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The Effects of Mindfulness on Verbal Distress Disclosure

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The Effects of Mindfulness on Verbal Distress Disclosure

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Abstract

The purpose of this study was to investigate the effect of a mindfulness induction on participants' verbal distress disclosure (as measured by the Linguistic Inquiry and Word Count and State Disclosure Questionnaire). Participants were 86 undergraduate students enrolled in an Introduction to Psychology course and were randomly assigned to one of two conditions: a mindfulness condition or a control condition. Participants in the mindfulness condition engaged in a 15-minute mindfulness induction prior to disclosing about a stressful experience, while participants in the control condition listened to a neutrally valenced audio excerpt from a podcast about emotions before speaking about a stressful experience. Participants in the mindfulness condition demonstrated greater increases in overall state mindfulness from pre- to post-intervention on the Toronto Mindfulness Scale. It was predicted that participants in the mindfulness condition would use more emotion and cognitive processing words and would also rate themselves as disclosing more in their interview, in comparison to the participants in the control condition. However, significant differences in word usage and subjective disclosure scores were not observed between conditions. Thus, results of the present study indicated that the mindfulness induction did not increase distress disclosure. Contrary to predictions, trait distress disclosure was not found to be positively correlated with trait mindfulness. Furthermore, two facets of trait mindfulness (e.g., acting with awareness, non-reactivity) were found to be negatively related to trait distress disclosure, suggesting that trait distress disclosure, as measured in the present study, may be related to impulsive, as opposed to thoughtful, disclosure. Additionally, individuals with varying levels of trait mindfulness may disclose differentially as a result of the way in which they relate to stressful situations.

The Effects of Mindfulness on Verbal Distress Disclosure

While research suggests that a majority of people will experience at least one traumatic event in their lifetime (51.2% of women and 60.7% of men; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), a minority of these individuals will go on to experience significant trauma-related impairment (20.4% of women and 8.2% of men; Kessler et al., 1995). As a result of these incident rates, it is estimated that 5.2 million Americans will be diagnosed with posttraumatic stress disorder in a given year (Kessler et al., 1995). However, Ozer and Weis (2004) point out that many people experience sub-threshold PTSD symptoms, or clinically significant symptoms that do not meet the full criteria for the disorder.

Evidence that links traumatic experiences to negative physical and mental health outcomes can be found in both the psychology and physical medicine research literatures (e.g., Esterling, L'Abate, Murray, & Pennebaker, 1999; Kennedy-Moore & Watson, 2001; Pennebaker, 1995). Dating back to Sigmund Freud and the origins of psychotherapy, the basic principle underlying therapy is that talking about traumatic experiences results in beneficial health outcomes (Pennebaker, 1995). However, not all individuals in psychotherapy are equal in their propensities to disclose emotional experiences (Barr, Kahn, & Schneider, 2008; Kennedy-Moore & Watson, 2001). Research investigating client self-disclosure in therapy indicates that benefits associated with treatment are positively correlated with level of client disclosure (Farber & Hall, 2002; Kahn, Achter, & Shambaugh, 2001). However, it is necessary to note that self-disclosure is not always associated with positive outcomes and this is especially true when the disclosure occurs in inappropriate, nonclinical settings. For example, some research focusing on disclosure in nonclinical settings found that excessive disclosure in the form of rumination can interfere with positive coping skills (Nolen-Hoeksema, 1991). In addition, Nolen-Hoeksema

(1999) notes that the discloser may be criticized by listeners for the thoughts and feelings they are disclosing, which could lead to the deterioration of social support systems. Nonetheless, as client disclosure in therapy has been shown to be a central feature of positive therapeutic outcomes (Farber & Hall, 2002), research that focuses on identifying techniques to increase client self-disclosure have the potential to increase treatment efficacy.

Despite the benefits of self-disclosure, there are some conflicting findings in the literature between client self-disclosure in therapy and health outcomes (Kahn et al., 2001). Whereas some research indicates that client self-disclosure is beneficial to therapeutic outcomes (e.g., Farber & Hall, 2002; Kennedy-Moore & Watson, 2001), other research has found that self-disclosure has no significant impact on therapy (e.g., Stiles, 1995). Kahn et al. (2001) contend that the discrepancies in research on disclosure in therapy can be explained by the various conceptualizations of self-disclosure. Specifically, Kahn and colleagues argue that it is important for research to differentiate between distress disclosure and self-disclosure. Distress disclosure is the disclosure of unpleasant, distressing thoughts or feelings, while self-disclosure involves the disclosure of personal, and sometimes trivial, information that is not necessarily distressing (Kahn & Hessling, 2001). As such, Kahn et al. argue that research investigating client disclosure and its relationship to therapy outcomes should focus specifically on the disclosure of personally distressing information. Consistent with this recommendation, the current study will specifically be evaluating distress disclosure in an analogue to a therapy session.

By extension, the reluctance to disclose distressing information in a therapeutic setting has been associated with poorer therapeutic outcomes (Hill, Thompson, Cogar, & Denman, 1993; Kahn et al., 2001). In a non-therapeutic setting, self-concealment, conceptualized as the avoidance of disclosing negative feelings and experiences, has been associated with aversive

health outcomes, including headaches, backaches, anxiety and depression (Larson & Chastain, 1990). Thus, it is important to assess processes, such as mindfulness exercises, that may increase client disclosure of stressful information. Several therapeutic techniques that incorporate mindfulness encourage an open and nonjudgmental stance towards one's emotions and experiences as a means to increase contact with negative internal events (i.e., mindfulness-based cognitive therapy for depression). As correlational research has suggested that characteristics of mindfulness (i.e. psychological flexibility) are related to disclosure (Masuda et al., 2011), the present study will examine if participants who receive a mindfulness intervention engage in greater distress disclosure in comparison to those in the control condition.

Effects of Written Distress Disclosure

Most research assessing the effects of distress disclosure have focused on written distress disclosure. According to Slavin-Spenny, Cohen, Oberleitner, and Lumley (2010), distress disclosure research largely focuses on written rather than verbal disclosure in order to "…enhance experimental control by eliminating the possible awkwardness of talking to a tape recorder or the potential complications of the presence of a listener" (p. 994). As such, it is important to note that although the present study is examining verbal distress disclosure, the research in the following section is primarily examining the effects of written distress disclosure.

The majority of research assessing the impact of distress disclosure on health have utilized the emotional disclosure or emotional writing paradigm developed by Pennebaker and Beall (1986). This paradigm has been used in hundreds of studies and most often involves assigning participants to one of two or more groups (Lumley, 2004). Participants in the control group most often write about trivial matters (e.g., time management, what they have done that day), while participants in the experimental group write about traumatic or stressful experiences.

Groups are generally asked to write for fifteen to thirty minutes each day, for three to five days (Pennebaker, 1997). Studies have used this paradigm with a variety of populations and have found positive effects on both physical and psychological health (Sloan & Marx, 2004).

The potential positive effects of distress disclosure have been explored in numerous studies (Kennedy-Moore & Watson, 2001). For example, disclosing emotional information has been found to help individuals make sense of negative life events, improve emotion regulation, improve social connectedness (Kennedy-Moore & Watson, 2001; Pennebaker & O'Heeron, 1984), and neutralize the intensity of negative life events (Zech & Rimé, 2005). The disclosure of emotional experiences also has been associated with reduction in distress (Kennedy-Moore & Watson, 2001; Stanton et al., 2000) and improvement in physical health (Pennebaker & O'Heeron, 1984.). Frattaroli (2006) conducted a meta-analysis of 146 randomized studies examining distress disclosure, in which 86% of the studies examined written disclosure, while 4% examined either verbal alone, and 10% used a combination of verbal and written distress disclosure. Frattaroli found experimental distress disclosure to have a small but significant effect on participants' psychological and physical health, as well as overall functioning (ES= .08; Frattaroli, 2006). No significant differences in participant outcomes were found across modes of disclosure (e.g., written, verbal, combination; Frattaroli, 2006).

As mentioned above, attempts to avoid emotional expression have been shown to be associated with negative physical (Kennedy-Moore & Watson, 2001; Pennebaker, 1985) and psychological outcomes (Barr et al., 2008; Kennedy-Moore & Watson, 2001). For example, Barr et al. (2008) found that a reluctance to express emotion was related to an increased number of psychological symptoms, including anxiety and depression. Kumpula, Orcutt, Bardeen, and Varkovitzky (2011) examined experiential avoidance tendencies of students who were

bystanders in a school shooting. They found that experiential avoidance was positively correlated with feelings of dysphoria eight months after the shooting took place. Another study found that concealment tendencies among college students were positively correlated with psychological distress. Moreover, high self-concealing students were more than three times likely than low self-concealing students to report needing but not seeking psychological help (Cepeda-Benito & Short, 1998).

Who Discloses?

Although disclosing emotional experiences appears to be inherent to human behavior (Nils & Rimé, 2012), it is clear that individuals vary in how willing and how much they disclose their distress (Barr et al., 2008; Kennedy-Moore & Watson, 2001). For example, one study found that individuals with higher levels of private self-consciousness and social support were more likely to disclose personally distressing information as compared to individuals with lower levels of these variables (Greenland, Scourfield, Maxwell, Prior, & Scourfield, 2009). Although one might expect high levels of social support to be associated with increased levels of distress disclosure, the positive relationship between private self-consciousness and distress disclosure may seem counter-intuitive. Greenland et al. (2009) theorized that this relationship was present because individuals with high private self-consciousness are more likely to be aware of their internal states, including distress, as compared to individuals with low private self-consciousness. Thus, distress is thought to be more salient among individuals with high levels of private self-consciousness. Interesting, Greenland et al. also found an interaction between gender and femininity: femininity was associated with increased distress disclosure in men but not women. An interaction was also found between gender and social support, in that social support

experienced by women was positively correlated with distress disclosure but did not make a difference in the distress disclosure tendencies of men (Greenland et al., 2009).

Other research has found that individuals who are ambivalent about their emotions are less likely to disclose information as compared to those who are less ambivalent about the emotions they are experiencing (King & Emmons, 1990). In other words, people who feel as if they have a limited understanding about what they are feeling are less likely to disclose distressing information. Evidence further suggests that some people simply have a predisposition to keep personal information, whether distressing or not, private, while others experience reservations in disclosing specifically distressing information (Larson & Chastain, 1990). Not surprisingly, individuals with a predisposition or tendency to conceal information are also less likely to seek psychological help (Vogel & Wester, 2003), which is unfortunate in light of the previously mentioned findings that emotional avoidance, or concealment, is associated with psychological health issues (Barr et al., 2008; Kennedy-Moore & Watson, 2001; Pennebaker, 1984). Thus, it seems that research has begun to identify specific characteristics that are associated with tendencies to disclose (or conceal) distressful information.

Theories of Health Benefits of Disclosure

As mentioned above, most research assessing the benefits of distress disclosure cite the emotional disclosure or emotional writing paradigm of Pennebaker and Beall (1986) as the standard method for assessing emotional disclosure. Pennebaker (1997) has proposed two broad theories which attempt to explain why emotional disclosure has positive outcomes: the inhibition model of psychosomatics and the cognitive adaptation model. In brief, the inhibition model of psychosomatics involves the assumption that not talking about experiences is a form of active inhibition which invokes physiological stress. In turn, physiological stress can result in illness

and other negative health outcomes (Pennebaker, 1997). Talking or writing about personally distressing experiences is assumed to decrease the physiological stress associated with inhibition. In accordance with this model, if emotions that arise in response to a stressful event are not adaptively regulated and if a person inhibits, suppresses, or avoids experiencing the emotions, then the stress experience will be prolonged (Lumley, 2004).

An alternative explanation, the cognitive adaptation model (Pennebaker, 1990), proposes that benefits of emotional expression occur because after writing or speaking about a traumatic event, disclosers are better able to reorganize their experience in a coherent way and are also more likely to obtain new insight, allowing them to reframe the meaning of their experience (Pennebaker & Beall, 1986; Shim, Cappella, & Han, 2011). Pennebaker (1990) suggests that after talking or writing about emotional events, disclosers are able to better understand their experience, and thus resolve feelings of distress and reduce rumination which, in turn, can result in lower stress and increased physical and psychological health.

A more recently developed theory, the exposure-habituation model proposed by Shim and colleagues (2011), suggests that emotional disclosure results in health benefits for similar reasons that exposure therapy for post-traumatic stress disorder (PTSD) produces positive health outcomes. The exposure-habituation theory of PTSD offered by Foa and Kozak (1986) suggests that repeatedly confronting a feared or distressing stimulus or experience, while initially very distressing, will eventually lead to a decrease in distress and habituation to the stimulus or experience. Similarly, the emotional-habituation model maintains that the Pennebaker writing paradigm provides a context in which participants are exposed to stressful stimuli each time they write about their personally traumatic experiences and emotional reactions (Shim et al., 2011). As participants write about their traumatic experience and emotional responses, they are likely to

initially experience distress (Lepore & Greenberg, 2002). However, repeated exposure to the stressful experience through writing may promote habituation to both the traumatic experience and emotional reactions surrounding the experience (Sloan & Marx, 2004). A study testing this model found that participants who wrote about the same traumatic experience on three separate occasions demonstrated significant improvements in physical and psychological health outcomes, while participants who wrote about different traumatic experiences on three occasions did not show significant psychological and physical improvements (Sloan, Marx, & Epstein, 2005). In consideration of these results, it appears that exposure to a negative or distressful experience via writing may result in habituation to the negative feelings associated with the experience.

Client Disclosure in Therapy

Beginning with Freud's fundamental rule (1913/1958) that patients must disclose everything that comes to the mind to their therapists, clients are often encouraged to openly discuss the intimate, private details of their lives in therapy (as cited in Farber, Berano, & Capobianco, 2004). In fact, client disclosure is in most cases considered necessary for beneficial therapeutic outcomes, as it provides the therapist with the information needed to design and implement interventions for the client (Farber, 2003). Research suggests that although most clients eventually disclose very personal information in therapy, a significant number of clients conceal, at least some, important information (Farber, 2003). Just as research suggests that individuals differ in their propensities to disclose versus conceal distressing information in nontherapeutic settings, findings also suggest that several client characteristics are related to a client's likelihood of disclosing or concealing information. As one would expect, the actual content of information to be disclosed (or concealed) has also been found to be related to a

client's likelihood of disclosing in therapy (Farber, 2003). Specific topics that clients often avoid talking about in therapy are further discussed below.

When discussing client disclosure in therapy, it is important to note that many clients terminate treatment within the first few sessions (Barrett et al., 2009; Roos & Werbart, 2013). A meta-analysis of 125 studies on premature termination of psychotherapy found a mean dropout rate of 46.86% (Wierzbicki & Pekarik, 1993). Roos and Werbart (2013) conducted a qualitative literature review of 44 studies that were conducted between January 2000 and June 2011. They found a weighted drop-out rate of 35% and found many factors to be significant indicators of client dropout, including therapist experience, client dissatisfaction, and quality of therapeutic alliance. In light of the high premature termination rates, it is important to acknowledge that research on client disclosure in therapy largely reflects on the characteristics of clients who remain in therapy and not those who terminate, which may be those who have the tendency to conceal their distress.

Although most clients acknowledge the relief that comes with disclosure (Hill et al., 1993), clients and therapists agree that disclosure in therapy is at times very difficult and can be accompanied with intense feelings of guilt, shame, doubt, fear, and nervousness (Farber, 2003). Hill et al. (1993) cite three client covert processes as the mechanisms behind client nondisclosure: reactions (failure to disclose immediate thoughts and feelings about specific therapeutic interventions), things left unsaid (purposefully leaving out information about feelings or thoughts), and secrets (major life experiences or feelings deliberately withheld). In a study assessing clients in long-term therapy, researchers found that clients are more likely to hide negative reactions as compared to positive reactions. They also

found that the majority of clients (65%) left (usually negative) things unsaid in sessions, and that

nearly half of clients (46%) reported withholding secrets from their therapist (Hill et al., 1993).

Content or topic of information has also been shown to be related to client disclosure and

nondisclosure (Hill et al., 1993). A study utilizing the Disclosure to Therapist Inventory-Revised

(DTI-R; Farber & Hall, 2002) to assess disclosure patterns in psychotherapy found that negative

feelings about the self and feelings about intimate experiences were the two themes most often

discussed (Farber & Hall, 2002). Feelings of frustration, anger and depression, most often

resulting from a client's perceived inadequacy in either them self, a parent, or an intimate

partner, were also key issues clients often discussed in therapy. On the other hand, the least

discussed topics that the inventory identified were related to sexuality and procreation (Farber &

Hall, 2002).

Although Farber et al. (2004) found that overall most clients feel that therapy is a safe

place to disclose experiences and feelings, there are some issues that clients generally have a

difficult time expressing (Farber & Hall, 2002). Research indicates that clients often have a

difficult time disclosing their sexual feelings about a variety of different topics such as sexual

fantasies, sexual feelings towards their therapist, interests in pornography, and feelings and

experiences with masturbation (Hall & Farber, 2001). A client's reluctance to disclose

experiences or feelings may reflect the desire to avoid feelings of shame or feelings of being

overwhelmed by specific experiences and emotions (Hill et al., 1993). On the one hand, Farber

(2003) suggests that nondisclosure may reflect the simple fact that the client does not view these

topics as important or relevant to their therapeutic outcome. However, if issues withheld in

therapy reflect topics that are distressing for the client, it could pose problems for therapeutic

outcomes, as well as the health of the client (Hill et al., 1993). As such, techniques that promote

client self-disclosure may be beneficial for client well-being, particularly among clients who have problems disclosing. In a study assessing disclosure tendencies of twenty-one psychotherapy patients, Farber et al. found that 42.8% of clients reported that it is most difficult to disclose information when they are afraid of how their therapist will react. Another 38.1% reported that the fear of how they personally will react emotionally most often inhibits their disclosure (Farber et al., 2004), suggesting that for some clients, the avoidance of experiencing emotions motivates their nondisclosure.

As outlined above, individuals differ in their propensities to either talk or refrain from talking about personally distressing topics and/or emotions. An individual's inherent tendency to self-conceal also correlates with their level of disclosure in therapy, as well as their benefits from therapy (Kahn et al., 2001). Although early research indicates that gender has an effect on client disclosure (Jourard, 1971), more recent research largely supports the idea that males and females are equally likely to disclose personal information in a therapeutic setting and largely discuss (and avoid) similar topics (Farber, 2003; Farber & Hall, 2002; Hill et al., 1993). Research further suggests that the degree of therapeutic alliance, as well as length of time in therapy, is positively correlated with level of disclosure (Farber & Hall, 2002; Hall & Farber, 2001). However, it is unclear if a strong therapeutic alliance encourages more disclosure or if clients who disclose more often are also more likely to rate their relationship with their therapist as favorable (Farber, 2003; Hall & Farber, 2001). Nonetheless, Farber (2003) proposes that a positive therapeutic alliance may facilitate an environment in which clients feel free to explore and disclose their feelings and experiences, which can lead to a better understanding of the self and improved therapeutic experiences.

Research has also examined client perspectives on disclosure in psychotherapy. Farber et al. (2004) found that most clients believe it is better to share their thoughts and feelings with their therapist. Clients also seem to believe that "keeping secrets" from their therapist can result in poor outcomes in therapy. Farber et al. (2004) also found that although clients typically experience anxiety and ambivalence before and during the disclosure of intimate information, they also experience a sense of relief from emotional and physical tension. Farber (2006) conducted a study that examined the emotional experiences of twenty-one clients in psychotherapy. Results largely replicated previous findings, indicating that therapy patients generally have a positive attitude towards disclosure, ambivalence before and vulnerability during disclosure, and predominately positive emotions following disclosure (Farber, 2006).

Mindfulness

Interest in mindfulness, particularly in its application in psychotherapy, has increased considerably over the past twenty years (Brown, Ryan, & Creswell, 2007). Over this time several definitions of mindfulness have emerged. A commonly referred to definition defines mindfulness as "paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally" (Kabat-Zinn, 1994, p. 4). Bishop et al. (2004) suggest a two-component model of mindfulness that includes the ability to self-regulate attention in order to focus on current experiences and involves adopting a curious, open, and accepting orientation towards one's experiences. The first component more specifically encompasses the ability to return to current experiences after the mind wanders and the cultivation of awareness of present feelings, emotions, thoughts and sensations, while the second component highlights the importance of approaching experiences, even undesirable ones, with curiosity and acceptance (Hayes & Feldman, 2004).

The practice of mindfulness has been used to alleviate human suffering for over 2,500 years, chiefly in the form of Buddhist mindfulness meditation (Germer, Siegel, & Fulton, 2013). In contemporary western psychology, mindfulness has been used to increase awareness and build skills that enable adaptive responding to emotional and behavioral distress (Bishop et al., 2004). Both western psychotherapy and Buddhist mindfulness meditation were developed in response to psychological suffering (Germer et al., 2013). Traditionally, Western psychotherapies viewed human suffering as a symptom of some underlying disorder that should be diagnosed and treated. Conversely, Buddhist mindfulness meditation view human suffering as an inescapable experience that is inherent to human life (Germer et al., 2013). Modern interventions incorporating mindfulness, such as Acceptance and Commitment Therapy (ACT) and Dialectical Behavior Therapy (DBT), are now adopting a view of suffering that is more reminiscent of the Buddhist view on suffering (Hayes, Strosahl, & Wilson, 1999).

Mindfulness is a multifaceted construct (Baer, Smith, Hopkins, Krietmeyer, & Toney, 2006) that is most often described through the concepts of awareness, attention, and acceptance, or nonjudgment. Awareness can be defined as: "the conscious registration of stimuli, including the five physical senses, the kinesthetic senses, and the activities of the mind" (Brown et al., p. 212, 2007). A major goal of mindfulness is to increase client awareness of emotions, thoughts, and feelings in the "here and now" without labeling these internal experiences as either negative or positive (Broderick, 2005). Roemer and Orsillo (2009) point out that many people have a tendency towards over identification with thoughts and feelings, responding with distress towards various internal experiences, and to label painful experiences as "negative and stigmatizing" (p. 75). According to Roemer and Orsillo, treatments that focus on the cultivation of acceptance through mindfulness have been shown to help clients adopt a more adaptive

relationship with their internal experiences by allowing them to observe their emotions, feelings, and thoughts with openness and curiosity.

Mindfulness involves allowing emotional experiences to take place without attempting to change, avoid, or escape these internal experiences (Baer et al., 2006). At the same time, mindfulness also permits individuals to remain in the present moment and realize when thoughts, feelings, and emotions of the past, present, and future are impeding present moment awareness (Brown et al., 2007). In other words, through the practice of mindfulness clients learn to recognize when they are becoming trapped in an array of unhelpful thoughts. Brown et al. (2007) further suggest that it is in human nature to "time-travel" to "memories of the past" and "fantasies of the future" (p. 214). Although the researchers agree that this is important for maintaining our concepts of self, often through this "time-travel" we forget to live in the present, resulting in current reality only being partially experienced or even completely ignored (Brown et al., 2007).

Benefits of Being Mindful

Mindfulness has been associated with numerous positive outcomes (Baer, 2003), such as the prevention of normal feelings of anxiety, stress, and sadness from escalating into extended feelings of distress (Williams & Penman, 2011). Although a recent meta-analysis supported the notion that mindfulness can be cultivated and improved through meditation and training (Keng, Smoski, & Robins, 2011), research also suggests that mindfulness can be conceptualized as a trait that varies from person to person (Brown & Ryan, 2003). Dispositional, or trait, mindfulness has been found to be associated with greater satisfaction with life and self-esteem (Pepping, O'Donovan, & Davis, 2013). In addition, Brown and Ryan (2003) found trait mindfulness to be associated with lower levels of negative affect, higher levels of self-esteem and self-awareness,

better regulation of moods, and higher instances of positive emotional states. On the other hand, lower levels of trait mindfulness have been found to be associated with psychological distress (Brown & Ryan, 2003), as well as poor self-control and self-regulation of emotions (Brown et al., 2007).

In addition to studies examining the relationships between trait mindfulness and health outcomes, results from studies that experimentally induced a mindfulness state in participants have indicated numerous health benefits of practicing mindfulness meditation. For example, Broderick (2005) found that a mindfulness meditation exercise attenuated the intensity of dysphoric moods in participants significantly more so than did distraction and rumination conditions, suggesting that mindfulness meditation can help lessen negative mood states. Arch and Craske (2006) conducted a study in which participants viewed affective (e.g., neutral, positive, and negative) pictures before and after engaging in one of three conditions: a mindfulness of breath condition, an unfocused attention condition in which they were encouraged to let their attention wander, and a worry condition in which participants were prompted to worry about various topics. Results indicated that participants who engaged in the mindfulness exercise had overall lower affective responses to the slides and were more willing to view optional negative slides in comparison to participants of the worry and unfocused attention conditions. According to Arch and Craske (2010), results of Broderick and Arch and Craske indicate that mindfulness inductions result in improved emotion regulation in response to dysphoric mood inductions. In addition to improved emotion regulation following a mindfulness induction, research has indicated that mindfulness increases one's willingness to experience uncomfortable emotions. Eifert and Heffner (2003) found that participants who were instructed to mindfully observe their symptoms of anxiety after being exposed to an anxiogenic stimulus

were less behaviorally avoidant and reported experiencing less fear and catastrophic thoughts as compared to participants who were given instructions to control their anxiety and participants who were not given any instructions.

Mindfulness-Based Interventions

As mentioned above, research on the effectiveness of mindfulness-based interventions has shown that several interventions incorporating mindfulness are useful in reducing the psychological distress associated with a variety of mental health problems (Baer, 2003). Germer et al. (2013) cite four well-established and empirically supported mindfulness-based treatment programs that have been used to treat a variety of physical and psychological conditions: mindfulness-based stress reduction (MBSR; Kabat-Zinn, 2013), mindfulness-based cognitive therapy (MBCT; Segal, Williams, & Teasdale, 2002), dialectical behavior therapy (DBT, Linehan,1993a, 1993b), and acceptance and commitment therapy (ACT; Hayes et al., 1999). While MBSR and MBCT can be considered interventions directly based on Buddhist mindfulness meditation, ACT and DBT incorporate mindfulness training as one component of an intricate model of therapy (Baer, 2003). MBSR and MBCT utilize both formal mindfulness practices, such as meditating forty-five minutes per day, and informal mindfulness practices, such as remaining mindful during mundane activities, such as when brushing your teeth. Conversely, ACT and DBT primarily emphasize brief, less formal mindfulness exercises that can be practiced anytime of the day (Baer & Krietmeyer, 2006).

MBSR, the most widely used and structured mindfulness training intervention, was created by Jon Kabat-Zinn to help chronically physically ill patients. MBCT has been adapted from MBSR by researchers and clinicians who incorporated strategies from cognitive-behavior therapy to help treat patients with chronic depression (Germer et al., 2013). ACT, on the other

hand, incorporates mindfulness by teaching clients to acknowledge and observe thoughts, emotions, and sensations in a nonjudgmental and accepting manner (Baer, 2003). According to Baer (2003), although ACT does not refer explicitly to mindfulness or meditation in describing its treatment methods, it does incorporate strategies that are consistent with mindfulness practices. For example, self-as-context, one of the core processes of ACT, is based on the idea that a transient sense of self promotes psychological well-being and is cultivated through mindfulness (Hayes & Strosahl, 2004). DBT, a multifaceted intervention originally developed for the treatment of chronic suicidality (Linehan, 1993a, 1993b), is another intervention that utilizes mindfulness practices (Germer et al., 2013) in order to allow patients to accept themselves, their histories, and their current situations while simultaneously striving to alter destructive behaviors to achieve a more fulfilling life (Baer, 2003).

As previously mentioned, MBCT was adapted from MBSR. Segal et al. (2013) built upon MBSR so it could be used to prevent relapse in people with a history of depression. The program is separated into two main stages, each consisting of four sessions (Segal et al., 2013). Results of clinical trials show that MBCT is as at least as effective as antidepressants in preventing relapse in those with a history of depression (Williams & Penman, 2011). As MBCT illustrates how mindfulness can be used effectively in therapy, it is useful to understand in more detail the specifics of the program.

MBCT for depression is an eight session intervention which overall, "…prioritizes learning how to pay attention on purpose, in each moment and nonjudgmentally" (Segal et al., 2013, p. 84). In the first four sessions, clients are taught the basics of mindfulness. They learn how little they pay attention to events in their everyday life and also become aware of how easily the mind travels (Segal et al., 2013). Eventually, the clients develop skills in bringing a

wandering mind's attention to a "single focus" (Segal et al., 2013, p. 84). Finally, clients learn

how negative thoughts and feelings can intensify without their awareness when the mind is

wandering. This is initially taught by instructing clients to focus on parts of their body, as well as

on breathing (Segal et al., 2013). For example, clients are taught to focus on each breath during a

mindfulness exercise. Through this focus, clients are able to observe thoughts as they arise and

eventually end struggles associated with these thoughts (Williams & Penman, 2011).

In the second stage of MBCT clients learn to identify and handle mood shifts (Segal et

al., 2013). When a negative mood or feeling arises, clients are taught to accept it, allow it to be

felt, and remain open and curious about it. After acknowledging the feeling, clients are instructed

to switch attention to their breathing for a few minutes before enlarging their attention to their

entire body. This is referred to as the "breathing space", a concept that is a central feature of the

program. (Segal et al., 2013, p. 84).

Mindfulness and Distress Disclosure

Although a few recent studies have investigated the utility of mindfulness as a means to

increase emotional disclosure (e.g., Eitel, 2014; Moore, Brody, & Dierberger, 2009; Poon &

Danoff-Burg, 2011), research in this area is scarce. Furthermore, it appears that all of the

research linking mindfulness to the benefits of emotional expression involves disclosure through

expressive writing. Brody and Park (2004) suggested that expressive writing increases awareness

in a way that is similar to mindfulness. With this in mind, Poon and Danoff-Burg (2011)

hypothesized that trait mindfulness would moderate the impact of expressive writing on

psychological and physical health benefits. In support of their hypotheses they found that

participants who had high trait mindfulness scores demonstrated greater psychological and

physical outcomes following an expressive writing task compared to participants with low trait

mindfulness scores. Another study examined whether narrative distress disclosure would increase mindfulness and decrease experiential avoidance and health problems (Moore et al., 2009). Although the researchers did not find that narrative writing significantly improved experiential avoidance and health, they did find an association between higher baseline trait mindfulness and improved psychological outcomes following the writing intervention for both the control and experimental group (Moore et al., 2009). As such, Moore et al. (2009) suggested that individuals may benefit more from written expression if they are able to cultivate greater levels of mindfulness.

The present study is based on and is an extension of Eitel's (2014) research which, similar to the Moore et al. (2009) study, examined the effects of mindfulness on written emotional disclosure. Eitel's study utilized Pennebaker's writing paradigm and compared the written distress disclosure manuscripts of an experimental group and a control group. Participants in the experimental group engaged in a mindfulness induction before writing about a distressing experience, while participants in the control group listened to a neutrally valenced audiotape before writing about a distressing experience. Using the Linguistic Inquiry and Word Count (LIWC; Pennebaker, Francis, & Boothe, 2001), a text analysis program that categorizes words of a written sample according to multiple word-category dimensions, Eitel compared the percentage of emotion (positive and negative) and cognitive processing (insight and causation) words used by each group. Results indicated that in comparison to participants in the control group, participants in the experimental group used a significantly higher percentage of insight related words (e.g., think, know, consider, accept, feel). However, no significant difference was found in the percentages of emotion (positive or negative) or causation words between the two groups.

Although there appears to be three studies that have investigated the relationship between mindfulness and expressive writing (Eitel, 2014; Moore et al., 2009; Poon & Danoff-Burg, 2011), to the author's knowledge no study has directly assessed the relationship between mindfulness and verbal distress disclosure. Slavin-Spenny et al. (2010) point out that verbal distress disclosure to a listener is more natural and far more common than written distress disclosure. Furthermore, verbal distress disclosure is more consistent with what occurs in a therapy session. As verbal disclosure is the principle means of communication in therapeutic settings, this study will investigate how a mindfulness induction affects verbal distress disclosure in an analogue to therapy session in which the person is asked to reveal and describe a distressing experience, as well as their thoughts and feelings about the experience.

The Present Study

As stated above, client distress disclosure has been found to be associated with positive therapeutic outcome such as improved health outcomes (Farber, 2006; Hill, Gelso, & Mohr, 2000), as well feelings of relief immediately following disclosure (Farber, Berano, & Capobianco, 2004). However, clients and therapists agree that at times disclosure can be difficult and can sometimes be associated with intense feelings of guilt, shame, doubt, fear, and nervousness (Farber, 2003). As a result, clients may avoid distress disclosure as an attempt avoid experiencing additional and/or increased distress. Therapies incorporating mindfulness emphasize the importance of refraining from avoiding or attempting to escape negative emotions (Segal et al., 2013). Thus, the present study is designed to examine whether a mindfulness induction will facilitate self-disclosure using a verbal distress disclosure paradigm.

Hypotheses

1.) In comparison to the control condition, participants in the mindfulness condition would

demonstrate a greater increase in levels of self-reported state mindfulness from pre- to

post-intervention, as measured by the Toronto Mindfulness Scale (TMS; Lau et al.,

2006). This is a manipulation check and was analyzed using an independent samples *t*-

test, with Condition as the independent variable (IV) and TMS scores (T1 and T2) as the

dependent variables (DVs).

2.) Participants in the mindfulness condition would demonstrate greater emotional

disclosure, which was objectively measured using the Linguistic Inquiry and Word Count

(LIWC: Pennebaker et al., 2001), as well as subjectively measured using the State

Disclosure Questionnaire (SDQ). Specifically, it was predicted that participants in the

mindfulness condition would use a greater percentage of emotion words (positive and

negative), and cognitive processing words (causation and insight related words), as

measured by the LIWC. This was analyzed using an independent samples *t*-test, with

Condition as the IV and the LIWC word categories as the DVs. It was also predicted that

participants in the mindfulness condition would perceive themselves as disclosing more

during the verbal distress disclosure than participants in the control condition, as

evidenced by higher scores on the SDQ. This was measured using an independent

samples *t*-test, with Condition as the IV and SDQ scores as the DV.

3.) It was predicted that distress disclosure, conceptualized as a trait and measured by the

Distress Disclosure Index (DDI; Kahn & Hesslings, 2001), would be positively correlated

with trait mindfulness, as measured by the Five Facet Mindfulness Questionnaire

(FFMQ; Baer et al., 2006). Specifically, participants who reported being more likely to

disclose their distress to others would also report being more open to their internal

experiences (i.e., more mindful of their experiences). This was analyzed using a

Spearman's Rho correlation.

4.) It was also predicted that trait distress disclosure and trait mindfulness would predict the

level of objective emotional expression (measured by the LIWC) and the level of

subjective emotional expression (measured by the SDQ). Five multiple linear regression

analyses were conducted using the DDI and the FFMQ as predictor variables and the

LIWC word categories [emotion words (e.g., positively and negatively valenced words),

causation words (e.g., cause, because, effect) and insight related words (i.e., think, know,

consider, feel, accept)] and scores on the SDQ as outcome variables.

Method

Participants

Participants were 86 undergraduate students enrolled in Psychology 101 at the University

of South Carolina Aiken who volunteered to participate to receive course credit in exchange for

their participation in the study. Students had the option to participate in other studies or to write a

brief paper instead. Participants were randomly assigned using English-Prime software (E-Prime;

Version 2.0, Schneider, Eschman, & Zuccolotto, 2012) to one of two conditions: a neutral audio

condition (control condition) or a mindfulness induction condition (experimental condition).

Forty-six participants (53.5%) were assigned to the control condition and 40 (46.5%) were

assigned to the experimental condition.

The final sample of participants was composed of 64 females (74.4%) and 22 males

(25.6%). Of the 64 female participants, 33 (51.56%) were assigned to the control condition and

31(48.44%) were assigned to the mindfulness condition. Of the 22 male participants, 10

(45.45%) were assigned to the mindfulness condition and 12 (54.54%) were assigned to the

control condition. Participants' age ranged from 18 to 25 years, and the mean age of participants

was 19.14 years (SD = 1.26). The sample included 61 freshmen (70.9%), 18 sophomores

(20.9%), and 7 juniors (8.1%). Participants identified themselves as the following ethnicities: 53

Caucasian (61.6%), 23 African American (26.7%), five Other (5.8%), four Hispanic (4.7%), and

one Asian American (1.2%).

In order to assess if previous experience with mindfulness impacted the results,

participants were also asked if they had any experience with mindfulness, and if so, to describe

the experience. Of 86 participants, 16 (18.6%) indicated that they had experience with

mindfulness: seven participated in yoga, five engaged in meditation, two attended a lecture on

mindfulness, and one indicated prayer as their experience with mindfulness. In addition, one

participant confirmed that they had experience with mindfulness but did not describe their

experience. Of the 16 participants who indicated they had experience with mindfulness, eight

were assigned to the control condition and eight were assigned to the mindfulness condition.

Measures

*Demographic Questionnaire (*See Appendix A*).* Demographic information (i.e., age,

ethnicity, sex) was obtained using a study-specific questionnaire that was created by the author.

*Distress Disclosure Index (*DDI; Kahn & Hessling, 2001; See Appendix B*).* The DDI was

used to asses each participant's tendency to disclose (versus conceal) personally distressing

information to another person. The measure consists of 12 items that were rated by participants

on a 5-point Likert scale from 1 (*strongly disagree)* to 5 (*strongly agree).* Higher scores on this

measure are associated with higher tendencies to disclose negative events and psychological

distress. Kahn and Hessling (2001) found that scores on the DDI correlate positively with

measures of self-disclosure, social support, and extraversion. Likewise, DDI scores correlate

negatively with scores on self-concealment. The DDI has been found to have good internal

consistency, with a Cronbach's alpha value ranging from .92 to .95. Furthermore, the authors of

the measure report strong stability of self-disclosure (tested over a two-month period) with a

correlation of .80 (Kahn & Hessling, 2001).

Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006; see Appendix C). The

FFMQ is a 39-item self-report measure assessing an individual's general tendency to be mindful.

The items that compose this scale are divided into five subscales or facets of mindfulness: Non-

reactivity to inner experiences (the tendency to let thoughts and feelings come and go without

getting caught up in them), Observing (noticing and attending to external and internal

experiences), Describing (labeling internal experiences with words), Acting with awareness

(attending to activities in the present moment), and Non-Judging of inner experience (taking a

non-evaluative stance towards feelings and thoughts). Each item is rated is on a Likert scale

ranging from 1 (*never or very rarely true*) to 5 *(very often or always true)*. The FFMQ has been

found to be related to similar constructs, such as openness to experience and thought

suppression. Individuals who are self-described as experienced meditators have been found to

score higher on this measure. In addition, individuals' scores tend to increase following training

in mindfulness. Baer and colleagues (2006) found that the scales coefficient alpha (i.e.,

reliability) for the subscales range from .75 - .91 and report that the FFMQ is reliable and valid

in non-clinical community and student samples.

*State Disclosure Questionnaire (*SDQ; see Appendix D). The SDQ, a self-report measure of

state disclosure, was designed for the present study as a way to subjectively measure self-

disclosure. Specifically, this measure was created to assess participants' perceptions of how

much they disclosed about their stressful or traumatic experience during the verbal disclosure. The SDQ consists of 9 items that are rated by participants on a 5-point Likert Scale from 0 (*not at all)* to 4 (*very much*). Higher scores on this measure reflect higher participant perceptions of self-disclosure. The present study found an overall Cronbach's alpha value of .78, suggesting good reliability.

Toronto Mindfulness Scale (TMS; Lau et al., 2006; See Appendix E). The TMS is a state measure of mindfulness that was used as a manipulation check. The measure was specifically designed for use immediately following a meditation exercise and consists of a 12-item, two-factor structure (Curiosity and Decentering). The items of factor 1 (Curiosity) reflect a quality of being open to and curious about one's own internal experiences, while the items of factor 2 (Decentering) reflect a shift from becoming entangled in one's feelings and emotions to observing one's emotional experiences more openly. Research suggests sound internal consistencies for each factor, with coefficient alpha levels of .86 and .87 for Curiosity and Decentering, respectively (Lau et al., 2006).

Linguistic Inquiry Word Count (LIWC; Pennebaker et al., 2001). The LIWC is a text analysis program that categorizes words of a written sample according to multiple word-category dimensions, such as positive and negative emotion words, causation words, and insight words. External validity for this program was established by comparing the word categorizations of independent judges to the text analysis programs' categorization of cognitive processing, emotional, past tense, acceptance, and other word types (Pennebaker & Francis, 1996). Another study provided evidence for the construct validity of the LIWC in regards to its use as a measure of emotional expression. Kahn, Tobin, Massey, and Anderson (2007) found that the program was able to identify narratives that were specifically designed to contain target emotions. For

example, the LIWC revealed higher percentages of negative emotion words in narratives that

were written by participants who had just viewed a violent film clip. The authors maintain that

the LIWC appears to be a valid instrument in the measurement of emotional expression (Kahn et

al., 2007).

Procedure

Participants were provided with the Informed Consent document (see Appendix F) which

explained the purpose of the study and possible long- and short-term effects associated with

participation in the study. Participants were also informed of the availability of on-campus

psychological services in the event that they experienced significant distress during or following

their participation in the study and wished to seek assistance. Participants were given the

opportunity to ask questions about the informed consent and the study prior to signing the

consent form. Before they were eligible for participation, participants were required to sign the

informed consent document.

After completing the Informed Consent process, participants were asked to complete the

following self-report questionnaires in the following order: demographic questionnaire, FFMQ,

DDI, and TMS. With the exception of the demographic questionnaire, all questionnaires were

presented to participants using E-Prime software. Participants also were randomly assigned to

either the mindfulness condition or the control condition using E-Prime.

Participants in the control condition listened to a 15-minute, neutrally valanced excerpt

from the podcast "The Psych Files". The podcast discussed where emotions come from,

including cognitive and physiological theories of emotions. The podcast then discussed

arguments for and against each of the theories of emotion. After listening to the excerpt,

participants completed the TMS for the second time. Following the completion of the TMS, the

participants verbally received the following instructions, which were adapted from Slavin-

Spenny et al. (2011). Participants were also given a copy of the following instructions to remind

them of what they were being asked to talk about:

> If you are like most people, you have had some traumatic and/or upsetting
>
> experiences or events during your life. Some research suggests that when people
>
> talk about traumatic and/or upsetting events they have experienced, they feel less
>
> bothered by them. I would like you to please spend a few moments to identify one
>
> particularly traumatic and/or upsetting experience. While some traumas/stressors
>
> happen only once, others happen repeatedly or continue for a long time, and could
>
> even be occurring right now. Please try to identify a traumatic or upsetting
>
> experience that continues to bother you. This might be a traumatic and/or
>
> upsetting experience that you have not talked about or shared much with other
>
> people, or it may be one that you prefer not to think about. Now, I would like you
>
> to talk about this traumatic and/or upsetting experience. As you talk today, your
>
> task is to do the following: (a) try to make your memories of the experience as
>
> vivid as possible, including mental images, emotions, and sensations in your
>
> body; (b) try to describe both the facts about the experience, and also talk about
>
> your deepest feelings about it; (c) try to talk as much as you are able, even if there
>
> is some part of the experience that you are reluctant to talk about. The nature of
>
> the study asks that you speak for a minimum of fifteen minutes. However, if you
>
> find you do not want to continue talking or do not feel you have enough
>
> information to fill up the entire 15-minute time period, you will not be penalized
>
> for ending the interview prematurely. I will let you know when thirteen minutes

have elapsed and when the fifteen-minute time period is up. Do you have any

questions?

The researcher recorded the amount of time each participant talked, as it was expected

that some participants would not talk for the full 15 minutes (see Table 4 for Word Count and

Time Spoken means and standard deviations). Each participant's interview was audio recorded

by the researcher who served as a passive listener in order to ensure that all participants were

treated in a uniform manner during the interview. As a passive listener, the researcher was

empathic yet passive: the researcher used body language and neutral phrases, such as "uh-huh"

and "okay", in order to convey that she was listening to what the participant was saying and to

encourage the participant to continue speaking. However, the researcher did not provide any

prompts, questions, or directives as a means to explore the participant's emotions or ascertain

further information about the participant's experience. Following the completion of the verbal

distress disclosure interview, participants completed the SDQ. The researcher later transcribed

each participant's audiotaped interview into text following the interview in order to objectively

measure and analyze the emotional disclosure.

Participants in the mindfulness condition followed a similar procedure as participants in

the control condition. However, instead of listening to the neutrally valences podcast, they

listened to a 15-minute mindfulness exercise audiotaped by the researcher (See Appendix G for

transcript). The audiotaped mindfulness exercise was adapted from Erisman and Roemer's

(2010) 10-minute mindfulness intervention and includes extensions of two mindfulness

exercises. Erisman and Roemer (2010) developed this intervention from exercises often used in

clinical practices, such as ACT and MBSR. The intervention first described the concept of

mindfulness, followed by an experiential exercise in mindfulness. The recording then described

the way in which mindfulness principles apply to emotional experiences, followed by another

experiential exercise in which it encouraged participants to be mindful of their emotions. After

listening to the audiotaped mindfulness exercise, participants received the same instructions as

the participants in the control condition (see above) and also spoke to the passive listener, as

outlined above. After the interview, participants filled out the SDQ. As with the control

condition, the researcher transcribed each participant's audiotaped interview into text following

each session in order to measure the emotional disclosure using the LIWC program. The

researcher was blind to which condition the participants were in both during the verbal

interviews and also while transcribing the verbal interviews.

Participants discussed a wide variety of experiences, including being a chronic witness to

their parent fighting, being involved in a car accident, struggling with school work, and instances

of sexual assault. In the event that during the verbal disclosure a participant disclosed the intent

to harm themselves or others, the experimenter had planned to assess the participant for the need

for immediate intervention. However, no participants disclosed such intent. Similarly, in the

event that a participant disclosed information about harm to an elderly person, a disabled person,

or a child, the experimenter planned to determine with her faculty supervisor if reporting to the

department of social services was indicated. However, such disclosure was not made by any

participant.

Results

Descriptive Statistics

After exploring the data using graphs (e.g., histograms, box-plots) and statistical tests

(Levene's test, Kolmogorov-Smirnov test), it was discovered that much of the data violated

assumptions of normality and/or homogeneity of variance and/or contained multiple outliers.

Consistent with recommendations by Field (2013), the SPSS 23 bootstrap facility was applied to all statistical tests as a means of reducing bias associated with non-normal data. The bootstrap facility permits statistical tests to be run using robust estimates of the parameters (i.e., confidence intervals and standard errors). In the present study, bootstrap results are based on 1000 bootstrap samples, and bias corrected and accelerated (BCa) 95% confidence intervals are reported in square brackets (unless otherwise noted).

Assessing for Pre-existing Differences between Conditions

Pre-existing differences between conditions on trait mindfulness (measured using the FFMQ), trait distress disclosure (measured using the DDI), and pre-intervention state mindfulness (measured using the TMS) were assessed by conducting independent samples t-tests using the bootstrap facility. The FFMQ total mean difference between the mindfulness condition and control condition, -1.84, BCa 95% CI [-8.74, 5.60], was not significant, $t(84) = -0.50$, $p = .63$, $r = .05$. There also were not any significant differences between the two conditions on any of the five subscales of the FFMQ. Additionally, the DDI total mean difference between the conditions, -1.85, BCa 95% CI [-6.86, 3.54], was not significant, $t(84) = -0.72$, $p = .47$, $r = .08$. Finally, the pre-intervention TMS total mean difference between the two conditions, 0.46, BCa 95% CI [-2.36, 3.32], was not significant, $t(84) = 0.30$, $p = .75$, $r = .03$. See Tables 1 and 3 for condition means and standard deviations.

Given that a substantial number of participants indicated some experience with mindfulness, independent samples t-tests were also conducted to see whether or not previous experience with mindfulness impacted scores on trait mindfulness, trait distress disclosure, state distress disclosure, number of words spoken, length of time spoken, and change in state mindfulness from Time 1 to Time 2. As a reminder, a total of 16 participants indicated they had

experience with mindfulness; eight were assigned to each condition. No significant differences were found between participants who indicated they had experience with mindfulness and participants who indicated they had no previous experience with mindfulness (see Table 2). However, participants who indicated they had experience with mindfulness, on average, reported a marginally significantly greater level of trait mindfulness ($M = 132.13$, $SE = 4.91$) than participants who reported having no experience with mindfulness ($M = 122.23$, $SE = 1.89$). This difference, 9.87, BCa 95% CI [-.47, 20.65], $t(84) = 2.14$, $p = .07$, represented a small-sized effect, $r = 0.23$.

Hypothesis One

Hypothesis One was a manipulation check predicting that participants in the mindfulness condition would exhibit a greater increase in level of state mindfulness, as measured by the Toronto Mindfulness Scale (TMS), from pre- to post-intervention than participants in the control condition. As stated above, there was no significant difference between the conditions on sate mindfulness prior to the interventions. This hypothesis was largely supported.

An independent samples t-test using the bootstrap facility was conducted to assess for differences between conditions on change in TMS scores from pre- to post-intervention. On average, participants in the mindfulness condition demonstrated a greater increase in state mindfulness from pre- to post-intervention ($M = 6.20$, $SE = 1.69$) than participants in the control condition ($M = 1.63$, $SE = 0.87$). This difference, -4.57, BCa 95% CI [-8.37, -.077], was significant $t(86) = -2.41$, $p = 0.02$, and represented a medium-sized effect, $r = 0.30$ (see Table 2 for TMS means and standard deviations).

In order to further investigate patterns of change in state mindfulness, independent samples t-tests with bootstrapping were also conducted to assess for differences between

conditions across time on the two subscales of the TMS: Curiosity and Decentering. On average,

participants in the mindfulness condition demonstrated a greater increase in scores on the

Curiosity subscale (M = 2.68, SE = 0.81) than did participants in the control condition (M = 0.20,

SE = 0.64). This difference, -2.48, BCa 95% CI [-4.70, -0.50], was significant t(86) = -2.43, p =

0.03, and is a small to medium-sized effect, r = .26. However, average change scores on the

Decentering subscale for participants in the mindfulness condition (M = 3.53, SE = 1.01) and

control condition (M = 1.43, SE = 0.53) were not significantly different, -2.00, BCa 95% CI [-

4.58, 0.17], t(86) = -1.84, p = 0.08 and represented a small effect size, r = .23 (see Table 2 and

Figure 1).

Hypothesis Two

Hypothesis Two predicted that, in comparison to participants in the control condition,

participants in the mindfulness condition would demonstrate greater emotional disclosure, which

was objectively measured using the LIWC and subjectively measured using the SDQ. More

specifically, it was predicted that, in comparison to participants in the control condition,

participants in the mindfulness condition would use a greater percentage of emotion words

(positive and negative) and cognitive processing words (causation and insight related words) and

would also obtain higher scores on the SDQ. This was measured using independent samples t-

tests with bootstrapping.

This hypothesis was not supported (see Table 4). On average, participants in the

mindfulness condition did not use a significantly greater percentage of negative emotion words

than did participants in the control condition, BCa 95% CI [-0.44, 0.38], t(86) = -0.18, p = .88, r

= .02. Participants in the mindfulness condition did not use a significantly greater percentage of

positive emotion words than participants in the control condition, BCa 95% CI [-0.78, 0.07],

$t(86) = -1.47, p = .12, r = .16$. No significant difference was found between the mindfulness and

control conditions in the percentage of causation words used, BCa 95% CI [-0.40, 0.30], $t(86) = -$

$0.16, p = .87, r = .02$, or in percentage of insight words used, BCa 95% CI [-0.18, 0.89], $t(86) =$

$1.27, p = .21, r = .14$. Additionally, participants in the mindfulness condition did not obtain

significantly higher scores on the SDQ than participants in the control condition, BCa 95% CI [-

3.90, 1.13], $t(86) = -0.97, p = .32, r = .11$.

Hypothesis Three

Hypothesis Three predicted that distress disclosure (measured by the DDI) would be

positively correlated with trait mindfulness (measured by the FFMQ). As Spearman's correlation

coefficient is often useful in minimizing the effects of extreme scores and/or the effects of

violations of assumptions (Field, 2013), this was analyzed using a Spearman's Rho (r_s)

correlation with the bootstrap facility. This hypothesis was not supported (see Table 5). The DDI

was not significantly related to the FFMQ Total score, $r_s = -.06$, BCa 95% [-.27, .15], $p = .57$, the

FFMQ Observing subscale, $r_s = .03$, BCa 95% [-0.18, 0.24], $p = .77$, the FFMQ Describing

subscale, $r_s = .16$, BCa 95% [-.10, .42], $p = .76$, or the FFMQ Nonjudge subscale, $r_s = .06$, BCa

95% [-.15, .23], $p = .59$. Also contrary to predictions, the DDI was significantly and negatively

correlated with the FFMQ Acting with Awareness subscale, $r_s = -.23$, BCa 95% [-.45, .02], $p =$

.03. Additionally, the association between the DDI and the FFMQ Non-Reactivity subscale

approached significance, $r_s = -.21$, BCa 95% [-0.43, 0.03], $p = .06$. In other words, participants

who rated themselves as having increased awareness of their actions and as having a greater

ability to refrain from getting entangled or caught up in their emotions and thoughts also reported

having a lesser tendency to disclose distressful feelings to others.

Hypothesis Four

Hypothesis Four predicted that trait distress disclosure and trait mindfulness would predict objective emotional disclosure (measured using LIWC word categories) and subjective emotional disclosure (measured using SDQ scores). Specifically, it was predicted that individuals with higher trait distress disclosure and trait mindfulness scores would demonstrate greater levels of objective and subjective emotional disclosure during the verbal disclosure interview. As previous research did not indicate any known predictors for the outcome variables, it was determined that a forced-entry multiple regression (rather than hierarchical or stepwise regression) was the most appropriate analysis for this hypothesis. This hypothesis was analyzed using the bootstrap facility; five separate forced-entry multiple regressions were conducted, with DDI and FFMQ scores as the predictor variables and LIWC word categories and SDQ scores as the outcome variables.

This hypothesis was partially supported. None of the FFMQ subscales or the DDI scores significantly predicted an increase or decrease in percentages of emotion or cognitive processing words spoken. In other words, trait distress disclosure was not found to significantly predict the use of emotion words (i.e., positive and negative emotion words) or cognitive processing words (i.e., insight and causation related words; see Tables 7, 8, 9, and 10). This hypothesis also predicted that FFMQ and DDI scores would predict subjective reports of disclosure. That is, it was predicted that levels of trait mindfulness and trait distress disclosure would predict how much participants reported they disclosed during the interview on the SDQ. The FFMQ Describe scores were found to significantly predict higher SDQ scores, $b = .400$, BCa 95% [.17, .62], $p < .01$. DDI scores were also found to significantly predict higher SDQ scores, $b = .15$, BCa 95% [.03, .28], $p = .02$. In other words, participants who reported having a greater tendency

to label and describe their emotions and who reported having an overall greater level of trait

distress disclosure at pre-intervention perceived themselves as disclosing more in the verbal

distress disclosure interview (see Table 11).

Discussion

Clients and therapists agree that verbal distress disclosure during therapy can at times be

emotionally difficult, yet it appears to be a vital ingredient for growth in therapy (Farber, 2003).

At times, nondisclosure reflects the avoidance of feelings of shame or discomfort associated with

specific experiences and emotions (Hill et al., 1993). Therapies incorporating mindfulness

encourage individuals to accept and come into contact with difficult emotional experiences rather

than avoid them. As the cultivation of mindfulness has been shown to decrease the avoidance of

negative internal experiences (e.g., thoughts, feelings, images; Roemer & Orsillo, 2009), it was

proposed by the current study that a mindful state would improve the level of emotional

disclosure in a therapy session. The purpose of this study, designed as an analogue to a therapy

session, was to examine the extent to which a mindfulness induction would facilitate self-

disclosure using a verbal distress disclosure paradigm. In addition, this study examined the

relationships between trait mindfulness, trait distress disclosure, and state distress disclosure.

State Mindfulness

Hypothesis One, a manipulation check, predicted that participants in the mindfulness

condition would exhibit greater increases in state mindfulness as compared to participants in the

control condition. State mindfulness, measured using the TMS, was assessed pre- and post-

intervention, and the difference between these scores was examined between conditions. Results

indicated that in comparison to participants in the control condition, participants in the

mindfulness condition had a significantly greater overall increase in state mindfulness from pre-

to post-intervention. The TMS is comprised of two subscales: Curiosity and Decentering. Difference scores from Time 1 to Time 2 for each subscale were also examined. Results indicated that the mindfulness condition demonstrated a significantly greater increase from Time 1 to Time 2 on the Curiosity subscale; no significant difference was found between conditions on the Decentering subscale. However, results on the Curiosity and Decentering subscales indicated similar small effect sizes, suggesting that the difference between these two results is negligible.

Eitel (2014) found similar results: participants who experienced a mindfulness induction reported significantly higher levels of Curiosity, but not Decentering, than participants who did not go through a mindfulness induction. In contrast to results of the current study and Eitel's study, Eirsman and Roemer (2010) found that participants who listened to a 10-minute mindfulness intervention scored significantly higher on the Decentering subscale than participants who listened to a neutral audio clip; however, they found no significant differences between conditions on the Curiosity subscale. Watford and Stafford (2015) found results consistent with Eirsman and Roemer: participants who listened to a 15-minute mindfulness intervention demonstrated significantly greater scores on the Decentering subscale but did not differ than control participants on the Curiosity subscale.

The disparate findings described above may best be explained by methodological differences. Eirsman and Roemer's (2010) study included an emotion induction in which participants watched one of three different emotionally charged films, and next listened to either a mindfulness induction or a neutral audio clip, and then took the TMS. Similarly, the Watford and Stafford (2015) study also included an emotion induction in which participants were presented with a series of either positive or negative stimuli and then took the TMS for a second time. The current study, as well as Eitel (2014), did not include an emotion induction.

Participants in present study completed the TMS for the first time in the beginning of the session along with other self-report questionnaires, while participants in the Eitel study completed the TMS for the first time after completing self-report measures and engaging in either a mindfulness exercise or listening to a neutral audio clip. Thus, it seems as though an emotion induction may elicit greater levels of decentering, or the act of being aware of one's thoughts without becoming engrossed in them, in individuals who have recently engaged in a mindfulness exercise. Although it is interesting that an emotion induction appeared to call for an increase in Decentering as opposed to Curiosity, an exploratory analysis revealed other methodological differences may better explain the differences in state mindfulness observed between these four studies (discussed below).

Another major methodological difference between the aforementioned studies that could explain the disparate findings in regards to state mindfulness involves the time point within in each study in which state mindfulness was measured. Although all studies measured state mindfulness twice, the present study is unique in that it measured change in state mindfulness from pre- to post-intervention. That is, the present study obtained baseline state mindfulness levels from participants before they either engaged in a mindfulness induction or listened to a neutral podcast about emotions, depending on the condition they were assigned to. State mindfulness was measured for a second time directly after the experimental/neutral intervention and baseline scores were subtracted from post-intervention sores to obtain a change in mindfulness score. The three studies mentioned above, on the other hand, did not obtain baseline levels of state mindfulness and instead measured it for the first time after the intervention and then again after a writing exercise (Eitel, 2014), after an emotion induction and working memory task (Watford & Stafford, 2015), or after an emotion induction (Eirsman & Romer, 2010). Thus

while the present study was interested in change in state mindfulness pre- to post-intervention, the other studies all included questions regarding a possible "prolonged effect" (Eirsman & Romer, 2010) of state mindfulness. As such, the dissimilar findings between this study and Eirsman and Romer (2010) and Watford and Stafford (2015) may be explained by the fact that state mindfulness, while obtained using the same measure in each study, was attained to answer different theoretical questions and thus was administered at incomparable time points within the studies.

In light of the idea that differences in TMS measurement points may explain disparate results, an exploratory independent samples *t*-test was conducted to compare post-intervention scores on the TMS. As a reminder, Watford and Stafford (2015) first gave the TMS to participants directly after they engaged in either a mindfulness induction or listened to a neutral audio clip and found that participants of the mindfulness condition had greater scores on the Decentering scale but not the Curiosity scale. Because the present study examined change in mindfulness scores rather than comparing mindfulness scores at discrete time-points, it is difficult to compare results with that of Watford and Stafford. However, by examining only post-intervention TMS scores across conditions, the researcher was able to obtain results that could be more accurately compared to Watford and Stafford. Results of an exploratory independent samples *t*-test revealed that participants of the mindfulness condition had significantly greater post-intervention scores on Decentering scale than participants in the control condition, $t(84) = 2.48$, $p = .02$. Further, when examining post-intervention Curiosity scores, no significant differences were found between groups, $t(84)$ 1.17, $p = .25$. Thus, when examining post-intervention mindfulness scores across conditions, results of the present study appear to be consistent with Watford and Stafford (2015) and opposite of Eitel's (2014) findings. These

differences may be explained by the mindfulness interventions used in each study; the present study and Watford and Stafford used the same mindfulness intervention (adapted from Eirsman and Roemer, 2010), while Eitel did not. A major difference between the interventions used was that the Eitel intervention did not include a rationale for or explanation of mindfulness and instead simply had participants engage in a 15-minute mindfulness exercise, whereas the intervention employed by the present and Watford and Stafford studies included an explanation of what mindfulness is and how it can be a helpful way to relate to thoughts and emotions with an extension of two separate mindfulness exercises. Perhaps the mindfulness intervention used in the present and Watford and Stafford studies, rather than the inclusion of an emotion induction, called for greater levels of Decentering. Likewise, perhaps the intervention used by Eitel called for greater levels of Curiosity because the intervention employed included one mindfulness exercise that was much longer than the two used in the present and Watford and Stafford studies.

State Mindfulness and Emotional Disclosure

Hypothesis Two predicted that participants in the mindfulness condition would demonstrate greater levels of objective (measured using the LIWC word categories) and subjective (measured using the SDQ) emotional disclosure than participants in the control condition. More specifically, it was hypothesized that participants who engaged in the mindfulness induction would use a greater percentage of emotion words (positive and negative) and cognitive processing words (insight and causation) in comparison to participants who did not engage in the mindfulness induction. Further, it was predicted that participants in the mindfulness condition would perceive themselves as disclosing more during the verbal disclosure interview than participants in the control condition. This hypothesis was not supported. Contrary to predictions, participants in the mindfulness condition did not use a greater

percentage of emotion or cognitive processing words than participants in the control condition. Additionally, mindfulness condition participants did not perceive themselves as disclosing any more than did control condition participants.

While failing to support the predictions of Hypothesis Two, these null findings are consistent with a few studies, particularly the null results regarding the emotion words. For example, Eitel (2014) also failed to find significant differences in the percentage of positive and negative emotion words, as well as causation-related words, used between participants who participated in a mindfulness induction and participants who did not. Ortner and Zelazo (2012) also conducted a study examining the use of emotion words in a written distress disclosure exercise in which participants were asked to write about a recent encounter of interpersonal conflict with someone close to them (e.g., partner, friend, family member) before and after engaging in one of three conditions: a 10-minute mindfulness intervention, a neutral distraction intervention, and a "no manipulation" condition. No significant differences were found between any of the conditions on percentage of emotion words used (Ortner & Zelazo, 2012). Ortner and Zelazo explained their null results by noting that their 10-minute mindfulness induction may not have been long enough to adequately induce a mindfulness state across participants in the mindfulness condition as they did not find higher rating of state mindfulness in participants in the mindfulness condition as compared to participants in the distraction condition. However, given that the current study and the Eitel study each employed a 15-minute mindfulness induction that appeared to successfully induce a mindfulness state in participants in the mindfulness condition and still did not find significant differences in emotion words used between conditions, it seems unlikely that low state mindfulness levels explain the lack of emotion words used. Instead, it is possible that the LIWC may lack sensitivity in measuring

emotional distress disclosure following a mindfulness intervention. Alternatively, it is possible that the mindfulness induction did not have an impact on emotional disclosure.

Liehr et al. (2010) examined the written use of "feeling" (i.e., negative and positive emotion) and "thinking" (i.e., insight and inhibition) words in patients of a Therapeutic community (TC) program, a substance abuse treatment model that highlights the community as the main ingredient for behavioral change. This study included a treatment as usual condition in which participants received the standard TC interventions and a Mindfulness-based TC (MBTC) condition. In addition to receiving the TC intervention, participants in the MBTC condition also participated in a 6-week MBSR training intervention. Consistent with the Pennebaker writing paradigm, Liehr et al. had participants write about a stressful event before entering the program, 1 month after starting the program, 3 months into the program, 6 months into the program, and 9 months after starting the program. Liehr et al. found no significant difference in change in emotion or cognitive processing words used between control and experimental participants over time. However, results did suggest that participants in the MBTC condition used overall fewer negative emotion words when writing about stress than did participants in the TC condition, suggesting that MBCT participants may have adopted a less negative and more accepting view of stressful situations. Liehr et al. hypothesized that one possible reason participants in the MBCT group did not demonstrate a greater change in feeling and thinking words used is due to a lack of participation in mindfulness behaviors after completing the mindfulness-intervention classes. Results indicated that the greatest differences between groups in word usage occurred at the 3-month measurement point and that participants in the MBTC group demonstrated greater increases in thinking and feelings words as compared to the TC only group; however, the differences were not significant. Liehr et al. pointed out that the three-month measurement

coincided with structural changes in the TC program, including mindfulness classes ending for participants in the MBTC condition and participants in both condition entering the workforce outside of the community. The authors noted that although participants in the MBCT condition had access to guided meditation CDs, records indicated the CDs were infrequently used among participants of the MBCT condition after they completed the MBSR classes (Liehr et al., 2010). However, it is important to note that no significant differences were found between groups in word usage at the measurement points when the MBCT group participants were currently taking the MBSR classes, as well as when they had recently completed the classes. Given that participants had completed an evidenced based, 6-week mindfulness training class and still were not found to use more feeling and thinking words, it seems likely that mindfulness does not have an effect on distress disclosure.

The findings of Liehr et al. (2010) are interesting when considering the null results regarding objective emotional disclosure of the present study. It is first necessary to recognize that the present study and Liehr et al. study have important methodological differences. First, the experimental participants in the current study engaged in a one-time, 15-minute mindfulness induction whereas those of the MBTC condition in Liehr et al.'s study completed a 6-week mindfulness training program. Second, participants in Liehr et al.'s study wrote about stressful events a total of five times, while participants in the current study spoke about a traumatic and/or stressful event one time. In addition, although Liehr et al., like the present study, examined positive, negative, and insight-related words, they did not examine causation words; instead their "thinking" words category was comprised of insight and inhibition (i.e., control, forbid, hesitate) words. Even so, the finding that participants who completed the 6-week mindfulness training program did not differ from control participants in percentage of "thinking" or "feeling" words

used is relevant to the current study as, according to Liehr et al., it may suggest one of two perspectives. The first is that mindfulness training may not be more effective in improving emotional disclosure than TC, or in the case of the present study, than a neutral audio-clip. The second perspective suggests that participants who have engaged in mindfulness training do engage in greater emotional disclosure but the LIWC word categories may not adequately measure the emotional disclosure. Given that many studies have validated the use of the LIWC in identifying emotional expression (Kahn, Tobin, Massey, & Anderson, 2007; Pennebaker & Francis, 1996), the former perspective that state mindfulness does not have an effect on distress disclosure seems more likely.

In addition to participants in the mindfulness condition not using a significantly greater number of emotion and cognitive processing words than participants in the control condition, they also did not report disclosing more on the SDQ as compared to their control counterparts. To the author's knowledge, no other study has examined participant's personal perceptions of distress disclosure following a mindfulness induction. However, the findings that participants in the mindfulness condition did not have significantly greater objective or subjective emotional disclosure in comparison to participants in the control condition gives further support to the notion that the mindfulness induction employed in the present study did not affect emotional disclosure. As rapport between the listener and discloser is thought to be essential to promoting beneficial distress disclosure in a therapeutic relationship (Farber & Hall, 2002; Hall & Farber, 2001), it is possible that having participants disclose to a person they have never met before may have mitigated any effect the mindfulness induction had on emotional disclosure. Although the use of a passive listener with whom the discloser has no previous relationship may provide some explanation for the lack of findings, results further discussed below regarding the relationship

between trait mindfulness and trait distress disclosure provide support for the notion that

mindfulness does not have an effect on distress disclosure.

Relationship between Trait Mindfulness and Trait Distress Disclosure

The third hypothesis predicted that trait distress disclosure (as measured by the DDI)

would be positively correlated with trait mindfulness (as measured by the FFMQ), meaning

participants who reported having a greater tendency to discuss and share distressful experiences

with others would also report being more open to, accepting of, and willing to experience

negative thoughts and emotions. This hypothesis was not supported. DDI scores were not

significantly correlated with total FFMQ scores or with the Observing, Describing, or Non-

judging subscales of the FFMQ. Findings indicated a small effect size and significantly negative

relationship between DDI scores and the FFMQ Acting with awareness subscale. Additionally, a

negative relationship between DDI scores and the FFMQ Non-reactivity subscale was observed;

however, this relationship approached but did not quite reach significance and represented a

small effect size.

These unexpected results in regards to the relationship between trait mindfulness and trait

distress disclosure are particularly interesting when comparing them to the findings of Eitel

(2014). As a reminder, the present study was an extension of Eitel and both studies were

conducted at the same small, southern university and included participants from a Psychology

101 class thus participants had very similar demographics. However, Eitel found a different

pattern of results; findings from her study suggested a significant and positive relationship

between DDI scores and FFMQ total, FFMQ Describing, FFMQ Non-judging, and FFMQ

Acting with awareness scores. The current study, on the other hand, did not find any significant

positive relationships between DDI scores and FFMQ subscales. In direct opposition to Eitel the

present study found FFMQ Acting with awareness scores to be significantly negatively

correlated with DDI scores. Eitel did not find any significant relationships between DDI scores

and FFMQ Non-reactivity and Observing scores. The current study also did not find a significant

relationship between DDI scores and FFMQ Observing scores but findings indicated a negative

relationship between disclosure and FFMQ Non-reactivity scores that approached significance

and had a small effect size. Although it was previously assumed that the samples of these two

studies were similar, these disparate findings suggest that some important differences exist.

As mentioned above, the DDI was used to measure a participant's general tendency to

disclose personally distressing feelings and thoughts to others. The Observing subscale of the

FFMQ reflects a person's tendency to be oriented to and aware of both internal and external

present-moment experiences (Baer et al., 2006). Sample items of the Observing subscale include:

"When I take a shower or bath, I stay alert to the sensations of water on my body", "I pay

attention to how my emotions affect my thoughts and behaviors", and "When I'm walking, I

deliberately notice the sensations of my body moving". When considering the non-significant

correlation found in the current study between the DDI and FFMQ Observing subscale, it is

important to take into account participants' past experience with mindfulness. Research suggests

that the FFMQ Observing subscale may not operate the same for participants with and without

experience with mindfulness (Baer et al., 2004). For example, in a study that did not distinguish

between participants with and without experience with mindfulness, Baer et al. (2004) found that

the FFMQ Observing subscale was positively correlated with the following "maladaptive

characteristics": dissociation, thought-suppression, and absent-mindedness. A follow up study

examined only participants who reported at least some experience with meditation and found that

the FFMQ Observing subscale was not significantly related to any of the maladaptive constructs

listed above (i.e, dissociation, thought-suppression; Baer et al., 2006) in this sample. As the large majority of participants in the present study indicated they have no experience with mindfulness/meditation, it is possible that the FFMQ Observing subscale did not measure the same construct of present-moment observations that would be seen in a sample of people with mindfulness/mediation experience.

Given the findings that the FFMQ Observing subscale was impacted by participants' experience with mindfulness (Baer et al., 2006), an exploratory independent samples *t*-test was conducted to examine the relationship between scores of the FFMQ Observing subscale and DDI scores. Overall, participants who indicated they had experience with mindfulness had greater FFMQ Observing scores ($M = 31.38$, $SD = 4.50$) than participants who indicated they did not have experience with mindfulness ($M = 24.73$, $SD = 5.51$), and this difference was significant $t(84) = 4.48$, $p < 0.01$, and represented a medium to large-sized effect, $r = .44$. A Spearman's Rho correlation was also conducted to examine the relationship between DDI scores and FFMQ Observing subscale scores among participants who had experience with mindfulness. Among participants who reported they had experience with mindfulness, results indicated a significant and negative relationship between scores on the FFMQ Observing subscale and DDI scores, $p <$ .01. Thus, participants with experience with mindfulness rated themselves as having a greater proclivity to observe their internal and external experiences in comparison to participants without experience with mindfulness and among those with experience with mindfulness a negative relationship was found between the ability to observe internal and external experiences and tendency to disclose distressing information to others. This finding may provide further evidence for the lack of relationship between mindfulness and distress disclosure as results indicated individuals with experience with mindfulness had a significant negative relationship between

their tendencies to observe internal and external experiences and to disclose distress to others.

However, it is important to keep in mind that the types of experience with mindfulness

participants indicated varied from attending a lecture on mindfulness to practicing

mindfulness/mediation with a psychologist. Given the small sample size of participants who had

experience with mindfulness/mediation, combined with the uncertainty of the extent to which

each participant engaged in mindfulness/meditation, it is difficult to draw conclusions from this

negative correlation. Future studies that wish to further address the relationship between

mindfulness and distress disclosure may do so by getting a more detailed picture of participants'

experience with mindfulness.

Another explanation for why the FFMQ Observing subscale was not related to the DDI

involves the specific content of the Observing scale. The majority of items (6 out of 8) included

in the FFMQ Observing subscale pertain to the observation of physical, external experiences ("I

pay attention to sensations such as the wind in my hair or sun on my face", "I notice smells and

aromas of things"), while only 1 of the 8 items directly measures the observation of internal

experiences ("I pay attention to how my emotions affect my thoughts and behavior"); another

item reflects the extent to which food and drink affect one's thoughts and behaviors ("I notice

how foods and drinks affect my thoughts, bodily sensations, and emotions"). Thus, FFMQ

Observing scores may be unrelated to DDI scores because the items of the FFMQ Observing

subscale largely focus on observing external stimuli and the effect external stimuli have on

bodily sensations, as opposed to questions that focus on observing internal experiences, such as

emotions and thoughts.

Similar to the results regarding the FFMQ Observing subscale, no significant

relationships were found between the FFMQ Non-judging subscale and the DDI or between the

FFMQ Describing subscale and the DDI. The FFMQ Non-judging of inner experiences subscale reflects one's ability to take a non-evaluative view of their emotions and thoughts, while the FFMQ Describing subscale refers to the tendency to label internal experiences using words (Baer, 2006). In regards to the FFMQ Non-judging subscale, perhaps participants who take a non-judgmental stance towards their emotions and thoughts are neither less nor more likely to talk to others about personally distressing information because the way in which they perceive distressing situations does not involve high levels of emotional reactivity. For example, a person who tends to be noncritical of negative thoughts and feelings is unlikely to react to distressing situations as much as a person that tends to be more judgmental of their internal experiences. As described previously, Farber et al. (2003) maintain that non-disclosure may reflect the simple fact that a client does not view a topic or experience as particularly relevant to their therapeutic outcomes. Thus, perhaps individuals who have a tendency to take a non-judgmental stance towards their emotional experiences also do not typically see a reason to disclose because they are not as likely to identify with or be affected by negative thoughts and/or emotions as would someone that tends to be more judgmental or critical of their internal experiences.

Similarly, the scores on the FFMQ Describing subscale were also were not found to be significantly related to DDI scores. This relationship may seem counterintuitive because one may expect that a proclivity to describe one's internal experiences with words would facilitate the vocalization of distressing experiences to others. One way to examine the lack of correlation is to address the relationship between emotional intelligence and inappropriate disclosure. Research has suggested a significantly positive relationship between the FFMQ Describing subscale and emotional intelligence (Baer, 2006). A study that examined the relationship between emotional intelligence and inappropriate disclosure on social media found that individuals high in

emotional intelligence appear to have a better understanding of the negative implications of inappropriate self-disclosure in comparison to individuals with low emotional intelligence (Newness, Steinert, & Viswesvaran, 2012). As will be further discussed below, most of the items on the DDI involve distress disclosure to people in general, as opposed to disclosing to a friend, family member, or other person in which the discloser has an intimate relationship. In light of the DDI items focusing on disclosure in general rather than more selective disclosure, perhaps individuals with a penchant to describe their internal experiences using words also scored low on the DDI because they are less likely to engage in impulsive disclosure.

Another explanation involves the benefits of distress disclosure across different types of people. According to research, disclosing emotional information has been found to help some people make sense of negative life events (Kennedy-Moore & Watson, 2001), as well as offset the intensity of negative life events (Zech & Rimé, 2005). Perhaps individuals who find it easy to describe their inner experiences with words do not feel a particular need to talk about negative experiences because they are more equipped to process the events on their own. If this theory were true, however, a negative relationship would be expected between DDI scores and FFMQ Describing subscale scores, and the current study found a nonsignificant positive relationship between the two factors. Even so, the finding that the ability to use words to describe emotions and feelings did not correlate with the tendency to vocalize distress to others further suggests distress disclosure and mindfulness are unlikely to be positively related.

In addition, a negative relationship was found between DDI scores and the FFMQ Acting with awareness and Non-reactivity subscale scores. The marginally significant and negative relationship between DDI scores and the FFMQ Non-reactivity subscale will first be considered. The Non-reactivity to inner experiences subscale represents the tendency to experience thoughts

and feelings without getting caught up in them or reacting strongly to them. Some sample items include: "I perceive my thoughts and feelings without having to react to them" and "When I have distressing thoughts or images, I just notice them and let them go". As a reminder, Eitel (2014) found no significant relationship between DDI scores and scores on the FFMQ Non-reactivity subscale. However, her results did indicate a non-significant negative relationship between the two factors; suggesting that trait distress disclosure and the tendency to be non-reactive towards one's internal experiences are unlikely to be positively related, as was predicted by the current study. In light of the negative relationship found in the present study, it is possible that individuals who are high in trait non-reactivity are also low on trait distress disclosure because they are more easily able to "let go" of distressful experiences and, thus, do not feel the need to disclose or discuss them with others. Moreover, individuals who are easily able to "let go" of distressful experience may also experience less distress over time in comparison to individuals who tend to become entangled in their distressful experiences, leading them to feel less of a need to talk about their distressful or traumatic experiences with others.

Finally, in direct opposition to the significant positive relationship found by Eitel (2014), as well as to predictions, results of the present study found a significant negative relationship between DDI scores and scores on the FFMQ Acting with awareness subscale. This subscale refers to a tendency to focus one's attention on present-moment experiences and is contrasted by operating on "automatic piolot", or completing tasks while one's mind is focused on matters besides the task at hand (Baer, 2008). The FFMQ Acting with awareness is comprised of items such as: "I find it difficult to focus on what is happening in the present" and "I rush through activities without being really attentive to them". It was initially thought that a propensity to be in touch with the present moment would be related to a higher tendency to disclose distressing

information because such individuals would likely be more engaged in conversations and thus more likely to share feelings and thoughts related to distressing experiences; however, results of the current study did not support this notion. Perhaps individuals with higher tendencies to be focused on the present moment also have lower tendencies to disclose distress to others because the distressing experience is usually in the past. That is, distress disclosure often involves confiding in others about past stressful experiences, rather than experiences occurring in the present. Therefore, individuals with a proclivity to be tuned into the present moment are less focused on past experiences and thus less likely to talk about them. In addition and as pointed out above, the concept of impulsive disclosure may also provide explanation for the negative relationship observed between DDI scores and FFMQ Acting with awareness scores. Perhaps individuals with a greater tendency to be aware of the present moment also rated themselves as being less likely to disclose distressing information because they are more selective when disclosing distress as compared to individuals low on this subscale who may tend to be more impulsive when making disclosures. According to Jon Kabat-Zinn, the founder of MBSR, becoming caught up in thoughts and emotions often leads to giving into an impulse to voice one's thoughts and then breaking awareness of the present moment. Further, often times when an individual is out of touch with the present moment, they find themselves talking with little awareness of what they are saying (Kabat-Zinn, 2013). Thus, perhaps individuals with lower present-moment awareness also have higher trait distress disclosure because they tend to make statements without considering the usefulness of the speech. Upon closer examination of the items on the DDI, it became apparent that most of the items refer to an examinee's likelihood of disclosing to people in general, rather than a friend, family member, or other trusted person. Only 2 of the 12 items on the DDI specifically refer to a friend as recipient of the disclosure

("When I am upset, I usually confide in my friends" and "When I am in a bad mood, I talk about it with my friends". The other 10 items are more general in regard to whom the disclosure is to be made to ("I usually seek out someone to talk to when I am in a bad mood" and "I try to find people to talk with about my problems"). The latter two questions could encompass disclosing to inappropriate people, such as strangers at the grocery store or acquaintances at work. In order to test this hypothesis, future studies may include a questionnaire that distinguishes between thoughtful and impulsive disclosure. However, this still does not explain why this finding was in direct opposition to Eitel (2014), as she used the same measures of trait distress disclosure (DDI) and trait mindfulness (FFMQ) as the present study.

In addition to impulsivity providing an explanation for why individuals with differing levels of trait mindfulness may vary in their tendency to disclose distress, the negative relationship between trait distress disclosure and certain aspects of trait mindfulness may also be explained by the notion that individuals who tend to take a mindful stance towards their internal and external experiences relate to stressful situations in a different way than individuals who are generally less mindful. According to Germer et al. (2013), as mindfulness is cultivated a special relationship to suffering is formed in which individuals are less upset by unpleasant experiences because they are less reactive and more accepting of what is happening in the present moment. In other words, mindfulness as a way of being aware of your emotional state without judging, evaluating, or trying to change it, may facilitate a more accepting relationship with distress or suffering. In turn and overtime, this accepting relationship leads to less distress and thus less of a need to discuss distress with others.

Trait Mindfulness and Trait Distress Disclosure as Predictors of Emotional Disclosure

Hypothesis Four examined the degree to which trait mindfulness and trait distress

disclosure could predict level of objective and subjective emotional disclosure. Specifically, it was predicted that trait mindfulness and trait distress disclosure would predict the percentage of emotion and cognitive processing words used, as well as state distress disclosure scores. This hypothesis was partially supported. Although no FFMQ subscales or DDI scores predicted use of emotion or cognitive processing words, exploratory analyses demonstrated that the total FFMQ scores predicted a significant decrease in the use of negative emotion words. In other words, participants who reported having a greater general tendency to be mindful also used a smaller percentage of negative emotion words during the verbal disclosure interview. In regards to subjective emotional disclosure, measured by the State Disclosure Questionnaire (SDQ), the FFMQ Describing subscale and DDI were both found to significantly predict an increase in SDQ scores. In addition, an exploratory analysis found that FFMQ total scores also predicted an increase in SDQ scores. That is, participants who indicated that they have a higher efficacy in describing and labeling their emotions, a greater predisposition to disclose distress to others, and a greater overall tendency to be mindful, also perceived themselves as engaging in more emotional disclosure during the verbal disclosure interview.

First, the results regarding the abilities of FFMQ subscales and DDI scores to predict SDQ scores will be discussed. As explained above, the FFMQ Describing subscale reflects one's ability and tendency to label internal experiences with words; sample items include: "I am good at finding words to describe my feelings" and "Even when I'm feeling terribly upset, I can find a way to put it into words". As a reminder, the SDQ was designed specifically for the present study to assess how much participants felt they disclosed during the distress disclosure interview (as opposed to the LIWC which measured disclosure by examining percentage of word categories used). Thus, it may seem intuitive that individuals who scored highly on the FFMQ

Describing subscale would also rate themselves as disclosing more during the distress disclosure interview because they are likely to have greater efficacies in describing their internal processes. Along these same lines, it may seem likely that participants who score highly on the FFMQ Describing subscale would also use a greater percentage of emotion and cognitive processing words to describe their experiences. However, this finding was not observed in the present study and will be further discussed below.

An exploratory analysis also revealed that FFMQ total scores predicted higher SDQ scores, $b = .09$, $p = .02$. In sum, although 4 out of the 5 subscales did not predict scores on the SDQ, the FFMQ total scores did. Therefore, participants with a greater overall disposition to be mindful also perceived themselves as disclosing more during the distress disclosure interview.

DDI scores also predicted an increase in SDQ scores. That is, trait distress disclosure predicted state distress disclosure in that individuals who rated themselves as having an increased tendency to disclose distressing information to others also perceived themselves as disclosing more in the distress disclosure interview. Sloan and Kahn (2005) also examined the relationship between DDI scores and participants' perceived disclosures; however, their sample was quite different than the present study. They examined the relationship between DDI scores and scores on the Session Evaluation Questionnaire (SEQ) among clients in individual counseling. Similar to the current study, the authors designed the SEQ for their study in order to assess clients' perceptions of how much they disclosed during the therapy session. The SEQ was administered after a client's third or fourth session with a counselor and included four questions that addressed the following: how much personal information the clients believed they disclosed, how relevant the disclosure was to their personal therapy goals, whether the disclosure was positive or negative, and whether the disclosure was emotional or not emotional. In contrast to

the current study, Sloan and Kahn found an overall modest yet insignificant relationship between DDI scores and SEQ scores. They did find a significant positive relationship between DDI scores and clients' ratings of how relevant their disclosure was to their therapy goals, suggesting that clients who are high in trait distress disclosure may be more likely to focus on information relevant to their therapeutic goals when engaging in self-disclosure, as compared to their low trait distress disclosure counterparts (Sloan & Kahn, 2005).

When considering the results of Sloan and Kahn (2005) in the context of the present study it is important to remember that their sample included clients currently in individual therapy who, presumably, had built some type of therapeutic alliance with their counselor since the SDQ was given after three or four sessions. As a reminder, research has suggested a strong and positive relationship between therapeutic alliance, as well as time in therapy, with level of disclosure (Farber & Hall, 2002; Hall & Farber, 2001). In contrast, the participants in the current study had never met the person they were asked to make their disclosure to. It is possible that because the participants in Sloan and Kahn all had a relationship with their counselor before taking the SDQ, trait distress disclosure did not have as a big of an impact on their perception of how much they disclosed. However, because none of the participants in the current study had a previous relationship with the experimenter, trait distress disclosure had a bigger impact on subjective distress disclosure. Future research may consider addressing the relationship between mindfulness, therapeutic alliance, and distress disclosure.

Contrary to Eitel (2014), the present study did not find any significant relationships between FFMQ subscale scores and LIWC word categories. Eitel found the FFMQ Observing subscale to predict an increase in percentage of positive emotion words used, a decrease in negative emotion words used, and a decrease in insight words used. Further, she found the

FFMQ Non-judging scale to predict an increase in the percentage of positive emotion words used and the Non-reacting scale to predict as increase in insight related words used. as in the current study, Eitel found no relationship between the FFMQ subscales Acting with awareness and Describing with percentage of words categories used. Additionally, neither the present study nor Eitel found a significant relationship between DDI scores and word categories used. Finally, neither the present study nor Eitel found any variables (DDI scores or FFMQ subscale scores) to significantly predict the use of causation-related words.

As described above, the discrepancies between the findings of these studies is surprising because it was originally thought that the samples used in each study would be very similar, given that the samples came from the same small university and that the studies were conducted within a few years of one another. However, the previously discussed results regarding the different relationships between trait mindfulness and trait distress disclosure observed in the two studies suggests that the samples may not be as similar as would have been predicted. In regards to the relationship between trait mindfulness and objective emotional disclosure, methodological differences may offer some explanation for the disparate findings between the present study and Eitel's (2014) study.

While the present study had participants verbally disclose a traumatic and/or stressful event to a passive listener, Eitel (2014) had participants write privately about a traumatic event. It's possible that participants in Eitel's study felt more comfortable writing about their traumatic event, while participants in the current study may have had a difficult time talking about their event to a stranger, regardless of their levels of trait distress disclosure or mindfulness. Moreover, the fact that the listener in the present study was passive in nature and did not ask questions or convey verbally that she was interested in the disclosure may have hindered

participants' disclosure. In fact, several participants made statements such as the following, which were taken from two transcripts of the current study: "You're not going to talk at all?" and "I wish you could ask questions". This suggests that some participants may have felt awkward disclosing to a listener that did not reciprocate verbally. One study comparing four different methods of disclosure (writing, speaking privately, speaking to a passive listener, and speaking to an active facilitator) found that participants who spoke privately into a microphone about a current life issue demonstrated significant decreases in psychological symptoms in comparison to a control condition in which participants talked into a tape recorder about how they manage stress. Participants who spoke to a passive listener, on the other hand, did not demonstrate decreases in psychological symptoms (Slavin-Spenny et al., 2011). Another experimental condition had participants talk to an active facilitator who tried to identify missing information and encouraged the participants to elaborate further on their disclosure (Slavin-Spenny et al., 2011). The researchers also did not find a significant decrease in psychological symptoms among participants who disclosed to the active listener in comparison to the control condition. They hypothesized that the participants who spoke to both the passive and active listeners may not have felt comfortable talking to the listeners because they had no relationship or rapport with them, as traditionally would be present within a therapeutic relationship (Slavin-Spenny et al., 2011). With these results in mind, future studies may consider examining the effects of mindfulness on disclosure specifically within a therapeutic relationship.

Although the present study did not find that any of the FFMQ subscales significantly predicted objective emotional disclosure measured by LIWC word categories, an exploratory analysis did reveal that FFMQ total score significantly predicted a decrease in the percentage of negative emotion words used, $b = -.01$, $p = .05$. Even though no specific hypotheses were made

in regards to total FFMQ scores and word usage, this finding is somewhat contradictory in that

predictions regarding the subscales were in the opposite direction. Given that participants were

asked to talk about a traumatic or upsetting event, one may expect an increase in the percentage

of negative emotion words used (e.g., worthless, hate), especially among participants with an

overall greater tendency to be accepting of and nonjudgmental towards their emotional

experience. However, this was not found in the present study. Eitel (2014) did not examine the

predictive ability of the full-scale FFMQ on LIWC word categories, but she did find that the

FFMQ Observing subscale significantly predicted a decrease in negative emotion words used.

However, she hypothesized that this relationship was likely due to the fact that the items of the

FFMQ Observing subscale don't seem to represent the same construct in meditating and non-

meditating individuals. As described above, Liehr et al. (2010) examined written feeling words

(positive and negative) and thinking words (insight and inhibition) among participants who were

either in a MBTC group or TC only control group (see section *State Mindfulness and Emotional

Disclosure* for more information on this study). Although they found no significant differences

over time between the conditions on feeling and thinking words, they did find that participants in

the MBTC group overall used fewer negative emotion words when writing about stress as

compared to the TC only control condition. Liehr et al. interpreted these findings by suggesting

that the MBTC group may have related to their stress and negative emotions in a different way

than participants in the TC only control group. With this in mind and in regards to the current

study, perhaps participants with an overall greater tendency to be mindful also used a lower

percentage of negative emotion words because they are less likely to label or judge their

experience as being inherently negative and are better able to "let go" of negative experiences

and thoughts.

It is interesting that participants with greater FFMQ Describing scores were not found to use a greater number of causation or emotion words, given that these same participants were found to obtain significantly greater SDQ scores. This suggests that participants who rated themselves as having superior abilities in describing their internal experiences subjectively *believed* they disclosed more during the distress disclosure interview but objectively did not have greater levels of disclosure than their counterparts, as measured by the LIWC categories. This discrepancy may suggest, on the one hand, that the LIWC is not picking up on certain aspects of disclosure. Future research interested in trait mindfulness and distress disclosure may consider developing a coding system for disclosure or examining other word categories of the LIWC that may be beneficial in detecting disclosure. For example, many participants indicated that they have rarely talked about their stressful or traumatic event and four participants reported in their distress disclosure interview that they had never told anyone about their event. Statements such as these likely indicate increased disclosure. However, the LIWC did not code any of these as indicating increased disclosure because neither emotion nor causation related words were used within the statements. Another explanation for the discrepancy between objective and subjective disclosure scores may be that participants with increased tendencies to describe their emotions and feelings with words simply overestimated how much they disclosed in the interview, perhaps because they have been told by others they are good at talking about their feelings or they have in some other way identified with their abilities to share their feelings and experiences. Future research interested in this topic may examine health and psychological benefits associated with perceived versus actual disclosure.

Limitations and Future Directions

Although this study yielded several interesting findings, it included several important limitations that should be addressed in future studies. First, the findings of this study were based

on a relatively homogeneous group of young college students. As such, it is unclear how generalizable the results are to other populations, particularly clinical populations. Future research may consider addressing the relationships between mindfulness and distress disclosure specifically within a population currently in psychotherapy. Although much of the results of the present study, as well of the results of Liehr et. al (2010), indicate that a mindfulness induction does not affect distress disclosure, there are certain elements of the present study that may explain these lack of finings. Specifically, the use of a passive listener could have impacted distress disclosure as participants may have felt awkard or uncomfortable disclosing information to someone who did not reciprocate verbally. Similarly, the fact that participants had no previous relationship with the interviewer may have impacted disclosure. While results of the present study do not suggest that taking a mindful stance towards one's internal experiences is likely to increase distress disclosure, results do suggest that individuals differing in levels of trait mindfulness may disclose differentially as a result of the way in which they relate to stressful situations. As such, a study that examines the relationship between mindfulness and distress disclosure among clients who have established therapeutic relationships with therapists may yield more valuable information on the relationship between mindfulness and distress disclosure.

One way to address whether or not mindfulness has an effect on disclosure within a clinical population would be to run a within-subjects design in which therapy clients disclose distressing information after engaging in a mindfulness exercise and without having engaged in a mindfulness exercise. Given that results of the present study suggested that the tendencies to act with awareness and to be non-reactive towards internal experiences may be related to thoughtful (as opposed to impulsive) disclosure, future studies may also wish to address the quality and nature of disclosures made in relation to state and trait mindfulness. Additionally, as results of

the present study suggested that the tendency to impulsively disclosure distress may, in part,

explain the negative relationship between distress disclosure and specific aspects of mindfulness,

future research on relationship between trait and state mindfulness and impulsivity is warranted.

Further, in light of the possibility that certain aspects of trait mindfulness are negatively related

to distress disclosure because individuals high in trait mindfulness relate to stressful situations

differently than individuals low in trait mindfulness, future studies may consider employing a

dismantling design to determine how and to what degree different aspects of mindfulness-based

treatments contribute to a nonjudgmental and accepting way of relating to distress and distress

disclosure.

The way in which distress disclosure was measured in this study may also be considered

a limitation. Although the findings of the present study have not ruled the use of the LIWC out as

an insensitive measurement, it does seem that the LIWC lacks sensitivity to certain aspects of

disclosure, such as individuals' willingness to discuss topics for the first time. Additionally, it

will be important for future studies to assess whether a mindfulness exercise affects the way in

which participants relate to a traumatic or stressful situation, as the goal of mindfulness is not to

disclose more about internal and/or external experiences but to relate to present moment

experiences in an accepting, curious, and nonjudgmental manner. Future studies may consider

developing coding system in order to identify statements that are likely to reflect a willingness to

experience and to take a more mindful stance towards one's inner and external experiences.

Although it would be optimal to examine the relationship between mindfulness and

distress disclosure within an actual therapy session, gains can still be made as far as designing a

study more analogous to a therapy session that can still be conducted in a lab. For example, the

present study employed a one-time, brief mindfulness intervention before participants in the

experimental condition were asked to talk about a traumatic and/or distressing event. In order to be more consistent with actual therapeutic interventions that incorporate mindfulness, it would be ideal to have participants engage in a mindfulness exercise several times before participating in the distress disclosure interview. Alternatively, a within-subjects design could compare verbal distress disclosure transcripts across time, with participants engaging in mindfulness training at different time-points throughout the study. As described above, Eirsman and Romer (2010) used brief mindfulness prompts throughout their study with participants in the mindfulness condition. This likely fostered a more mindful state within their participants and also is more reminiscent of an actual therapy session, as therapists incorporating mindfulness into therapy are likely to encourage clients to be mindful throughout sessions. As such, future studies may consider developing mindfulness prompts and using them during the distress disclosure interview. In addition, given the negative relationship found in the current study between acting with awareness and distress disclosure, future studies may consider using or developing a distress disclosure questionnaire that differentiates between impulsive versus thoughtful disclosure.

Conclusions

The present study examined the effects of a mindfulness induction on verbal distress disclosure. Additionally, it assessed the relationships between trait mindfulness, trait distress disclosure, and state distress disclosure. Results indicated that the participants who participated in a mindfulness induction demonstrated greater increases in state mindfulness as compared to participants who did not participate in a mindfulness induction. However, participants in the mindfulness condition were not more likely to use a greater percentage of emotion or cognitive processing words in comparison to participants in the control condition. Mindfulness condition participants also did not perceive themselves as disclosing more than control participants during

the distress disclosure interview. Thus, the findings of this study suggest that being more mindful of internal experiences may result in less distress disclosure.

Contrary to predictions and previous research (Eitel, 2014), most aspects of trait mindfulness (observing, describing, and non-judgmental stance towards external and internal experiences) were not found to be related to one's tendency to disclose distress to others, while the tendencies to be oriented to the present moment and to take a non-reactive stance towards internal experiences were found to be negatively related to a predisposition to talk about distressing situations with others. It is hypothesized that these negative relationships may be explained by an individual's perception of the appropriateness of disclosure, as well as an individual's tendency to be impulsive versus thoughtful when making disclosures. For example, a person with an increased penchant for being oriented to the present moment may be more aware of their audience when making disclosure and less likely to impulsively talk about their experiences. In addition, a person who does not typically become overwhelmed or entangled in their internal experiences may not view disclosure as necessary if they are not particularly upset by their experience. The negative relationship between trait distress disclosure and certain aspects of trait mindfulness may also be explained by the notion that individuals who tend to take a mindful stance towards their internal and external experiences relate to stressful situations in a different way than individuals who are generally less mindful. In other words, mindfulness as a way of being aware of your emotional state without judging, evaluating, or trying to change it, may facilitate a more accepting relationship with distress or suffering. In turn, overtime this accepting relationship leads to less distress and thus, less of a need to discuss distress with others.

Additionally, higher trait mindfulness and trait distress disclosure was found to predict participant's subjective perceptions of how much they felt they disclosed during the distress disclosure interview but not how much they objectively disclosed (measured by the LIWC). This could suggest that individuals high in trait mindfulness and distress disclosure tended to overestimate how much they discussed their traumatic and/or stressful event. Alternatively, it might suggest that the objective measure of disclosure used in this study (LIWC) was not sensitive to certain aspects of distress disclosure. Nonetheless, given the reported health benefits associated with disclosure, it would be useful to assess therapy client's trait levels of disclosure and mindfulness prior to beginning therapy. In addition, as the goal of mindfulness is not to increase distress disclosure but rather to help individuals relate to stress and suffering in a more adaptive way, therapists may want to help foster a more accepting, nonjudgmental, and curious stance towards emotions in clients particularly low in trait mindfulness. Additionally, psychoeducation on the benefits of disclosure in therapy may be beneficial for participants particularly low on trait distress disclosure.

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Figure 1

Average Change in TMS Curiosity and TMS Decentering from Pre- to Post-intervention
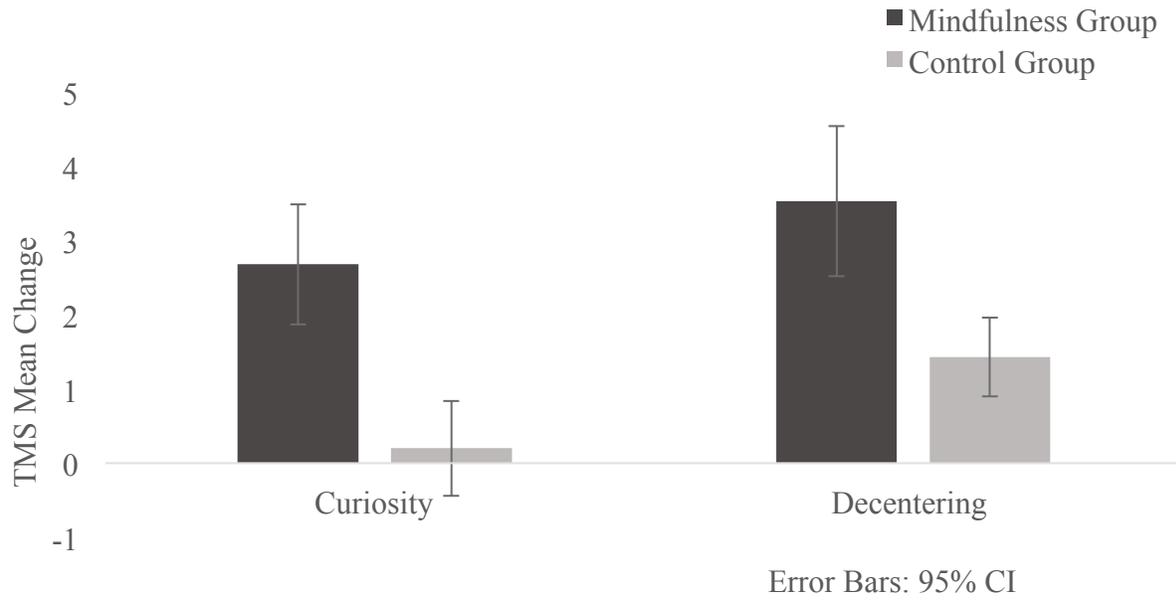
Table 1

Summary of Means and Standard Deviations for Scores on the FFMQ, DDI, and TMS

	mindfulness condition (MC)		control condition (CC)	
	Mean	*SD*	Mean	*SD*
FFMQ Non-Reactive	21.30	3.69	21.71	4.46
FFMQ Observing	26.50	5.14	25.50	6.53
FFMQ Describing	26.15	4.55	27.32	6.48
FFMQ Act w/ Aware	25.18	5.31	24.30	6.27
FFMQ Non-judging	25.95	5.76	24.39	7.21
FFMQ Total	125.07	13.00	123.23	19.83
DDI Total	38.05	10.42	36.20	12.98
TMS Curiosity	14.08	4.27	15.22	5.06
TMS Decentering	18.08	6.07	15.30	4.25
TMS Total	28.63	6.63	29.09	7.46

Table 2

Summary of Means and Standard Deviations for Scores on the SDQ, DDI, FFMQ, Change from TMS1 to TMS2, Word Count, and Time Spoken for Participants with and without Experience with Mindfulness

	No Experience with Mindfulness		Experience with Mindfulness	
	Mean	*SD*	Mean	*SD*
SDQ Total	28.73	6.14	29.75	5.97
DDI Total	26.70	11.63	38.63	12.91
Words Count	1245.99	894.29	1505.69	921.33
Time Spoken (minutes: seconds)	8.02	5.01	9.53	5.20
FFMQ Total	122.26	15.83	132.13	19.64
TMS Change	3.37	6.93	5.44	14.37

Note. No significant differences *between conditions* were found.

Table 3

Summary of Means and Standard Deviations for TMS Scores Pre- and Post-intervention

	Mindfulness Condition		Control Condition	
	Mean	*SD*	Mean	*SD*
Time 1:				
TMS Total	28.63	6.63	29.09	7.46
Curiosity subscale	14.08	4.27	15.22	5.06
Decentering subscale	14.55	3.30	13.87	3.77
Time 2:				
TMS Total	34.83	10.87	30.72	7.75
Curiosity subscale	16.75	5.48	15.41	5.14
Decentering subscale	18.08	6.07	15.30	4.25

Table 4

Summary of Means and Standard Deviations for Percentage of LIWC Word Categories Spoken and SDQ

	Mindfulness Condition		Control Condition	
	Mean	*SD*	Mean	*SD*
Word Count	432.56	101.21	418.23	110.06
Time Spoken (minutes: seconds)	8:08	4:59	8.36	5:16
Positive Emotion	2.67	1.02	2.33	1.11
Negative Emotion	2.11	0.91	2.08	0.97
Insight-related	2.88	1.08	3.23	1.45
Causation-related	1.78	0.89	1.75	0.73
SDQ	29.60	6.07	28.32	6.10

Table 5

Correlation matrix: DDI and FFMQ

	FFMQ Total	Non-React	Observe	Act w/ Awareness	Non-Judge	Describe
DDI	-.063	-.206	.033	-.234*	.059	.162
FFMQ Tot		.584**	.490**	.702**	.584**	.649**
Non-React			.315**	.324**	.034	.231*
Observe				.075	-.236*	.446**
Act w Awareness					.380**	.271*
Non- Judge						.097

*Note. *p < .05; **p < .01*

Table 6

Summary of Means and Standard Deviations for Predictors (FFMQ and DDI) and Outcome

(LIWC word categories and SDQ) Variables

Variable	Mean	SD
FFMQ Non-React	21.52	4.10
FFMQ Observing	25.97	5.92
FFMQ Describing	26.78	5.57
Act w/ Awareness	24.71	5.82
Non-Judge	25.12	6.59
FFMQ Total	124.09	16.92
DDI Total	37.06	11.83
Positive Emotion	2.49	1.08
Negative Emotion	2.09	.94
Causation	1.77	.80
Insight	3.07	1.29
SDQ Total	28.92	6.08

Table 7

Linear Model of FFMQ Subscale and DDI Scores as Predictors of Percentage of Negative

Emotion Words Spoken

Variable	*b*	*SE B*	B	*p*
Non-React	-.01 [-.06, .05]	.03	-.03	*p* = .78
Observing	-.02 [-.07, .03]	.02	-.14	*p* = .38
Describing	.00 [-.05, .06]	.03	-.01	*p* = .99
Act w/ Awareness	-.03 [-.07, .02]	.02	-.13	*p* = .15
Non-Judge	-.00 [-.03, .04]	.02	-.02	*p* = .86
DDI Total	.00 [-.01, .02]	.01	.09	*p* = .44

Note. 95% bias corrected and accelerated confidence intervals reported in parentheses.

Table 8

Linear Model of FFMQ Subscale and DDI Scores as Predictors of Percentage of Positive

Emotion Words Spoken

Variable	*b*	*SE B*	B	*p*
Non-React	-.00 [-.09, .07]	.04	-.01	*p* = .92
Observing	.01 [-.06, .07]	.03	.04	*p* = .79
Describing	.01 [-.04, .06]	.03	.04	*p* = .77
Act w/ Awareness	-.04 [-.09, .02]	.03	-.21	*p* = .13
Non-Judge	.03 [-.01, .07]	.02	.20	*p* = .14
DDI Total	.01 [-.02, .03]	.01	.10	*p* = .42

Note. 95% bias corrected and accelerated confidence intervals reported in parentheses.

Table 9

Linear Model of FFMQ Subscale and DDI Scores as Predictors of Percentage of Causation-

related Words Spoken

Variable	*B*	*SE B*	B	*p*
Non-React	.01 [-.05, .06]	.03	.01	*p* = .97
Observing	-.03 [-.07, .01]	.03	-.19	*p* = .16
Describing	.02 [-.02, .07]	.03	.04	*p* = .77
Act w/ Awareness	-.04 [-.09, .02]	.03	-.21	*p* = .13
Non-Judge	.03 [-.01, .07]	.02	.12	*p* = .39
DDI Total	.01 [-.01, .03]	.01	.10	*p* = .41

Note. 95% bias corrected and accelerated confidence intervals reported in parentheses.

Table 10

Linear Model of FFMQ Subscales and DDI Scores as Predictors of Percentage of Insight-

related Words Spoken

Variable	B	SE B	β	p
Non-React	.04 [-.03, .10]	.03	.11	p = .27
Observing	-.04 [-.92, .02]	.03	-.18	p = .21
Describing	.01 [-.05, .07]	.03	.05	p = .73
Act w/ Awareness	-.01 [-.06, .05]	.03	-.02	p = .84
Non-Judge	.00 [-.04, .04]	.02	-.00	p = 1.0
DDI Total	-.01 [-.04, .02]	.01	-.12	p = .33

Note. 95% bias corrected and accelerated confidence intervals reported in parentheses.

Table 11

Linear Model of FFMQ Subscales and DDI Scores as Predictors of SDQ Scores

Variable	*B*	*SE B*	β	*p*
Non-React	-.18 [-.54, .19]	.17	-.12	*p* = .29
Observing	.13 [-.09, .35]	.11	.13	*p* = .23
Describing	.01 [.17, .63]	.12	.37	*p* < .01
Act w/ Awareness	-.01 [-.12, .35]	.12	.10	*p* = .35
Non-Judge	.00 [-.33, .09]	.11	-.13	*p* = .23
DDI Total	-.01 [-.03, .28]	.06	.29	*p* = .02

Note. 95% bias corrected and accelerated confidence intervals reported in parentheses

Appendix A. Demographic Questionnaire

Demographic Information

Age (in years): _____

Date of Birth: ____/____/____

For the remaining items, please circle your answers—<u>circle only one answer per question</u>.

Education (choose your current level of education):

[1]freshman   [2]sophomore   [3]junior   [4]senior   [5]graduate

Approximately how many college course credits have you completed: _____

Race (select the ethnicity that you most identify with):

[1]African American   [2]Asian American   [3]Caucasian   [4]Hispanic   [5]Other: _____

Sex:

[1]Female   [2]Male

Do you having any experience with mindfulness or meditation?

[1]Yes   [2]No

If yes, please describe your experience in the space below:

Appendix B. Distress Disclosure Index

Please read each of the following items carefully. Indicate the extent to which you agree or disagree with each item according to the rating scale below:

1	2	3	4	5
Strongly Disagree				Strongly Agree

1. When I feel upset, I usually confide in my friends.

        1   2   3   4   5

2. I prefer not to talk about my problems.

        1   2   3   4   5

3. When something unpleasant happens to me, I often look for someone to talk to.

        1   2   3   4   5

4. I typically don't discuss things that upset me.

        1   2   3   4   5

5. When I feel depressed or sad, I tend to keep those feelings to myself.

        1   2   3   4   5

6. I try to find people to talk with about my problems.

        1   2   3   4   5

7. When I am in a bad mood, I talk about it with my friends.

        1   2   3   4   5

8. If I have a bad day, the last thing I want to do is talk about it.

        1   2   3   4   5

9. I rarely look for people to talk with when I am having a problem.

        1   2   3   4   5

Appendix B (continued). Distress Disclosure Index

10. When I'm distressed I don't tell anyone.

      1   2   3   4   5

11. I usually seek out someone to talk to when I am in a bad mood.

      1   2   3   4   5

12. I am willing to tell others my distressing thoughts.

      1   2   3   4   5

Appendix C. Five Facet Mindfulness Questionnaire

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes <u>your own opinion</u> of what is <u>generally true for you.</u>

1	2	3	4	5
Never or very rarely true	**Rarely true**	**Sometimes true**	**Often true**	**Very often or always true**

_____ 1. When I'm walking, I deliberately notice the sensations of my body moving.

_____ 2. I'm good at finding words to describe my feelings.

_____ 3. I criticize myself for having irrational or inappropriate emotions.

_____ 4. I perceive my feelings and emotions without having to react to them.

_____ 5. When I do things, my mind wanders off and I'm easily distracted.

_____ 6. When I take a shower or bath, I stay alert to the sensations of water on my body.

_____ 7. I can easily put my beliefs, opinions, and expectations into words.

_____ 8. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.

_____ 9. I watch my feelings without getting lost in them.

_____ 10. I tell myself I shouldn't be feeling the way I'm feeling.

_____ 11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.

_____ 12. It's hard for me to find the words to describe what I'm thinking.

_____ 13. I am easily distracted.

_____ 14. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.

_____ 15. I pay attention to sensations, such as the wind in my hair or sun on my face.

_____ 16. I have trouble thinking of the right words to express how I feel about things

_____ 17. I make judgments about whether my thoughts are good or bad.

_____ 18. I find it difficult to stay focused on what's happening in the present.

_____ 19. When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.

_____ 20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.

Appendix C (continued). Five Facet Mindfulness Questionnaire

1	2	3	4	5
Never or very rarely true	**Rarely true**	**Sometimes true**	**Often true**	**Very often or always true**

_____ 21. In difficult situations, I can pause without immediately reacting.

_____ 22. When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.

_____ 23. It seems I am "running on automatic" without much awareness of what I'm doing.

_____ 24. When I have distressing thoughts or images, I feel calm soon after.

_____ 25. I tell myself that I shouldn't be thinking the way I'm thinking.

_____ 26. I notice the smells and aromas of things.

_____ 27. Even when I'm feeling terribly upset, I can find a way to put it into words.

_____ 28. I rush through activities without being really attentive to them.

_____ 29. When I have distressing thoughts or images I am able just to notice them without reacting.

_____ 30. I think some of my emotions are bad or inappropriate and I shouldn't feel them.

_____ 31. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.

_____ 32. My natural tendency is to put my experiences into words.

_____ 33. When I have distressing thoughts or images, I just notice them and let them go.

_____ 34. I do jobs or tasks automatically without being aware of what I'm doing.

_____ 35. When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.

_____ 36. I pay attention to how my emotions affect my thoughts and behavior.

_____ 37. I can usually describe how I feel at the moment in considerable detail.

_____ 38. I find myself doing things without paying attention.

_____ 39. I disapprove of myself when I have irrational ideas.

Observe Items: 1, 6, 11, 15, 20, 26, 31, 36
Describe Items: 2, 7, 12R, 16R, 22R, 27, 32, 37
Acting with awareness Items: 5R, 8R, 13R, 18R, 23R, 28R, 34R, 38R
Non-juding of inner experiences Items: 3R, 10R, 14R, 17R, 25R, 30R, 35R, 39R
Non-reactivity to inner experiences Items: 4, 9, 19, 21, 24, 29, 33

Appendix D. State Disclosure Questionnaire

Instructions: We are interested in your perception of how much you discussed your specific traumatic or stressful event. Next to each question are five choices: "not at all," "a little," "moderately," "quite a bit," and "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 during the verbal disclosure?

In today's interview…	Not at all	A little	Moderately	Quite a bit	Very much
1. To what extent did you disclose personal information about your traumatic event or experience?	0	1	2	3	4
2. To what extent did you try to make your memories of the experience as vivid as possible?	0	1	2	3	4
3. To what extent did you try to make the mental images you had during the experience as vivid as possible?	0	1	2	3	4
4. To what extent did you try to make the emotions you had during the experience as vivid as possible?	0	1	2	3	4
5. To what extent did you talk about the facts of the experience?	0	1	2	3	4
6. To what extent did you describe your deepest feelings about the experience?	0	1	2	3	4

7. To what extent did you unintentionally leave out information related to
your deepest feelings about the experience?

0	1	2	3	4

8. To what extent did you purposefully leave out information related to
your traumatic or stressful experience?

0	1	2	3	4

9. How reluctant were you to disclose personal information?

0	1	2	3	4

10. How compelled did you feel to express your feelings about your
experience?

0	1	2	3	4

Appendix E. Toronto Mindfulness Scale

Instructions: 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: "not at all," "a little," "moderately," "quite a bit," and "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
1. I experienced myself as separate from my changing thoughts and feelings.	0	1	2	3	4
2. I was more concerned with being open to my experiences than controlling or changing them.	0	1	2	3	4
3. 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
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
5. I was curious to see what my mind was up to from moment to moment.	0	1	2	3	4
6. I was curious about each of the thoughts and feelings that I was having.	0	1	2	3	4
7. I was receptive to observing unpleasant thoughts and feelings without interfering with them.	0	1	2	3	4

8. 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

9. I approached each experience by trying to accept it, no matter whether it was pleasant or unpleasant.	0	1	2	3	4

10. I remained curious about the nature of each experience as it arose.	0	1	2	3	4

11. I was aware of my thoughts and feelings without overidentifying with them.	0	1	2	3	4

12. I was curious about my reactions to things.	0	1	2	3	4

13. 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 F. Informed Consent

<div align="center">Informed Consent</div>

Study Title: Effects of Mindfulness on Verbal Distress Disclosure

Investigators: Sara Fleming, B.A. and Jane Stafford, Ph.D.

Introduction

You are invited to participate in a research study investigating the impact of distress disclosure and mindfulness on verbal expression. The results of the study may be used to help researchers design interventions that promote client disclosure during therapy sessions. This experiment is being conducted by Sara Fleming to fulfill requirements for a master's degree at the University of South Carolina Aiken. Dr. Jane Stafford is the faculty supervisor for this study. Please read this form carefully and ask questions you may have before making the decision about whether or not to participate.

Procedures

Your participation in this study will involve attending one session. While participating in the experiment you will be required to turn off your cell phone. During the session, you will be asked to complete some questionnaires. You will then be asked to speak about a stressful or upsetting event after either engaging in an audiotaped mindfulness exercise or listening to an audiotaped excerpt from the podcast "The Psych Files". This component of the experiment will be audiotaped so that the experimenter can transcribe and analyze the interview. You will be asked to complete various self-report forms throughout this phase of the experiment. The entire session will take you approximately 90 minutes to complete. While you will not be paid for your participation, you will receive course credit for the amount of time you spend participating in their experiment.

Confidentiality

Your participation will be confidential. Your name will not be used in reporting the results of this study or with the process of data collection, nor will it appear in any reports or presentations about this study. An identification number will be assigned to you at the beginning of the project and this number will be used on all records. Any forms that have your personal identifying information, for example your name and birth date, will be stored in a locked filing cabinet and only authorized study personnel will have access to them. There are, however, limitations to confidentiality. If you endorse the intent to harm yourself or others, we would have the obligation to report this to someone who could prevent or stop this from happening. Additionally, if you report the abuse of a child or an elderly person, we are also obligated to

Appendix F (continued). Informed Consent

report this to the appropriate authorities. If you decide to participate in this study, you will also be required not to talk with others about the experiment, as it may ruin or change its findings.

Risks of Participating

People sometimes feel sad or depressed after talking about something upsetting. If that happens, it is completely normal. Most people say that these feelings go away in an hour or so. If at any time during the experiment you feel overwhelmed with distress or sadness, you may speak to the experimenter about your feelings and/or discontinue your participation. If you wish to speak to a mental health counselor, you may receive these services at the USCA Counseling Center located in the Business and Education Building, Suite 126 (803-641-3609), free of charge.

Voluntary Participation

You are free to leave the experiment at any time. If you wish to stop, you may do so without any repercussions and still receive credit for the amount of time you participated. You may simply tell the experimenter that you wish to quit, and the study will be stopped.

Contacts

If you have any questions about this study, please contact the Principle Investigator: Sara Fleming at sflemin@email.usca.edu, or her supervisor Dr. Jane Stafford at jstafford@usca.edu.

I have read (or have had read to me) the contents of this consent form. I have been encouraged to ask questions and received answers to my questions. I give my consent to participate in this study. I have received a copy of this form for my records and future reference.

_____   _____
Participant Signature   Date

_____   _____
Experimenter Signature   Date

Appendix G. Mindfulness Instructions

Mindfulness Condition Instructions

For the next several minutes, I'm going to ask you to think about, and try, a particular kind of awareness, called mindfulness. The term *mindfulness* comes from Eastern spiritual and religious traditions, but psychology has begun to find that mindfulness (without the spiritual and religious context) can be helpful for people in many ways. Today I'm just going to tell you a little bit about this way of paying attention, and have you try it out, to see what it's like for you. Mindfulness is paying attention in the present moment, with openness and curiosity, instead of judgment. We often focus on things other than what is happening in the moment—worrying about the future, thinking about the past, focusing on what is coming next rather than what is right in front of us. And it is useful that we can do a number of things without paying attention to them. However, sometimes it is helpful to bring our attention, particularly a curious and kind attention, to what we are doing in the moment. Sometimes we do pay close attention to what we are thinking and feeling and we become very critical of our thoughts and feelings and we try to either change them or distract ourselves because this critical awareness can be very painful. For example, we might notice while we are talking to someone new that our voice is shaky, or we aren't speaking clearly, and think, "I'm such an idiot! What is wrong with me? If I don't calm down, this person will never like me!"

Being mindful falls between these two extremes—we pay attention to what is happening inside and around us, we see events and experiences as what they are, and we allow things we can't control to be as they are while we focus our attention on the task at hand. For example, when talking to someone new we might notice those same changes in our voice, take a moment to reflect, "This is how it is now, there go my thoughts again," and gently bring our attention back to the person and our conversation. This second part of mindfulness, holding our judgments loosely and not trying to change our thoughts or feelings can be especially hard. In fact, often being mindful involves practicing not judging our tendency to have judgments! Mindfulness is a process: We do not reach a final and total state of mindfulness. It is a way of being in one moment that comes and goes. Mindfulness is losing our focus 100 times and returning to it 101 times. The best way to understand mindfulness is to practice it, so let's do that now.

Appendix G (continued). Mindfulness Instructions

Mindfulness Exercise 1

First, just allow your eyes to close gently, or to lower . . . and bring yourself to sit in an upright position . . . begin by noticing how you are sitting in the chair . . . noticing the places where you are touching the chair, the places where you are touching the floor . . . noticing where the air is touching your skin and what that feels like . . . notice any sounds in the room…and now gently drawing your attention to your breath . . . noticing (without trying to change it) where your breath is coming from . . . noticing where it enters your body when you inhale . . . how it travels through your body before you exhale it . . . Noticing how your body moves with each inhalation, each exhalation . . . allowing any thoughts or feelings that occur to naturally rise and fall, without trying to hold onto them or get rid of them . . . just continue bringing your awareness to your experience in this moment . . . and continuing to notice your breath . . . take a few moments now as you allow whatever comes to come and whatever goes to go and whatever stays to stay . . . if your mind wanders, that is okay, just gently bring your attention back to this moment…and again bringing your awareness to the room…to the way you are sitting in the chair…take one more deep breath and gradually open your eyes.

One of the hardest times to be mindful is when we are experiencing a strong emotion, like fear, or sadness, or joy. In those moments, we often want to either hold on to the emotion or get rid of it, rather than allowing it to rise and fall naturally. And sometimes it feels like we can make emotions stay or make them leave, but other times we may find that trying to make an emotion stay makes it leave even faster, while trying to get rid of it keeps it hanging around. Also, emotions can give us important information about our lives, a particular situation, or the way someone we care about is responding to us. So it can be useful for us to notice the emotions we are having as they happen, rather than judging them or trying to change them. We can bring the same kind of awareness you just practiced to any emotional experience, noticing what we

Appendix G (continued). Mindfulness Instructions

feel in our bodies, what thoughts we have, and just letting that experience happen without getting caught up in it. Our feelings will change on their own when we let them be, rather than seeing them as bad or good or something to be changed. This is also something that is easier to experience than it is to describe. Let's do another exercise to give you a sense of what I'm describing.

Mindfulness Exercise 2: Mindfulness of Emotions

First, make yourself comfortable in your chair. Take a few moments to notice your breathing. Close your eyes, and focus on your breath . . . . Noticing how breath travels into your body, through your body, and back out of your body . . . noticing any tension in your body . . . and gently letting it go . . . . Spending a few moments just focusing your attention on your breath . . . Now I would like to read a poem to you as your eyes remain closed and have you notice any reactions to the poem that arise.

The Guest House by Rumi (1995)

This being human is a guest house.

Every morning a new arrival.

A joy, a depression, a meanness,

some momentary awareness comes

as an unexpected visitor.

Welcome and entertain them all!

Even if they are a crowd of sorrows,

who violently sweep your house

empty of all its furniture,

still, treat each guest honorably.

He may be clearing you out

for some new delight.

The dark thought, the shame, the malice,

Appendix G (continued). Mindfulness Instructions

meet them at the door laughing

and invite them in.

Be grateful for whatever comes,

because each has been sent

as a guide from beyond.

…now with your eyes still closed gently draw your attention back to your breath . . .noticing how your body moves with each inhalation, each exhalation . . . allowing any thoughts or feelings that occur to naturally rise and fall, without trying to hold onto them or get rid of them . . . just continue bringing your awareness to your experience in this moment . . . and continue to notice your breath . . . take a few moments as you allow whatever comes to come and whatever goes to go and whatever stays to stay . . . if your mind wanders, that is okay, just gently bring your attention back to this moment… just continue bringing your awareness to your experience in this moment . . . and continue to notice your breath…and again bringing your awareness to the room… to the way you are sitting in the chair…take one more deep breath…and gradually open your eyes.