated with the five NEO domains. Individual factor scales ranged from .85 (k-corrected, agreeableness) to .92 (k-corrected, neuroticism and conscientiousness). This scale included a series of statements, including "I am the life of the party" and "I have frequent mood swings," which the participants rated on a 5-point Likert scale, from very inaccurate (1) to very accurate (5).

According to Goldberg (1999), interitem correlations for each of the personality factors ranged from .27 to .38, with an average of .33. Alpha levels were acceptable, averaging .82, ranging from .77 for agreeableness to .86 for both neuroticism and extraversion. In the present sample, alpha levels ranged from .72 for openness to .90 for neuroticism.

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

Trait mindfulness was measured using the FFMQ – a self-report scale comprised of 39 items, designed to measure the five main facets of dispositonal mindfulness: observing, describing, non-judgement and non-reactivity to experiences, and acting with awareness. The FFMQ was developed using a factor analysis of five previous trait mindfulness measures: the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), the Cognitive and Affective Mindfulness Scale (CAMS; Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007), the Kentucky Inventory of Mindfulness Skills (KIMS; Baer et al., 2004), the Freiburg Mindfulness Inventory (FMI; Buchheld, Grossman, & Walach, 2001), and the Mindfulness Questionnaire (MQ; Chadwich, Hember, Mead, Lilley & Dagnan, 2005). It was selected for use in this study because the FFMQ reflects a consensual conceptualization of mindfulness garnered from multiple theorists using multiple independent mindfulness scales. The FFMQ includes statements addressing the facets of mindfulness in daily life, such as "I rush through activities without being really attentive to them" and "I disapprove of myself when I have irrational ideas." Each statement was rated using a 5-point Likert scale, ranging from never/very rarely true (1) to very often/always true (5).

Alpha levels have been found to be acceptable, ranging from .72 to .92, with the exception of nonreactivity (.67; Baer et al., 2006). For this sample, alpha levels were also acceptable, ranging from .76 (observation) to .93 (nonjudgment).

Depression Anxiety Stress Scales (DASS; Lovibond & Lovibond, 1995)

The DASS is a public domain measure of depression, anxiety, and stress symptoms that includes 42 self-report items. The DASS was selected for inclusion in the current study, in part, based on the fact that the anxiety scale correlated significantly with the Beck Anxiety Inventory (BAI; .81), while the depression scale was significantly correlated with the Beck Depression Inventory (BDI; .74; Lovibond & Lovibond, 1995). Additionally, the DASS incorporates a stress symptom scale not accounted for by using the BAI and BDI alone. On the DASS, each statement regarding

a specific feeling or behavior is rated using a 4-point Likert scale, ranging from did not apply to me at all (0) to applied to me very much or most of the time (3). For this sample, the reliability was extremely high (.97); subscale reliabilities were also very high, ranging from .89 (anxiety) to .95 (stress and depression).

Toronto Mindfulness Scale (TMS; Bishop et al., 2005)

As a brief, easy-to-complete scale, the 13-item, self-report TMS was used to assess the participants' state mindfulness during the meditation session. Previous research by the measure authors suggest that items can be broken down into two main factors: curiosity ("I was curious about my reactions to things") and decentering ("I was receptive to observing unpleasant thoughts and feelings without interfering with them.") Each item is rated on a 5-point Likert scale, from not at all (1) to very much (5). The authors found that the alpha level for the scale was an impressive .95, with .84 and .88 for the two facets (Bishop, et al., 2005). Overall, Bishop et al. found the item-total correlation to be .53, on average - .39 and .50 for the two facets. In the present study, scale reliability was very high (.93).

Procedure

The study protocol was administered to groups, ranging from 1 participant to 14 participants (averaging approximately 5 students per session), during in-person sessions in a classroom setting. Upon arrival, the participants were first informed of their rights and responsibilities (See A.7); as the study was qualified as exempt by the Institutional Review Board, participation was considered an appropriate form of consent and students were free to discontinue participation at any point. Following this, participants were asked to answered a questionnaire packet comprised of the demographic questionnaire, a pre-induction PANAS-X, IPIP, FFMQ, and DASS which took approximately 15 minutes. The completed questionnaire packets were collected from each participant so as not to distract them during the mindfulness induction or influence future answers.

The lights in the room were then dimmed while participants listened to a 12-minute guided mindfulness meditation audio clip thought to create the circumstances under which individuals are better able to enter a mindful state, which was taken from a commonly used Mindfulness-Based Intervention program (Mindfuness-Based Relapse Prevention; MBRP; Bowen, Chawla, & Marlatt, 2010). An audio clip was chosen so that the guided meditation would be standardized across experimental sessions. This particular clip was selected based on its brief length (12 minutes), provision of a non-symptom specific introduction to mindfulness meditation, use of an individual with a voice similar in timbre to that of the lead researcher to minimize the impact of vocal changes during the protocol. The guided excercise encouraged the participants to focus on their breathing and in-the-moment sensory experiences, like the temperature of their breath or identifying the most distant sound they could hear.

After the induction, the lights were raised to their normal level and participants were given a second packet to complete, with a TMS and a post-induction PANAS-X. Once those questionnaires were completed, participants were given a debriefing form (See A.8) and an opportunity to ask any additional questions. The whole process, including consent and debriefing procedures, took approximately 45 minutes.

III. RESULTS

The data collected were analyzed mainly using regression analyses. The majority of the data were highly intercorrelated, ranging as high as .74 (neuroticism and psychological distress). As such, describing one-to-one correlations between factors, particularly these that co-occur frequently in nature, was not deemed to have scholastic nor practical benefit, except where noted below.

Hypothesis 1

Using a regression analysis, trait mindfulness was found to be significantly predicted by all of the personality factors, with the exception of agreeableness (See Table 3.1). Those personality factors, specifically neuroticism, conscientiousness, openness to experience, and extraversion, accounted for more than half (r^2 = .57) of the variance in trait mindfulness scores. In examining the relationships between personality factors (IPIP) and facets of mindfulness (FFMQ) individually, several analyses were significant, as well (See Table 3.1)[2].

With regard to the prediction of psychological symptoms, a regression analysis was again used. As a single predictor, a negative relationship with trait mindfulness accounted for 30.1% of the variance in overall symptoms (β = -.55, p<.001). However, when considered as a group, trait mindfulness did not add incrementally (Δr^2=.009, β = -.14, *ns*) to the predictive model provided by personality characteristics (r^2 = .55), especially given the very robust association with neuroticism (β = .66, p<.001).

Hypothesis 2

At the zero-order, a significant correlation (r = .21, p<.05) was found between trait mindfulness (FFMQ; pre-induction) and state mindfulness (TMS; post-induction). However, due to high levels of overlap and the natural co-occurance of the predictor factors, a regression analysis was used to assess the extent to which trait mindfulness

[2] All tables can be found in Appendix B.

impacted the variance in state mindfulness, when looking at the data as a whole. Once personality and psychological distress were accounted for, the relationship between state and trait mindfulness was no longer significant. Instead, psychological distress, neuroticism, and extraversion were significant predictors of state mindfulness (r^2 = .34; See Table 3.2).

Hypothesis 3

Significant pre-/post-induction decreases were found for both global positive (t=8.92, p <.01) and negative (t=12.50, p <.05) affect factors. The totality of the data showed a widespread decrease in post-induction emotionality, with the exception of serenity, which increased post-induction (See Table 3.3).

Though trait mindfulness was not a significant factor in the pre-/post-induction change in positive affect, it was found to be significantly correlated with changes in negative affect (r=.200, p<.05). However, when the predictors were considered as a whole, trait mindfulness was not a significant factor (β=-.27, *ns*) in the affectual benefits, specifically decreased negative affect, that an individual experienced following the induction.

Decreases in negative affect were significantly impacted (r^2 = .41) by neuroticism and psychological symptoms (See Table 3.4). The personality factors, as whole, accounted for the majority of the variance in change in negative affect. Psychological symptoms accounted for an additionally significant portion of the overall variance. Though neither state nor trait mindfulness individually accounted for significant changes, "mindfulness" as a construct was also a significant predictor. At the zero-order, trait mindfulness and negative affective change were significantly correlated (r=.20, p<.05), while state mindfulness was not (r=-.02, *ns*).

When considering the predictive factors as a whole, positive affective change was not significantly impacted by any of these factors; state mindfulness had a significant zero-order correlation with positive affectual change (r=.21, p<.05), but trait mindfulness did not appear to have such a relationship (r=-.04, *ns*).

Exploratory Analyses

Analysis of differences between those with previous meditation experience (n=8), and those without (n=106) also yeilded significance (See Table 3.5). Those with experience were significantly higher in both state and trait mindfulness. Practitioners of meditation were also higher in openness to experience . In addition, those with meditation practice experienced greater pre- to post-induction decreases in their negative affect , hostility, and sadness; there were not significant differences between groups in pre-induction distress level (See Table 3.6).

IV. DISCUSSION

The results from this study suggest that there are a variety of factors that relate to individual differences in mindfulness, including personality characteristics, psychological symptoms, and previous meditation experience.

Hypothesis 1

Trait mindfulness was significantly impacted by four of the five personality factors, all except agreeableness. In fact, each of the five factors of mindfulness were significantly related to at least one personality characteristic. Openness to experience was related to observation and describing to a significant degree. Neuroticism negatively correlated with acting with awareness, nonjudgment, and nonreactivity. Conscientiousness related to acting with awareness and nonreactivity. Extraversion was significantly correlated with describing and nonjudgment. The lack of relationship between neuroticism and the nonjudgment facet of mindfulness was particularly surprising, considering the theoretical link between neuroticism and the judgment inherently associated with rumination.

It is evident that the facets of mindfulness correlate with different personality factors, which helps explain why trait mindfulness, as a whole, was impacted by 4 of the 5 personality characteristics. Each personality characteristic, with the exception of agreeableness, related to at least two of the mindfulness facets. This suggests that the combination of certain personality characteristics may be associated with an individual being more or less mindful, as mindfulness is a comprehensive construct. However, while trait mindfulness did predict psychological symptoms, it did not do so over and above personality in this study (though other studies have found conflicting results; e.g., Lykins, 2013). Thus, the different aspects of personality impact trait mindfulness in different ways, though certain factors appear to be the most important in explaining psychological outcomes. It is possible, however, that the prediction of positive

psychological functioning (i.e., well-being) would be significantly impacted by trait mindfulness and/or other personality factors.

Just over half of the variance in mindfulness was due to personality factors, leaving a clinically significant amount of variance that might be explained by other, more environmental, factors. Additional constructs that have been suggested as important to the development of mindfulness are attachment and emotional regulation. Goodall, Trejnowska, and Darling (2012) conducted a study to evaluate the relationships between trait mindfulness, attachment security, and emotional regulation; the study found that both attachment and emotion regulation were significantly related to trait mindfulness. Another study showed mindfulness to have a positive effect on attachment anxiety (Saavedra, Chapman, & Rogge, 2010). This suggests that, similar to the biosocial theory of dialectical behavior therapy (Lynch, Chapman, Rosenthal, Kuo, & Linehan, 2006), both biological predisposition and environmental experiences may play a key role in mindfulness. For these reasons, future directions may include examining the impact of teaching mindfulness to children, especially those who are at risk or may not experience sufficient attachment experiences at home; Tadlock-Marlo (2011) suggests that the use of mindfulness in a school setting may help students develop various social skills, as well as increased concentration and academic skills.

Hypothesis 2

Analyses showed that state and trait mindfulness have a significant zero-order correlation. However, once other factors were included, the relationship between state and trait mindfulness was no longer significant; the significant predictive factors were psychological symptoms, neuroticism, and extraversion. It is likely that, due to the significant overlap between personality factors and trait mindfulness, the variance accounted for initially by trait mindfulness was better attributed to personality factors, specifically neuroticism and extraversion. This suggests that the population differences in the mindfulness level of meditation-naïve individuals might be due personality and symptoms differences, as opposed to true differences in mindfulness. Furthermore, if

mindful practice does change personality over time as has been previously suggested (van den Hurk et al., 2011; McCrae, 1991), then the relationship between state and trait mindfulness may correlate significantly in those with meditation experience.

Hypothesis 3

An interesting finding with regard to affect was the fact that the majority of participants experienced an overall decrease in emotionality. As one might expect, nearly all participants had a decrease in negative affect following the induction. The less intuitive finding was that more than half of the participants also experienced a decrease in positive affect; however, this finding is in line with some previous research (Collard, Avny, & Boniwelly, 2008). In fact, all facets of affect decreased following the induction, with the exception of serenity which significantly increased.

This pattern supports the assertion that the induction decreased overall emotionality, which included both positive and negative affect. The decrease in positive affect is likely explained by the fact the positive affect, as conceptualized by the PANAS (Watson, & Clark, 1999), is defined in active terms such as "excited," "enthusiastic," and "alert," which necessarily goes against the increased serenity experienced by the majority of participants. This, taken with the increase in serenity (described by words such as "at ease" and "calm"), suggests that MBIs may be particularly beneficial for emotionally labile individuals experiencing high stress/anxiety, in that is specifically seems to target those affective experiences, following even a one-time induction by reducing emotional reactivity and allowing affect to regress toward the mean.

The results also showed that those who had previous experience exhibited a greater decrease in negative affect. Additionally, other research has shown that those with previous experience meditating typically experience an increase in positive affect post-induction (Jislin-Goldberg, Tanay, & Bernstein, 2012; Giluk, 2011; Schutte & Malouff, 2011). These data combined suggest that mindfulness is a skill that develops with practice, which may have differential effects at various points of skill development.

It is possible that a decrease in negative affect is an immediate benefit, while over time, the decreased negative affect makes room for other processes (such as emotional regulation or decreased self-judgment/rumination) to take place, eventually allowing for the increase in positive affect, in line with previous findings (Jislin-Goldberg et al., 2012).

Trait mindfulness was not a significant factor in the pre-/post-induction change in positive affect. Though trait mindfulness was found to be significantly correlated with changes in negative affect at the zero-order, when the predictors were considered as a whole, trait mindfulness was not a significant predictor in the decreased negative affect. This is likely due to the clinically significant overlap between trait mindfulness and personality factors. It is plausible that the variance due to trait mindfulness was subsumed by the variance accounted for by the other factors. Specifically, decreases in negative affect were significantly impacted by high neuroticism and high psychological symptoms. Of note was that, while neither state nor trait mindfulness added incrementally to the prediction of negative affect, the combined factor of "mindfulness" did add to the predictive model, above and beyond that already described by the other predictors. Of course, mindfulness may have been a significant predictor among those who had developed the skills to a greater extent. Additionally, positive affect may develop to a greater extent with more practice or may follow from other mindfulness-related changes (e.g., someone gets better at self-regulating and thus experiences more positive affect from goal pursuit and attainment).

Exploratory Analyses

Though there were limited numbers of participants with previous meditation experience, significance differences were found between those with experience and those without. As expected, those with previous experience were significantly higher in both state and trait mindfulness, suggesting that mindfulness can be learned with practice. While it is difficult to know what is due to innate differences and what has been learned over time, there is a clear correlation between experience and level of mindfulness.

Additionally, practitioners of meditation were higher in openness to experience, which is consistent with previous research regarding state mindfulness and personality. Practioners also exhibited a greater decrease in their negative affect, hostility, and sadness, indicating greater affectual benefit for those with previous experience. Unlike their non-practicing counterparts, these participants did not have a significant decrease in their self-assuredness, attentiveness, shyness, fatigue, or surprise, following the induction. While the sample size was extremely small, these findings suggest that there may be a greater benefit in practicing meditation long-term.

Implications for Clinical Populations

These findings provide a variety of clinical implications . First and foremost, the use of one-time induction has at least short-term benefits for most individuals, specifically for the reduction of negative affect and increased serenity. Those high in neuroticism (as is common in a therapeutic setting) seem to have the most difficulty achieving a mindful state with the induction, but gain the most benefit from doing so; suggesting that perseverance may be the key to mindfulness-based therapy with neuroses. Also, there is minimal risk associated with trying out this strategy, as very few participants experienced any post-induction increase in negative affect.

Another important finding from this study was that mindfulness-based interventions should start to have beneficial effects on negative affect from the very first session. A large majority of participants experienced, at least to some degree, a decrease in negative affect after only the one brief induction. Ultimately, these benefits may change over time to include both a greater decrease in negative affect and increases in positive affect, as suggested by previous research. It is clear that the use of a single brief induction has affectual benefits with minimal risks for the client.

Implications for Therapists and Clinicians

Another important implication of these data are in the use of MBIs for nonclinical populations. Previous research has shown that the use of a mindfulness-

based stress reduction program helped to significantly reduce burn-out and improve psychological well-being in health-care and mental-health providers (Goodman & Schorling, 2012; Vilardaga et al., 2011; Richards, Campenni, & Muse-Burke, 2010; Kane, 2010). Combined with the results of the present study, it can be inferred that the use of even a one-time MBI session could be beneficial for clinicians and health-care providers. Though there have been some conflicting evidence (e.g. Spragg, 2012), the limited risk involved suggests that the use of an MBI to reduce burnout is worth trying.

In addition to decreasing burnout, Padilla (2011) found that a clinician's level of mindfulness had significant implications for rapport. According to the study, clinicians who were higher in mindfulness were more able to empathize with their clients, and increased both the client's and therapist's ratings of rapport. In fact, Cohen and Miller (2009) found that introducing a mindfulness-based program into a clinical training program increased therapists' psychological well-being. As such, there may be significant benefits in therapists themselves experiencing mindfulness-based trainings. It may be particularly beneficial for therapists to try to adopt a mindful state immediately prior to therapy sessions.

Limitations

While there were many significant findings in the current study, there were some limitations that must be considered. The first is the limited number of participants utilized in this study; only 114 individuals participated, despite a power analysis suggesting a goal number of 160. Additionally, minimal diversity was present among the participants. The study was conducted in an Apalachian college town, which ultimately led to a homogenous group of mostly Caucasian, young adult students with very limited prior exposure to mindfulness or meditation. Due to the questions of interest, no control group was utilized for comparison. In addition, other types of meditation and changes over a longer period of practice time were not examined in this study. The data is further limited by its reliance on purely self-reported data. These data were not collected in a therapeutic setting, but a research one, which must be

considered when evaluating the implications. Finally, the goal of the present study was to examine factors that predict one's ability to enter and benefit from a mindful state, as opposed to investigating the long-term benefits of adopting a mindful state.

Future studies should try to address these issues to allow for higher generalizability and diversification. For example, future research could examine the impact of a similar mindfulness induction over repeated study sessions to evaluate the changes that occur over time. To suppliment the self-reported data, future studies could also monitor heart rate during the meditation sessions, particularly since the majority of participants reported increased serenity/calmness. Additionally, in future research, efforts should be made to diversify the participants utilized – in terms of age, ethnicity, and regional demographics.

5. CONCLUSIONS

Based on these data, there does appear to be a relationship between mindfulness and personality. There is not one particular trait that drives an individual's level of mindfulness, but rather it is a combination of a variety of factors, including several personality characteristics and psychological symptoms, with certain aspects of personality promoting specific facets of mindfulness. While personality does appear to play a significant role in one's dispositional mindfulness, socialization experiences also appear fundamental to mindfulness. Research has even suggested that meditation can change one's personality.

The results of this study also suggest that the techniques used in Mindfulness-Based Interventions (MBIs) can be beneficial for most people, clinical or nonclinical and with various combinations of personality traits. The finding that the majority of participants experienced benefits from one brief induction session, with little to no negative impact, further implies that even the one-time use of an MBI can have significant psychological benefits, particularly those with high levels of psychological symptoms and neuroticism. The results also showed that prolonged practice of mindfulness may increase these benefits. As such, this study bolsters previous findings regarding the benefits of the use of mindfulness in clinical practice.

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APPENDIX A:

Measures

DEMOGRAPHIC QUESTIONNAIRE

SONA ID: _____

1. I am currently ____ years of age. (Must be at least 18 to participate.)

2. I identify myself as (Circle One): Male Female

3. I identify myself as (Circle One): Caucasian African American/Black

   Hispanic American/Hispanic Asian American/Asian Other

4. I am currently a _____ at EKU. (Circle One)

   Freshman Sophomore Junior Senior

5. Do you currently practice mindfulness/insight/Vipassana meditation? Yes No

6. If applicable, for how many MONTHS have you been practicing mindfulness/insight/Vipassana meditation? _____ **Please enter 0 if you do NOT practice meditation.

7. If applicable, for how many TIMES PER WEEK have you been practicing mindfulness/insight/Vipassana meditation? _____ **Please enter 0 if you do NOT practice meditation.

8. If applicable, what is the LENGTH IN MINUTES of your typical mindfulness/insight/Vipassana meditation session? _____ **Please enter 0 if you do NOT practice meditation.

PANAS-X

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then circle the number that best describes to what extent you have felt this way <u>during the past few weeks</u>: 1. Very Slightly or Not At All, 2. A Little, 3. Moderately, 4. Quite a Bit, or 5. Extremely.

	Very Slightly or Not At All	A Little	Moderately	Quite a Bit	Extremely
Cheerful	1	2	3	4	5
Sad	1	2	3	4	5
Active	1	2	3	4	5
Angry at Self	1	2	3	4	5
Disgusted	1	2	3	4	5
Calm	1	2	3	4	5
Guilty	1	2	3	4	5
Enthusiastic	1	2	3	4	5
Attentive	1	2	3	4	5
Afraid	1	2	3	4	5
Joyful	1	2	3	4	5
Downhearted	1	2	3	4	5
Bashful	1	2	3	4	5
Tired	1	2	3	4	5
Nervous	1	2	3	4	5
Sheepish	1	2	3	4	5
Sluggish	1	2	3	4	5
Amazed	1	2	3	4	5
Lonely	1	2	3	4	5
Distressed	1	2	3	4	5
Daring	1	2	3	4	5
Shaky	1	2	3	4	5
Sleepy	1	2	3	4	5
Blameworthy	1	2	3	4	5
Surprised	1	2	3	4	5

Happy	1	2	3	4	5
Excited	1	2	3	4	5
Determined	1	2	3	4	5
Strong	1	2	3	4	5
Timid	1	2	3	4	5
Hostile	1	2	3	4	5
Frightened	1	2	3	4	5
Scornful	1	2	3	4	5
Alone	1	2	3	4	5
Proud	1	2	3	4	5
Astonished	1	2	3	4	5
Relaxed	1	2	3	4	5
Alert	1	2	3	4	5
Jittery	1	2	3	4	5
Interested	1	2	3	4	5
Irritable	1	2	3	4	5
Upset	1	2	3	4	5
Lively	1	2	3	4	5
Loathing	1	2	3	4	5
Delighted	1	2	3	4	5
Angry	1	2	3	4	5
Ashamed	1	2	3	4	5
Confident	1	2	3	4	5
Inspired	1	2	3	4	5
Bold	1	2	3	4	5
At Ease	1	2	3	4	5
Energetic	1	2	3	4	5
Fearless	1	2	3	4	5
Blue	1	2	3	4	5
Scared	1	2	3	4	5
Concentrating	1	2	3	4	5
Disgusted with Self	1	2	3	4	5
Shy	1	2	3	4	5
Drowsy	1	2	3	4	5

Dissatisfied with Self	1	2	3	4	5

IPIP

Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age. So that you can describe yourself in an honest manner, your responses will be kept in absolute confidence. Indicate for each statement whether it is 1. Very Inaccurate, 2. Moderately Inaccurate, 3. Neither Accurate Nor Inaccurate, 4. Moderately Accurate, or 5. Very Accurate as a description of you.

	Very Inaccurate	Moderately Inaccurate	Neither Accurate Nor Inaccurate	Moderately Accurate	Very Accurate
Feel comfortable with myself	1	2	3	4	5
Enjoy hearing new ideas	1	2	3	4	5
Have a vivid imagination	1	2	3	4	5
Tend to vote for conservative political candidates	1	2	3	4	5
Carry the conversation to a higher level	1	2	3	4	5
Rarely get irritated	1	2	3	4	5
Believe in the importance of art	1	2	3	4	5
Am not interested in abstract ideas	1	2	3	4	5
Avoid philosophical discussions	1	2	3	4	5

Am the life of the party	1	2	3	4	5
Don't talk a lot	1	2	3	4	5
Am not easily bothered by things	1	2	3	4	5
Find it difficult to get down to work	1	2	3	4	5
Suspect hidden motives in others	1	2	3	4	5
Make plans and stick to them	1	2	3	4	5
Do not like art	1	2	3	4	5
Know how to captivate people	1	2	3	4	5
Make friends easily	1	2	3	4	5
Have little to say	1	2	3	4	5
Am always prepared	1	2	3	4	5
Have frequent mood swings	1	2	3	4	5
Am often down in the dumps	1	2	3	4	5
Have a sharp tongue	1	2	3	4	5
Pay attention to detail	1	2	3	4	5
Dislike myself	1	2	3	4	5
Keep in the background	1	2	3	4	5
Accept people as they are	1	2	3	4	5
Cut others to pieces	1	2	3	4	5

Get back at others	1	2	3	4	5
Am skilled in handling social situations	1	2	3	4	5
Waste my time	1	2	3	4	5
Don't see things through	1	2	3	4	5
Would describe my experiences as somewhat dull	1	2	3	4	5
Panic easily	1	2	3	4	5
Make people feel at ease	1	2	3	4	5
Don't like to draw attention to myself	1	2	3	4	5
Respect others	1	2	3	4	5
Shirk my duties	1	2	3	4	5
Seldom feel blue	1	2	3	4	5
Tend to vote for liberal political candidates	1	2	3	4	5
Get chores done right away	1	2	3	4	5
Often feel blue	1	2	3	4	5
Feel comfortable around people	1	2	3	4	5
Do not enjoy going to art museums	1	2	3	4	5
Believe that others have good	1	2	3	4	5

intentions					
Carry out my plans	1	2	3	4	5
Am very pleased with myself	1	2	3	4	5
Insult people	1	2	3	4	5
Do just enough work to get by	1	2	3	4	5
Have a good word for everyone	1	2	3	4	5

FFMQ

Please rate each of the following statements using the scale provided. For each sentence, circle the number that best describes your own opinion of what is generally true for you: 1. Never or Very Rarely True, 2. Rarely True, 3. Sometimes True, 4. Often True, or 5. Very Often or Always True.

	Never or Very Rarely True	Rarely True	Sometimes True	Often True	Very Often or Always True
When I'm walking, I deliberately notice the sensations of my body moving.	1	2	3	4	5
I'm good at finding words to describe my feelings.	1	2	3	4	5
I criticize myself for having irrational or inappropriate emotions.	1	2	3	4	5
I perceive my feelings and emotions without having to react to them.	1	2	3	4	5
When I do things, my mind wanders off and I'm easily distracted.	1	2	3	4	5
When I take a shower or bath, I stay alert to the sensations of water on my body.	1	2	3	4	5
I can easily put my beliefs, opinions, and expectations into words.	1	2	3	4	5
I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.	1	2	3	4	5
I watch my feelings without getting lost in them.	1	2	3	4	5

I tell myself I shouldn't be feeling the way I'm feeling.	1	2	3	4	5
I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.	1	2	3	4	5
It's hard for me to find the words to describe what I'm thinking.	1	2	3	4	5
I am easily distracted.	1	2	3	4	5
I believe some of my thoughts are abnormal or bad and I shouldn't think that way.	1	2	3	4	5
I pay attention to sensations, such as the wind in my hair or sun on my face.	1	2	3	4	5
I have trouble thinking of the right words to express how I feel about things	1	2	3	4	5
I make judgments about whether my thoughts are good or bad.	1	2	3	4	5
I find it difficult to stay focused on what's happening in the present.	1	2	3	4	5
When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.	1	2	3	4	5
I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.	1	2	3	4	5
In difficult situations, I can pause without immediately reacting.	1	2	3	4	5
When I have a sensation in my body, it's difficult for me to describe it because I	1	2	3	4	5

can't find the right words.					
It seems I am "running on automatic" without much awareness of what I'm doing.	1	2	3	4	5
When I have distressing thoughts or images, I feel calm soon after.	1	2	3	4	5
I tell myself that I shouldn't be thinking the way I'm thinking.	1	2	3	4	5
I notice the smells and aromas of things.	1	2	3	4	5
Even when I'm feeling terribly upset, I can find a way to put it into words.	1	2	3	4	5
I rush through activities without being really attentive to them.	1	2	3	4	5
When I have distressing thoughts or images I am able just to notice them without reacting.	1	2	3	4	5
I think some of my emotions are bad or inappropriate and I shouldn't feel them.	1	2	3	4	5
I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.	1	2	3	4	5
My natural tendency is to put my experiences into words.	1	2	3	4	5
When I have distressing thoughts or images, I just notice them and let them go.	1	2	3	4	5
I do jobs or tasks automatically without	1	2	3	4	5

being aware of what I'm doing.					
When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.	1	2	3	4	5
I pay attention to how my emotions affect my thoughts and behavior.	1	2	3	4	5
I can usually describe how I feel at the moment in considerable detail.	1	2	3	4	5
I find myself doing things without paying attention.	1	2	3	4	5
I disapprove of myself when I have irrational ideas.	1	2	3	4	5

DASS

Please read each statement and circle the number which indicates how much the statement applied to you over the past week: 0. Did not apply to me at all, 1. Applied to me to some degree, or some of the time, 2. Applied to me to a considerable degree, or a good part of time, or 3. Applied to me very much, or most of the time. There are no right or wrong answers. Do not spend too much time on any statement.

	Did not apply to me at all	Applied to me to some degree, or some of the time	Applied to me to a considerable degree, or a good part of time	Applied to me very much, or most of the time
I found myself getting upset by quite trivial things	0	1	2	3
I was aware of dryness of my mouth	0	1	2	3
I couldn't seem to experience any positive feeling at all	0	1	2	3
I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
I just couldn't seem to get going	0	1	2	3
I tended to over-react to situations	0	1	2	3
I had a feeling of shakiness (eg, legs going to give way)	0	1	2	3
I found it difficult to relax	0	1	2	3
I found myself in situations that made me so anxious I was most relieved when they ended	0	1	2	3

I felt that I had nothing to look forward to	0	1	2	3
I found myself getting upset rather easily	0	1	2	3
I felt that I was using a lot of nervous energy	0	1	2	3
I felt sad and depressed	0	1	2	3
I found myself getting impatient when I was delayed in any way(eg, lifts, traffic lights, being kept waiting)	0	1	2	3
I had a feeling of faintness	0	1	2	3
I felt that I had lost interest in just about everything	0	1	2	3
I felt I wasn't worth much as a person	0	1	2	3
I felt that I was rather touchy	0	1	2	3
I perspired noticeably (eg, hands sweaty) in the absence of high temperatures or physical exertion	0	1	2	3
I felt scared without any good reason	0	1	2	3
I felt that life wasn't worthwhile	0	1	2	3
I found it hard to wind down	0	1	2	3
I had difficulty in swallowing	0	1	2	3
I couldn't seem to get any enjoyment out of the things I did	0	1	2	3
I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase,	0	1	2	3

heart missing a beat)				
I felt down-hearted and blue	0	1	2	3
I found that I was very irritable	0	1	2	3
I felt I was close to panic	0	1	2	3
I found it hard to calm down after something upset me	0	1	2	3
I feared that I would be "thrown" by some trivial but unfamiliar task	0	1	2	3
I was unable to become enthusiastic about anything	0	1	2	3
I found it difficult to tolerate interruptions to what I was doing	0	1	2	3
I was in a state of nervous tension	0	1	2	3
I felt I was pretty worthless	0	1	2	3
I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
I felt terrified	0	1	2	3
I could see nothing in the future to be hopeful about	0	1	2	3
I felt that life was meaningless	0	1	2	3
I found myself getting agitated	0	1	2	3
I was worried about	0	1	2	3

situations in which I might panic and make a fool of myself				
I experienced trembling (eg, in the hands)	0	1	2	3
I found it difficult to work up the initiative to do things	0	1	2	3

TMS

We are interested in what you just experienced. Below is a list of things that people sometimes experience. Please read each statement. Next to each statement are five choices: 0. Not at All, 1. A Little, 2. Moderately, 3. Quite a Bit, and 4. Very Much. Please indicate the extent to which you agree with each statement. In other words, how well does the statement describe what you just experienced, just now?

	Not at All	A Little	Moderately	Quite a Bit	Very Much
I experienced myself as separate from my changing thoughts and feelings.	0	1	2	3	4
I was more concerned with being open to my experiences than controlling or changing them.	0	1	2	3	4
I was curious about what I might learn about myself by taking notice of how I react to certain thoughts, feelings or sensations.	0	1	2	3	4
I experienced my thoughts more as events in my mind than as a necessarily accurate reflection of the way things 'really' are.	0	1	2	3	4
I was curious to see what my mind was up to from moment to moment.	0	1	2	3	4
I was curious about each of the thoughts and feelings I was having.	0	1	2	3	4
I was receptive to observing unpleasant thoughts and feelings without interfering with them.	0	1	2	3	4
I was more invested in just watching my experiences as they arose, than in figuring out what they could mean.	0	1	2	3	4

I approached each experience by trying to accept it, no matter whether it was pleasant or unpleasant.	0	1	2	3	4
I remained curious about the nature of each experience as it arose.	0	1	2	3	4
I was aware of my thoughts and feelings without overidentifying with them.	0	1	2	3	4
I was curious about my reactions to things.	0	1	2	3	4
I was curious about what I might learn about myself by just taking notice of what my attention gets drawn to.	0	1	2	3	4

APPENDIX B:

Tables

Table 3.1
Trait mindfulness facets & personality

Trait	Personality Characteristics				
	Neuroticism	Extraversion	Openness	Agreeableness	Conscientious
MINDFULNESS	β = **-.40*** **	β = **.20***	β = **.32*** **	β = .04	β = **.33*** **
Observation	.15	.04	**.42*** **	.04	.14
Describing	-.12	**.23***	**.27****	-.04	.14
Nonjudgment	**-.61*** **	.15	.08	-.03	.07
Nonreactivity	**-.25***	.10	.17	.10	**.25****
Acting with Awareness	**-.28****	.08	.01	.06	**.43*** **

Significance: p<.001, ***; p<.01, **; p<.05, *

Table 3.2
Predictors of state mindfulness

Predictor	Relationship
Neuroticism	**β = -.37***
Extraversion	**.32****
Openness to Experience	.13
Agreeableness	-.03
Conscientiousness	-.02
Psychological Symptoms	**.53*****
Trait Mindfulness	.18

Significance: p<.001, ***; p<.01, **; p<.05, *

Table 3.3
Change in pre-/post-induction affect

Affectual Factor	Change
Serenity	**t = -7.04*** **
Fear	**10.07*** **
Hostility	**9.35*** **
Guilt	**8.75*** **
Sadness	**9.84*** **
Joviality	**11.41*** **
Self-Assuredness	**7.99*** **
Attentiveness	**3.68*** **
Shyness	**6.88*** **
Fatigue	**2.13***
Surprise	**2.33***

Significance: p<.001, ***; p<.01, **; p<.05, *

Table 3.4
Predictors of change in negative affect

Predictor	Relationship	Variance
Neuroticism	**β = -.42***	
Extraversion	.11	
Openness to Experience	.02	**r^2 = .30**
Agreeableness	.08	
Conscientiousness	-.03	
Psychological Symptom	**-.32***	**.04**
Trait Mindfulness	-.26	**.07**
State Mindfulness	-.14	

Significance: p<.001, ***; p<.01, **; p<.05, *

Table 3.5
Predictive differences in those with meditation experience

Predictive Factor	Difference
Trait Mindfulness	**F = 10.28****
State Mindfulness	**3.92***
Psychological Symptoms	.08
Neuroticism	.00
Extraversion	.70
Openness	**17.06*****
Agreeableness	.63
Conscientiousness	.51

Significance: p<.001, ***; p<.01, **; p<.05, *

Table 3.6
Affective differences in those with meditation experience

Predictive Factor Change	Between Group Difference
Positive Affect	F = .16
Negative Affect	**4.01***
Fear	.02
Hostility	**12.15****
Guilt	3.34
Sadness	**6.81***
Joviality	.35
Self-Assuredness	.00
Attentiveness	.04
Shyness	.66
Fatigue	.63
Serenity	.01
Surprise	.21

Significance: p<.001, ***; p<.01, **; p<.05, *