

ENHANCING EMPATHY: MIGHT MINDFULNESS

OF THE SELF EXTEND TO OTHERS?

By

Kimberly A. Gilroy

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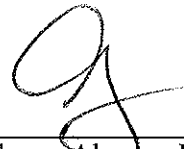
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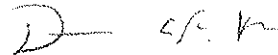
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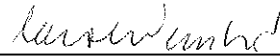
Chair:



Anthony Anichini, Ph.D.



David Haaga, Ph.D.



Carol Weissbrod, Ph.D.



Dean of the College of Arts and Sciences

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ABSTRACT

Evidence suggests mindfulness enhances empathy. This study aimed to identify relationships between mindfulness facets and empathic processes and to explore possible mediators of these relationships. Participants completed mindfulness and empathy questionnaires and a performance measure of empathic accuracy. Mindful observing and describing were positively related to empathic concern. Most facets of mindfulness were positively related to perspective taking and inversely related to personal distress, with the latter relationship partially mediated by brooding and fear of emotion. Nonreactivity related to empathic accuracy in the opposite direction as hypothesized. This study suggests most mindfulness facets are related positively with perspective-taking while nonreactivity relates inversely to empathic accuracy. Though findings are limited by the cross-sectional design, mindful observing may be important for the enhancement of empathic concern while all mindfulness facets aside from observing may serve to reduce distress perhaps in part by reducing brooding and fear of emotion.

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CHAPTER 1

INTRODUCTION

Research on empathy spans across the developmental, social, counseling and neuropsychology literatures. Studies reveal empathy to be the infant's initial means for emotional connection, a critical skill in forming social bonds during adolescence (Losoya & Eisenberg, 2001) and a predictor of altruistic motivation (Batson, Chang, Orr & Rowland, 2002) and moral behavior (Eisenberg, 2001). The psychotherapy literature posits empathy as a common factor, critical for clinical change (Rogers, 1992, Duan & Hill, 1996). Even the absence of empathy has implications for understanding psychopathology; compromised in autism spectrum disorders (Gillberg, 2007), blunted in alexithymia and missing in psychopaths, a group characterized by a capacity to understand someone's distress but a tendency to use this insight malevolently (Blair, 2007).

Perhaps because of its value for both individual and social functioning, empathic enhancement has been the focus of numerous interventions. Yet some criticize existing interventions for their tendency to prepare one for neutrally-valenced situations (Block-Lerner, Adair, Plumb, Rhatigan, & Orsillo, 2007). It is believed that enhancement of empathy during interpersonal situations in which feelings of distress are being communicated promises greater overall benefits to individual and relational health (Fruzzetti & Iverson, 2004). In response, it has been suggested that mindfulness, a..

nonreactive attention to the present moment, may augment existing empathy training approaches (Block-Lerner et al., 2007; Fruzzetti & Iverson, 2004). This study aims to inform such efforts. I will first provide a brief look at the construct of empathy, then review empirical and theoretical literature relating mindfulness and empathy.

A basic definition of empathy suggests it is a process where the perception of another or “target” person’s state generates an affective state in the observer more similar to that of the target than to oneself (Preston & deWaal, 2002). Though often used synonymously in lay conversation, empathy is distinct from sympathy as the latter does not reflect the inner experience of another person, but rather the independent response of the perceiver. While some conceptualize empathy as a stable trait, others, as in this study, also believe it to be an experiential state or multifaceted process (Duan & Hill, 1996). Empathy has been described as involving cognitive and affective processes. Such cognitive processes include perspective-taking, the intellectual ability to adopt the point of view of the other person (Davis, 1983). Among the affective processes are two contrasting responses, empathic concern and personal distress. Empathic concern refers to feelings of sympathy and concern oriented towards the other person (Davis, 1983), whereas personal distress is an affective response characterized by self-oriented anxiety and nervousness (Davis, 1983).

One outcome of empathic processes, referred to as empathic accuracy, is the cognitive ability to infer the thoughts and feelings of another person (Ickes, Stinson, Bissonette & Garcia, 1990; Ickes, 2001). It is similar to perspective-taking in that it is referring to a cognitive process and is focused on inferring what may be the thoughts and feelings of another person. It is not, however, a measure of empathic feeling or concern.

It also involves the behavioral ability to subsequently communicate what is inferred. Therefore, empathic accuracy involves both cognitive and behavioral processes to infer and to communicate thoughts and feelings similar to how they are experienced by another person.

Some research has focused on correlations between cognitive and affective processes of empathy that may account for empathic outcomes. For instance, an inverse relationship has been found between personal distress and both empathic concern and perspective-taking (Wachs & Cordova, 2007). During scale development, Davis (1983) found perspective-taking to be positively related to empathic concern ($r = .30$ to $.38$, $p < .01$) and inversely related to personal distress ($r = -.16$ to $-.32$, $p < .01$). Although some adopt a broad conceptualization of empathy as a set of responses to another's experience (Davis, 1993), evidence suggests personal distress is inversely related to more favorable dimensions of empathy, concern and perspective-taking. In addition, the definition of empathy as an affective state of concern or cognitive attempt to understand another's situation, does not entail adverse reactions of distress. Thus, inclusion of personal distress may depend upon how narrow of a conceptualization of empathy one assumes. In the current study, a narrow conceptualization will be used in which empathic concern and perspective-taking are posited to reflect empathy while personal distress is a distinct response, albeit to a similar stimulus.

Personal distress, empathic concern and perspective-taking may each have important implications for the enhancement of empathy. Though data demonstrating the inverse relationship of personal distress to empathic concern and perspective-taking are only correlational, and so do not speak to cause, perhaps personal distress may somehow

limit other empathic processes. Eisenberg and colleagues (1998) suggest that empathic overarousal, or personal distress, when faced with another's distress may lead to self-focused attempts to temper or eliminate distress. This self-focus is believed to compromise other-oriented processes related to concern for others. In contrast, a more moderate and regulated response to cues is believed to foster other-oriented feelings of concern. In fact, some theorize that some degree of arousal may evoke feelings of concern for others through affective sharing of emotion (Decety & Jackson, 2004; Decety, 2011). Therefore, there may be a curvilinear relationship of distress and empathic feelings of concern and taking the perspective of another. Perhaps, how one regulates distress will predict either distress or concern.

In addition, empathy is informed by social context and behavior. These external cues are believed to communicate another person's experience and emotional state. Thus, attention may account for some degree of empathic responding, including empathic accuracy. Evidence indicates that attending to verbal cues informs inference into a target's thoughts while attending to non-verbal cues informs inferences about the target's feelings (Hall & Mast, 2007). Because empathy involves ongoing attention to external cues, processes which interfere with attention, such as personal distress, may compromise empathy, in contrast to those which enhance flexible attention to internal and external cues in the present moment. Given the possible deleterious effects of personal distress, value of affective regulation and attention to both internal processes and ongoing external cues, it is plausible that mindfulness may enhance empathy.

Mindfulness, defined as attention to the present moment characterized by curiosity, openness and acceptance of experience (Bishop et al., 2004), has clinical

origins in theory and treatments such as Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999) largely aimed at the reduction of pathological experiential avoidance, as well as Mindfulness-based Cognitive Therapy (MBCT; Teasdale, Segal & Williams, 1995), a therapy informed by Mindfulness-based Stress Reduction (MBSR; Kabat-Zinn, 1990). According to ACT, acceptance “diffuses” the harmful connection between language and the sense of self such that one is less likely to resort to control strategies of regulation. Thoughts are thoughts and emotions are emotions, rather than true reflections of the self (Hayes, Strosahl, & Wilson, 1999). MBCT suggests that acceptance along with present focused awareness enables a "decentered" (Teasdale, Segal & Williams, 1995) or meta-cognitive perspective towards inner thoughts and feelings. This cognitive space is thought to create a pause in responding between perception and reaction; reflection may be enhanced while automatic and habitual reactivity is tempered (Bishop et al., 2004). Similarly, Shapiro and colleagues (2006) suggest mindfulness allows one the meta-cognitive perspective to view one's thoughts with greater objectivity, a process they refer to as “reperceiving.” In contrast to detachment, reperceiving is believed to enhance connection with moment-to-moment experience free from commentary. Thus, mindfulness may allow people to willingly and flexibly shift their cognitive perspective while remaining aware of ongoing experience. Perhaps such flexibility of attention and acceptance of experience could foster cognitively inferring the experience of another, enhanced other-directed concern, and less personal distress in reaction to another's distress. While theory has largely focused on how mindfulness functions for the individual, might the processes of mindfulness also serve to enhance interpersonal relating such as empathy?

Treatment outcome studies have found mixed results but are generally promising. An initial study using an 8-week MBSR program (Kabat-Zinn, 1990) with premedical and medical students reported a reduction in psychological distress and anxiety which mediated increased empathy compared to a wait-list condition (Shapiro, Schwartz & Bonner, 1998). This is similar to Lesh's (1970) study that found meditation to increase affective sensitivity, or empathy. Unlike Shapiro and colleagues (1998) who used a unidimensional measure of empathy, Birnie, Speca and Carlson (2011) used a multifaceted assessment of empathy which provided evidence that MBSR increased cognitive perspective-taking and reduced personal distress in a community sample. Beddoe and Murphy (2004) also found MBSR to decrease levels of personal distress among a sample of nurses but did not find significant increase in empathic concern or perspective-taking. Initial evidence is promising, and merits further analysis of how facets of mindfulness may relate to discrete empathic processes and by what mechanisms.

Similar to empathy, mindfulness is conceptualized as a multifaceted process. Underlying facets of mindfulness have been identified through factor-analytic research of mindfulness scales (Baer, Smith, Hopkins, Krietemeyer & Toney, 2006). One facet underlying mindfulness is describing which refers to the ability to put one's thoughts and feelings into words. Observing refers to the tendency toward flexible attention to external stimuli, such as environmental sights and sounds, and internal experiences such as thoughts and emotions. Acting with awareness is a facet describing the tendency to act in the present moment as opposed to being distracted or acting on "automatic pilot." Describing, observing and acting with awareness are conceptually similar, describing the "what" skills of mindfulness (Linehan, 1993), or rather the action components of

mindfulness that indicate one is participating with awareness. However, independent analysis of these facets will be valuable given that observe tends to perform differently than the other four facets (Baer et al., 2006; 2008).

Facets considered to be the “how” skills of mindfulness involve acceptance of internal experience and external stimuli that come into awareness. For instance, to be nonjudging refers to a non-critical stance towards internal experiences such as thoughts and feelings (Baer et al., 2006) and can be conceptualized as a facet of mindful acceptance. An attitude such as “some of my emotions are bad or inappropriate and I should not feel them” (Baer et al., 2006) contrasts with acceptance and describes the opposite of nonjudging. The facet of nonreactivity also can be considered a process of mindful acceptance as it describes one’s ability to let internal thoughts and feelings, particularly those of a distressing nature, come and go without responding to or “getting lost in them.” Nonreactivity demonstrates acceptance because it infers a willingness to allow experiences to come and go without automatically responding in habitual ways. Though nonreactivity and nonjudging are conceptually similar, this study will examine their independent effect given that factor analysis has shown them to be intercorrelated, yet distinct facets of an overall mindfulness construct (Baer et al., 2006).

To date, correlations between mindfulness facets and empathy facets are largely mixed. While some studies found acting with awareness to relate positively with empathic concern and perspective-taking and inversely to personal distress (Wachs & Cordova, 2007; Beital, Ferrer, Cecero, 2005), another study failed to replicate the inverse relationship of acting with awareness with personal distress (Dekeyser, Raes, Leijssen, Leysen & Dewulf, 2008). As well, Block-Lerner, Orsillo and Plumb (2004) did not find a

significant relationship between mindful attention and empathic concern and perspective-taking. Little research has examined other facets of mindfulness. The observing facet, although positively related to a composite score of empathic concern and perspective-taking showed no significant relationship with personal distress (Dekeyser et al., 2008). In contrast, Dekeyser and colleagues (2008) also found a composite measure of mindful acceptance was nonsignificantly related to empathic concern and perspective-taking but inversely related to personal distress. The most consistent findings relate mindful attention and awareness to greater empathic concern and perspective-taking while mindful acceptance relates to reduced personal distress.

With respect to exploring the role of mindfulness facets, perhaps experimental evidence may indicate if mindfulness may likely enhance empathy. In one study, participants completed one of three inductions prior to viewing a distressing film clip and writing a reflective narrative (Block-Lerner et al., 2004). One induction, the mindful awareness condition, encouraged both attention and acceptance by instructing participants to "let go" (nonreactivity and nonjudging) of internal experiences attended to on a moment-to-moment basis. The positive thinking induction encouraged attention to and evaluation and control of thoughts and feelings to maintain a "positive focus." The sound of waves was a neutral, relaxing control condition. Results indicated that the mindful awareness and acceptance group wrote more other-oriented reflections, compared to the relaxation condition and significantly more than the "positive focus" induction. The latter resulted in significantly more references to the self compared to both the control and mindful acceptance conditions (Block-Lerner et al., 2004). This was interpreted as evidence that mindful acceptance facilitates empathy by encouraging a

detached perspective towards one's internal thoughts and feelings in contrast to control methods of mindful attention (Block-Lerner et al., 2007). Moreover, it supports the possibility that mindful acceptance, beyond simply mindful attention, tempers self-focus, a process associated with possible mediators of the relationship between mindfulness and empathy.

Though facets of mindfulness may partially account for enhancement of empathic processes, it is possible that other mechanisms may be a factor. One such process is rumination, a perservative thought pattern oriented toward the self and negative emotions (Lyubomirsky & Nolen-Hoeksema, 1995; Nolen-Hoeksema, Wisco & Lyubomirsky, 2008). Given that rumination draws attention away from external cues in the present moment, perhaps it could compromise empathy, which is informed by social context. Evidence indicates MBCT reduces relapse of depressive symptoms (Teasdale et al., 2000), perhaps by reducing activation of negative associations that lead to rumination (Segal et al., 2002; Teasdale et al., 1995). Rumination, particularly of a brooding nature, is positively associated with personal distress when faced with the distress of another (Joireman, 2004). Another study noted that reduced rumination is partially responsible for the positive effect of mindful attention and acceptance on general well-being (Baer et al., 2008). Should mindful acceptance and attention be found to enhance empathy, it will be valuable to explore if lower trait rumination, particularly brooding, accounts to some degree for this effect.

Another potential mediator that may account for enhancement of empathy associated with mindful acceptance and attention is fear of emotion (Williams, Chambless & Ahrens, 1997). Should people be fearful of emotions such as anger, fear,

sadness and happiness in themselves, might they likely report distress when faced with another person's emotional cues? A disposition to fear emotions has been found to be inversely correlated with mindful acceptance and attention in daily life (Baer et al., 2008). Acceptance, which encourages a nonjudgmental and nonreactive stance towards such experiences as emotion, may perhaps foster willingness to attend to stimuli that might evoke such emotions. Fear of emotion, on the other hand, may function to maintain personal distress. One study corroborates this possibility, finding that fear of emotion was related to greater reported personal distress following exposure to emotionally evocative stimuli (Salters-Pedneault, Gentes & Roemer, 2007). As previously mentioned, a tendency to react with personal distress is inversely related to empathic concern and perspective-taking facets (Wachs & Cordova, 2007). Given these preliminary findings, it is possible that the relationship between mindful attention and acceptance and personal distress as well as the relationship between mindful acceptance and attention and empathic concern or perspective-taking may in part be accounted for by degree of dispositional fear of emotion.

Together, correlational and experimental evidence not only demonstrates possible relationships between facets of mindfulness and empathy but potential processes responsible for this relationship. However, it is important to consider limitations of the literature thus far. Difficulty in examining correlations between facets of mindfulness and empathy is due in part to varied conceptualizations of mindfulness. While some measures assess mindfulness as primarily present focused attention, others include facets of mindfulness that include acceptance and nonreactivity. As such, few studies have attended to the independent contribution of each mindfulness facet which may enable a

more targeted intervention for enhancing empathy. This study will also add to the literature to date by examining how each of the five mindfulness facets relates to empathy.

CHAPTER 2

METHOD

The purpose of this study was to examine the relationship of mindfulness facets with multiple measures of empathy. It was expected that higher scores on the mindfulness facets of observing, describing, acting with awareness, nonjudging and nonreactivity would be associated with a greater disposition to feel empathic concern and take another person's perspective on the one hand and feel less personal distress on the other. I hypothesized that high scores on each of the five mindfulness facets would be positively correlated with the ability to infer the thoughts and feelings of a target person moment-to-moment, as well as greater self-report of empathic feelings towards the target individual. Further, the possibility that reduced brooding and fear or emotion mediate the relationship between significant relationships between mindfulness facets and empathic outcomes was explored..

Participants

One hundred and two participants completed testing. Two participants were removed from the final dataset due to eligibility, as they did not endorse being native English speakers on the demographics questionnaire. The final sample ($N = 100$) was 69% female and 31% male with an age range from 18 to 38 years ($M = 19.5$, $SD = 2.3$). The ethnic distribution was 78% European American, 7% African American, 4% multi- or bi-racial, 3% Asian American, 3% Latin-American, 2% Native American, 1%

East Indian, and 2% indicated “Other.” All participation was voluntary and 97% received class credit while 3% choose to enter a raffle for a \$75 gift card.

Self-report Measures

Demographic Questionnaire: Participants completed a brief demographic questionnaire reporting their age, sex, and ethnicity. Participants were asked about experience with meditation and similar relaxation–based practices. Participants described whether or not they have had experience with a contemplative practice (meditation, transcendental meditation, yoga, guided imagery/breathing or mindfulness) and if they are still currently practicing. They also reported on the frequency (how many days per week) and duration of their practice (number of years). See Appendix A for demographic items.

Five –Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006) is a 39-item questionnaire designed to assess trait mindfulness. Factor analysis of these items has revealed five facets including: observe (sample item “I pay attention to how my emotions affect my thoughts and behavior”), describing (sample item “Even when I’m feeling terribly upset, I can find a way to put it into words.”), acting with awareness (sample item “I find myself doing things without paying attention,” reverse scored), nonjudging of inner experience (sample item “When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about,” reverse scored) and nonreactivity to inner experience (sample item “In difficult situations, I can pause without immediately reacting”).

Items are rated on a scale from 1 (never or very rarely true) to 5 (very often or always true). Good internal consistency and correlations with related constructs have been demonstrated in several samples, including individuals both naïve to and experienced with meditative practices (Baer et al., 2006; Baer et al., 2008). Studies reporting the confirmatory factor analysis of the FFMQ and the incremental validity of mindfulness facets in predicting psychological symptoms support the validity of this scale (Baer et al., 2006). The internal consistency of sub-scales for this sample was good (observe $\alpha = .80$, describing $\alpha = .94$, acting with awareness $\alpha = .89$, nonjudging $\alpha = .91$, and nonreactivity $\alpha = .85$).

Interview Response Questionnaire (IRQ; Batson, 1991) is a list of 20 adjectives that describe different emotional states. Participants rated on a scale of 1 (not at all) to 7 (extremely) how much they felt that emotion towards the individual in the stimulus video. Of the 20 adjectives, six were used for this protocol to assess empathy, including: sympathetic, compassionate, softhearted, warm, tender, and moved (Batson, 1991). This scale allowed for the measurement of empathic feelings towards the individual in the stimulus video and showed good reliability in this sample ($\alpha = .88$).

Interpersonal Reactivity Index (IRI; Davis, 1983) was used to assess trait empathy. It is a 28-item questionnaire that assesses four dimensions of empathy: perspective-taking (PT; sample item “I sometimes try to understand my friends better by trying to imagine how they look from their perspective.”), fantasy (F; sample item “When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.”), empathic concern (EC; sample item “I often have tender,

concerned feelings for people less fortunate than me”), and personal distress (PD; sample item “Being in a tense emotional situation scares me”). Items are scored on a 5-point likert-type scale from 1 (does not describe me well) to 5 (describes me very well). The internal consistency of the perspective-taking, empathic concern and personal distress scales demonstrate adequate reliability in other samples, with alpha coefficients of .73, .71 and .76, respectively (Davis, 1980, as cited in Davis, 1983). Likewise, all three subscales showed good reliability for this sample (PT $\alpha = .84$, EC $\alpha = .75$, and PD $\alpha = .79$).

The IRI has adequate convergent validity, as perspective-taking correlates with measures of cognitive empathy ($r = .37$ to $.42$, $p < .05$; Davis, 1983) and empathic concern with measures believed to capture affective empathy ($r = .56$ to $.63$, $p < .05$; Davis, 1983) while personal distress was positively correlated with social anxiety ($r = .39$ to $.43$, $p < .01$; Davis, 1983). The empathy subscales of the IRI were examined for multicollinearity. Empathic concern and perspective-taking were moderately related ($r = .419$, $p < .01$) while no other correlation between the sub-scales was significant. Subscales of the IRI were examined as discrete factors since intercorrelations were at most moderate.

NEO-Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992) is a 60-item questionnaire measuring five factors of personality including neuroticism, extraversion, openness to experience, agreeableness and conscientiousness. However, only neuroticism was explored as a covariate given the empirical evidence of its inverse relation to mindfulness (Brown & Ryan, 2003; Baer et al., 2006). Evidence also suggests neuroticism is positively related to fear of emotion (Williams, Chambless, & Ahrens,

1997) and significantly predicts ruminative brooding (Hervas & Vasquez, 2011). Given evidence to suggest neuroticism may significantly relate to both the independent variables and mediators in this study, neuroticism will be included as a covariate for mediation analyses. This will allow examination of the mediation effects by fear of emotion a brooding beyond that which could be accounted for by neuroticism. Other personality factors will not be included in the analysis as there is no consistent evidence to support the presence of a significant relationship with either mindfulness facets or empathy. In this sample the neuroticism sub-scale showed good reliability ($\alpha = .88$).

Affective Control Scale (ACS; Williams, Chambless, & Ahrens, 1997) includes 42 items assessing the fear of emotions including, anxiety, anger, strong positive emotion and depression. Items are scored on a 7-point scale and include such items as, “Once I get nervous, I think that my anxiety might get out of hand,” and “I am afraid that I’ll do something dumb if I get carried away with happiness.” The items of the ACS are internally consistent ($\alpha = .94$) and demonstrate good retest reliability over a two week period ($r = .78$; Williams, Chambless & Ahrens, 1997). Reliability was similarly strong in this sample ($\alpha = .95$). This questionnaire was included to assess the possible mediating role that fear of emotion may have between trait mindfulness and empathic outcomes. While previous work has not directly examined this relationship to empathy, scores on the ACS have significantly mediated the relationship between trait mindfulness assessed with the FFMQ (Baer et al., 2006) and psychological well-being including self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life and personal growth (Baer et al., 2008).

Ruminative Response Scale – Brooding (RRS-BR; Treynor, Gonzalez, & Nolen-Hoeksema, 2003) is a subscale derived from the Response Styles Questionnaire (RSQ; Nolen-Hoeksema & Marrow, 1991), which is a 22-item inventory measuring responses that are self-focused (“I think, ‘Why do I react this way?’”), symptom focused (“I think about how hard it is to concentrate.”), and focused on mood antecedents and consequences (“I think, ‘I go away by myself and think about why I feel this way.’”). Items are rated on a likert-type scale from 1 (almost never) to 4 (almost always). Internal consistency of the rumination subscale is good ($\alpha = .89$; Nolen-Hoeksema & Morrow, 1991) as is the retest reliability (Nolen-Hoeksema, 2000). Further analysis has demonstrated that 12 items are confounded with depression while the remaining ten can be equally divided into subscales of reflection (“Go someplace alone to think about your feelings,”) and brooding (“Think about a recent situation, wishing it had gone better;” Treynor, Gonzalez, & Hoeksema, 2003). The five items assessing brooding were used in this study and demonstrate good reliability ($\alpha = .77$). In other research the coefficient alphas for brooding was .77 (Treynor et al., 2003). Retest reliability over a 2-year period resulted in a correlation of .62 for brooding (Treynor et al., 2003). Inclusion of this questionnaire will enable analysis of the potential mediating role of self-focused brooding between any significant relationships that emerge between mindfulness facets and empathic processes

Performance Task

Empathic Accuracy, the degree to which one can infer the thoughts and feelings of a target person, is a performance measure of cognitive empathy. This procedure was originally developed for dyads by Ickes and colleagues (1990), and adapted as a standard stimulus by Marangoni and colleagues (1993). Generally, the standard stimulus involves a spontaneous, unrehearsed recording of a target person recounting an experience with a stranger. After the interview, the subject views the video recording and reports what she was thinking and feeling in the moment she was recalling the story.

The standard stimulus to be used in this study was obtained from Sara D. Hodges, PhD, who reports adequate reliability in prior research (Klein & Hodges, 2001). The content of this video involves a subjective report by a female college student describing her disappointment having received lower GRE scores than she hoped and her feelings about consequent plans for the future. Following recording of the stimulus, she was invited to view her interview and report what she was thinking and feeling at the time of recording. Her interview was divided into four sub-sections each with its own corresponding thought and feeling.

Coding of empathic accuracy assessed the degree to which the inference of thoughts and feelings reported by the participant matched the corresponding content of the college student's reports of her thoughts and feelings. There were four stop-points in which the participants were asked, "What was the woman in the video thinking or feeling in the section you just viewed?" Each inference was coded by two independent raters on a scale offering three values: 0 (different content from the target's reported thoughts and

feelings), 1 (somewhat similar content) and 2 (essentially the same content). For each participant, ratings were averaged across coders and across inferences resulting in a single index of accuracy. This value was divided by 2 to create a value between .00 and 1.00 reflecting "no accuracy" and "maximum accuracy" respectively. Reliability of the empathic accuracy standard stimulus paradigm has been demonstrated using interrater reliability. Studies using four raters report a Cronbach's alpha of .85 (Mast & Ickes, 2007). Analysis for this study involved two independent raters for coding responses. Interrater reliability was adequate ($\alpha = .79$).

Although face and predictive validity of the empathic accuracy paradigm is strong (Ickes, 2001; Mast & Ickes, 2007), there has been difficulty demonstrating convergent and discriminate validity using self-report and performance measures. Many of the performance measures used to establish convergent validity have failed, perhaps highlighting the limitation within the literature for having varied performance measures of interpersonal sensitivity which capture distinct constructs that may or may not be related (Mast & Ickes, 2007).

Procedure

Participants were recruited with flyers posted throughout a university campus. Flyers described the research as a study looking at communication. Potential participants who responded to the recruitment flyer were screened for eligibility and scheduled for individual testing in a private lab on campus. Experimenters were a female undergraduate psychology major and myself, a female clinical psychology graduate student. Coders

were two female undergraduate students. To allow for adequate measurement of the proposed hypotheses the minimum sample size required was 93. This was calculated based on parameters for mediation analysis with an effect size between small and medium ($f^2 = .085$), an alpha of .05, and power of .80.

Volunteer participants were scheduled for one hour of individual testing. Following informed consent participants completed self-report questionnaires on a computer using MediaLab software. Self-report questionnaires were presented in random order. Next they completed the empathic accuracy portion of the testing. Visual and audio recording of the empathic accuracy stimulus was presented on a computer screen in its entirety (10 minutes). The video, played a second time, was paused at four pre-programmed points. During the pause, participants were asked to write their response to the question, “What was the woman in the video thinking or feeling in the section you just viewed?” The participant signaled to the research assistant when he or she had finished answering and the video stimulus resumed. Following the empathic accuracy protocol, participants completed the Interview Response Questionnaire to assess empathic feelings, again using the computer and MediaLab software. With the psychosocial measures and testing complete, the participant was debriefed, thanked, and offered the options for compensation.

CHAPTER 3

RESULTS

Preliminary Analyses

Prior to testing proposed hypotheses, the dataset was analyzed for normality and potential outliers. Stem-and-leaf, histograms, box-plot graphs and statistical tests of normality were used to assess for normal distribution of all variables. In this sample, scores for the empathic concern and personal distress sub-scales of the IRI were slightly skewed to the right indicating a greater tendency to feel empathic concern and to the left, indicating less personal distress. Sub-scales of the FFMQ also showed a normal distribution except for a slight skew to the right for both the tendency to observe thoughts and feelings as well as to describe internal experiences. Although potential outliers were identified, removal of their scores did not significantly alter relationships between the variables. Therefore, outliers remained in the final dataset.

Descriptive Statistics

Means and standard deviations for all variables are presented in *Table 1*. Gender and experience with contemplative practice were associated with certain mindfulness and empathy variables. For gender, women appeared to have more empathic concern for the woman in the video compared to men ($M = 3.28$, $SD = .89$ vs. $M = 2.88$, $SD = .93$, $t(98) = -2.05$, $p < .05$). Since gender was unrelated to mindfulness facets, no further analyses

Table 1

Means and Standard Deviations of Self-Report Measures

	Mean	Standard deviation
Observe ^a	3.57	.69
Describe ^a	3.62	.85
Act with awareness ^a	3.23	.76
Nonjudge ^a	3.27	.86
Nonreactive ^a	3.20	.72
Perspective-taking ^b	3.68	.77
Empathic concern ^b	3.89	.62
Personal distress ^b	2.46	.72
Empathic accuracy	.57	.21
State empathic concern ^c	3.16	.92
Fear of emotion ^d	3.20	.82
Brooding ^e	2.36	.75
Neuroticism ^f	2.90	.78

^a Data are from Five-Facet Mindfulness Questionnaire.

^b Data are from the Interpersonal Reactivity Index.

^c Data is from the Interview Response Questionnaire

^d Data is from the Affective Control Scale

^e Data is from the Ruminative Response Scale – Brooding

^f Data is from the NEO-Five Factor Inventory

were conducted to explore whether gender affected relationships between mindfulness, and empathy. In addition, compared to participants who had no contemplative practice those who had experience with contemplative practice scored significantly higher on acting with awareness ($M = 3.33, SD = .76$ vs. $M = 2.89, SD = .66, t(98) = -2.49, p < .05$), observing ($M = 3.67, SD = .68$ vs. $M = 3.22, SD = .68, t(98) = -2.85, p < .01$), describing ($M = 3.74, SD = .79$ vs. $M = 3.21, SD = .94, t(98) = -2.72, p < .01$) and empathic concern ($M = 3.9, SD = .58$ vs. $M = 3.59, SD = .67, t(98) = -2.66, p < .01$). As a result, I conducted post-hoc analyses to explore the role of meditation in understanding the mindfulness-empathy relationship. These will be reported later. Correlations of all study variables are displayed in *Table 2*.

Associations of Mindfulness Facets and Empathic Outcomes

The first set of hypotheses explored whether higher scores on the mindfulness facets of observing, describing, acting with awareness, nonjudging and nonreactivity were associated with a greater disposition to feel empathic concern and take another person's perspective on the one hand and feel less personal distress on the other. The empathic tendency to take the perspective of another person was expected to show a positive correlation with each facet of mindfulness. Results show a significant positive relation between trait perspective-taking and the mindfulness facets of nonreactivity ($r = .438, p < .01$), acting with awareness ($r = .342, p < .01$), and the abilities to describe ($r = .340, p < .01$) and to observe ($r = .423, p < .01$) one's thoughts and feelings. However, the perspective-taking sub-scale of the IRI was not significantly related to the mindfulness facet of nonjudging. Empathic concern, or the tendency to feel concern for others, was

Table 2

Pearson Correlations for all Study Variables

Variable	OB	DES	ACT	NJ	NR	PT	PD	EC	SC	EA	ACS	BR
(OB) Observe	-----											
(DES) Describe	.29**	-----										
(ACT) Act Aware	.12	.45**	-----									
(NJ) Nonjudge	-.16	.26*	.38**	-----								
(NR) Nonreact	.29**	.40**	.28**	.32**	-----							
(PT) Persp. Taking	.42**	.34**	.34**	.02	.49**	-----						
(PD) Per Distress	-.03	-.34**	-.42**	-.34**	-.53**	-.15	-----					
(EC) Emp. Conc.	.27**	.23*	.08	-.19	-.04	.42**	.10	-----				
(SC) State Conc.	.21*	.01	-.05	-.23*	-.16	.16	.36**	.17	-----			
(EA) Emp. Accuracy	-.04	-.16	.04	-.18	-.03	-.03	.10	.01	.01	-----		
(ACS) Fear of Emotion	.04	-.46**	-.58**	-.65**	-.23*	-.23*	.60**	.04	.25*	.10	-----	
(BR) Brooding	-.05	-.33**	-.46**	-.53**	-.25*	-.25*	.49**	.11	.22*	.12	.62**	-----
(N) Neuroticism	.08	-.43**	-.52**	-.69**	-.19	-.19	.62**	.13	.27**	.15	.69**	.69**

* $p < .05$ ** $p < .01$ *** $p < .001$

hypothesized to be positively related to each mindfulness facet. Results show support for this hypothesis such that trait empathic concern was positively associated with the ability to describe ($r = .227, p < .05$) and mindful observation of thoughts and feelings ($r = .209, p < .05$). However, the relationships between trait empathic concern and acting with awareness, nonjudgment and nonreactivity were nonsignificant. Results suggest that the more one is able to observe or describe internal and external stimuli, the more one may feel empathic concern towards others.

It was hypothesized that the tendency to feel distress when faced with the distress of others would be inversely related to each mindfulness facet. Greater personal distress was associated with a reduced tendency to describe thoughts and feelings ($r = -.342, p < .01$), act with awareness ($r = -.421, p < .01$), to be nonreactive ($r = -.525, p < .01$) and nonjudging ($r = -.344, p < .01$). Personal distress was not significantly related to the mindful tendency to observe thoughts and feelings. In this sample, the more one was able to describe internal thoughts and feelings, to act with awareness in the moment, to be nonreactive and nonjudging towards internal experience, the less one experienced personal distress when faced with the distress of others. However, the ability to observe internal and external stimuli had no bearing on how much distress one tends to feel around others who show distress.

Next, the association of each mindfulness facet with empathic accuracy was explored. The hypothesis that greater scores on each of the five mindfulness facets would be related to greater empathic accuracy was unsupported. One significant and unexpected association emerged such that greater empathic accuracy was associated with a reduced

tendency to be nonreactive toward one's internal experience ($r = -.22, p < .05$). That is, those who were more reactive were actually more empathically accurate.

Reports of state empathic concern towards the woman in the stimulus video were positively related to mindful observation of thoughts and feelings ($r = .268, p < .01$) but inversely related to nonjudging ($r = -.225, p < .05$). In this sample, those individuals who mindfully observe internal and external stimuli experienced greater feelings of concern towards a stranger's description of a recent setback while those who are more judgmental of the internal thoughts and feelings were more empathically concerned for the woman in the video. No significant associations emerged between state empathic concern and the mindfulness facets of describe, acting with awareness and nonreactivity.

Post-hoc analyses were conducted to examine meditation experience as potential moderator. This would allow some clarification as to whether the relationship of mindfulness to empathy may be different for meditators and non-meditators. One indication that this may be relevant was seen in previous item analyses of the FFMQ that suggests mindfulness might be understood differently depending on experience with meditation (Van Dam, Earleywive & Danoff-Burg, 2011). Results revealed no significant moderation effect based on experience with contemplative practice (all p 's $> .05$). However, when controlling for meditation practice, observe significantly predicted empathic concern ($\beta = .192, t(97) = 2.14, p < .05$) while describe no longer significantly predicted empathic concern ($\beta = .124, t(97) = 1.70, p = .092$). Thus, observing may predict greater concern for others beyond that which could be accounted for by experience with meditation.

Mediational Analyses

The Baron and Kenny (1986) test of mediation was used to explore possible variables accounting for the relationship between mindfulness facets and empathic responding. This method requires conducting three regressions. First, the mediator (fear of emotion or brooding) must be regressed on the independent variable (mindfulness facet) referred to as regression “a” in *Tables 3* through 8. Second, the dependent variable (empathy outcome) must be regressed on the independent variable (mindfulness facet) referred to as regression “c.” Last, the dependent variable (empathic outcome) must be regressed on both the independent variable (mindfulness facet) referred to as regression “c” and the mediator (fear of emotion or brooding) referred to as regression “b.” To establish potential mediation, four conditions must be met prior to testing for significance. First, the independent variable (mindfulness facet) must predict the dependent variable (empathic process). Second, the independent variable (mindfulness facet) must predict the mediator (fear of emotion or brooding). Third, the mediator (fear of emotion or brooding) must predict the dependent variable (empathic process) while controlling for the independent variable. In addition, the Sobel test was used to evaluate the indirect effect of the independent variable on the dependent variable via the mediator.

I examined two possible mediators of the relation of mindfulness facets to empathic outcomes, fear of strong emotion and ruminative brooding. The empathic outcomes consisted of five variables: empathic accuracy, state empathic concern, and trait perspective-taking, empathic concern and personal distress. With five mindfulness facets, two mediators and five empathic outcomes, there is potential to run 50 tests of mediation. I first identified significant correlations between the mindfulness facets and

empathic outcomes in the expected direction. As previously detailed, 12 significant relationships emerged between mindfulness facets and empathic outcomes; 11 in the expected direction. Next, I identified correlations in which at least one of the two mediators was significantly related to both the independent and dependent variables. This resulted in 14 tests of mediation in which the independent variable, dependent variable and mediator were all significantly intercorrelated. The tests of mediation explored whether ruminative brooding or fear of emotion account for the relationships between describing, acting with awareness, nonjudging and nonreactivity and empathic personal distress, totaling 8 tests. Six tests of mediation were used to explore whether ruminative brooding or fear of emotion mediate the relationships between describing, acting with awareness and nonreactivity and empathic perspective-taking.

The first set of analyses evaluated if fear of emotion mediated the relationships between the mindfulness facets of describing, acting with awareness, nonjudging and nonreactivity and a reduced tendency to feel personal distress when faced with the distress of another. Results are presented in *Table 3*. As expected, fear of emotion partially mediated the inverse relationship between the mindfulness facets of describing one's thoughts and emotions, acting with awareness, nonjudgment and nonreactivity with trait empathic distress. In this sample, the more one is able to describe thoughts and feelings, act with awareness in the present moment or be nonjudgmental or nonreactive to internal experiences, the less one experiences distress when faced with the distress of others via less fear of strong emotions.

Post-hoc analyses were conducted to examine an alternative meditational model in which mindfulness facets were entered as mediators between fear of emotion and

Table 3

Fear of Emotion as a Mediator for Mindfulness Facets and Personal Distress

Mindfulness facet	Path	β	Std. Error	t	p	<i>Sobel</i>
Describing	c	-.29	.08	-3.60	.001	
	a	-.43	.08	-5.04	.000	
	b	.48	.08	6.13	.000	
	c'	-.07	.08	-.97	.331	-4.00***
Acting with awareness	c	-.40	.08	-4.60	.000	
	a	-.63	.09	-6.99	.000	
	b	.47	.09	5.37	.000	
	c'	-.11	.09	-.12	.250	-4.18***
Nonjudging	c	-.29	.08	-3.63	.000	
	a	-.63	.07	-8.47	.000	
	b	.57	.09	6.06	.000	
	c'	.07	.09	.72	.470	-5.18***
Nonreactivity	c	-.53	.09	-6.11	.000	
	a	-.65	.10	-6.76	.000	
	b	.39	.08	4.68	.000	
	c'	-.28	.10	-2.92	.004	-3.9***

Note: β = unstandardized regression coefficient; *Sobel* = test of mediation

* $p < .05$ ** $p < .01$ *** $p < .001$

personal distress. Each mindfulness facet was entered separately as a mediator for the relationship between fear of emotion and personal distress, and results are reported in *Table 4*. Results indicate that mindful reactivity appeared to partially mediate the positive relationship between fear of emotion and personal distress. In this sample, no other mindfulness facets significantly mediated the relationship between fear of emotion and personal distress.

Table 4

Mindfulness Facets as Mediators for Fear of Emotion and Personal Distress

Mindfulness facet	Path	β	Std. Error	t	p	<i>Sobel</i>
Describing	c	.52	.07	7.381	.000	
	a	-.47	.09	-5.04	.000	
	b	-.07	.08	-.977	.331	
	c'					
Acting with awareness	c	.52	.07	7.381	.000	
	a	-.63	.09	-6.99	.000	
	b	-.11	.09	-.115	.25	
	c'					
Nonjudging	c	.52	.07	7.381	.000	
	a	-.67	.08	-8.47	.000	
	b	.065	.09	.717	.47	
	c'					

Mindfulness facet	Path	β	Std. Error	t	p	<i>Sobel</i>
Nonreactivity	c	.52	.07	7.381	.000	
	a	-.48	.072	-6.76	.000	
	b	-.28	.095	-2.92	.004	
	c'	.38	.08	4.67	.000	2.68**

Note: β = unstandardized regression coefficient; *Sobel* = test of mediation

* $p < .05$ ** $p < .01$ *** $p < .001$

I also explored whether the tendency to brood accounts for the positive correlation between describing, acting with awareness, nonjudging and nonreactivity with less personal distress when faced with another's distress. Results, presented in *Table 5*, show that the greater mindful tendencies to describe one's thoughts and feelings, act with awareness to be nonjudgmental and nonreactive lead one to engage in less ruminative brooding and therefore less personal distress when faced with the distress of others.

Table 5

Ruminative Brooding as a Mediator for Mindfulness Facets and Personal Distress

Mindfulness facet	Path	β	Std. Error	t	p	<i>Sobel</i>
Describing	c	-.29	.08	-3.6	.001	
	a	-.29	.08	-3.4	.001	
	b	.40	.09	4.6	.000	
	c'	-.17	.08	-2.22	.029	-2.81**

Mindfulness facet	Path	β	Std. Error	t	p	<i>Sobel</i>
Acting with awareness	c	-.40	.09	-4.6	.000	
	a	-.46	.09	-5.17	.000	
	b	.35	.09	3.86	.000	
	c'	-.24	.09	-2.57	.012	-3.09***
Nonjudging	c	-.29	.08	-3.6	.000	
	a	-.47	.08	-6.25	.000	
	b	.41	.10	4.09	.000	
	c'	-.09	.08	-1.12	.264	-3.36***
Nonreactivity	c	-.53	.08	-6.11	.000	
	a	-.57	.09	-6.44	.000	
	b	.28	.09	2.91	.005	
	c'	-.37	.10	-3.73	.000	-2.79**

Note: β = unstandardized regression coefficient; *Sobel* = test of mediation

* $p < .05$ ** $p < .01$ *** $p < .001$

Post-hoc analyses were conducted to explore whether mindfulness facets mediated the relationship between brooding and personal distress. Results, presented in *Table 6*, revealed that acting with awareness and nonreactivity each partially mediated

Table 6

Mindfulness Facets as Mediators for Brooding and Personal Distress.

Mindfulness facet	Path	β	Std. Error	t	p	<i>Sobel</i>
Describing	c	.47	.08	5.54	.000	
	a	-.37	.11	-3.4	.001	
	b	-.17	.08	-2.22	.029	
	c'	.40	.09	4.6	.000	1.86
Acting with awareness	c	.467	.08	1.86	.000	
	a	-.46	.09	5.54	.000	
	b	-.24	.09	-5.17	.012	
	c'	.35	.09	-2.57	.000	2.30*
Nonjudging	c	.467	.08	3.86	.000	
	a	-.61	.09	5.54	.000	
	b	-.09	.08	-6.25	.264	
	c'	.41	.10	-1.12	.000	1.10
Nonreactivity	c	.467	.08	4.09	.000	
	a	-.52	.08	5.54	.000	
	b	-.37	.10	-6.44	.000	
	c'	.28	.09	-3.73	.005	3.23***

Note: β = unstandardized regression coefficient; *Sobel* = test of mediation

* $p < .05$ ** $p < .01$ *** $p < .001$

the relationship between brooding and personal distress. Thus, results indicate that in the present sample, ruminative brooding did act as a mediator between the mindfulness facets of describe, act with awareness, nonjudgment and nonreactivity with the degree to which one feels personal distress when faced with the distress of another. In addition, results also support an alternative model in which both acting with awareness and nonreactivity independently mediate the relationship between brooding and personal distress.

Although it was hypothesized that fear of emotion and brooding may significantly mediate the relationship between mindfulness facets and empathic perspective-taking, this was not statistically significant in this sample. However, post-hoc analyses to examine an alternative model of mediation in which mindfulness facets mediated the relationship between fear of emotion and brooding with perspective-taking did reveal some significant results. Specifically, in *Table 7*, results show that describe, acting with awareness and nonreactivity each partially mediated the relationship between brooding and perspective-taking. Likewise, results reported in *Table 8* reveal that describe and acting with awareness each partially mediated the relationship of brooding and perspective-taking while nonreactivity emerged as a full mediator.

With regard to the mediational model, neuroticism was hypothesized to be a covariate of mindfulness. When entered into the regression models previously detailed, the total effect of personal distress regressed on the mindfulness facets of describe, act with awareness, nonjudging and nonreactivity became nonsignificant. That is to say, neither fear of emotion nor brooding rumination accounted for the relationship between mindfulness facets and personal distress beyond that which could be attributed to

Table 7

Mindfulness Facets as Mediators for Fear of Emotion Facets and Perspective-Taking.

Mindfulness facet	Path	β	Std. Error	t	p	<i>Sobel</i>
Describing	c	-.22	.09	-2.35	.021	
	a	-.47	.09	-5.04	.000	
	b	.26	.09	2.78	.006	
	c'	-.09	.09	-.90	.37	2.43*
Acting with awareness	c	-.22	.09	-2.35	.021	
	a	-.63	.09	-6.99	.000	
	b	.32	.12	2.68	.009	
	c'	-.05	.11	-.43	.669	2.50*
Nonjudging	c	-.22	.09	-2.35	.021	
	a	-.67	.08	-8.47	.000	
	b	-.20	.12	-1.79	.076	
	c'	-.35	.12	-2.96	.004	1.75
Nonreactivity	c	-.22	.09	-2.35	.021	
	a	-.48	.072	-6.76	.000	
	b	.48	.12	4.08	.000	
	c'	.02	.10	.21	.827	3.49***

Note: β = unstandardized regression coefficient; *Sobel* = test of mediation

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 8

Mindfulness Facets as Mediators for Brooding and Perspective-Taking.

Mindfulness facet	Path	β	Std. Error	t	p	<i>Sobel</i>
Observing	c	-.25	.09	-2.568	.012	
	a	-.52	.09	-.46	.646	
	b	.46	.12	3.93	.000	
	c'	-.02	.11	-.16	.872	.45
Describing	c	-.25	.09	-2.568	.012	
	a	-.52	.11	-3.4	.001	
	b	.46	.09	2.896	.005	
	c'	-.02	.10	-1.564	.121	2.20*
Acting with awareness	c	-.25	.09	-2.568	.012	
	a	-.52	.09	-5.17	.000	
	b	.46	.11	7.11	.009	
	c'	-.02	.11	-.105	.27	4.18***
Nonreactivity	c	-.25	.09	-2.568	.012	
	a	-.52	.08	-6.44	.000	
	b	.46	.012	3.93	.000	
	c'	-.02	.12	-.16	.872	3.35***

Note: β = unstandardized regression coefficient; *Sobel* = test of mediation

* $p < .05$ ** $p < .01$ *** $p < .001$

neuroticism. It is noteworthy that neuroticism was strongly correlated with fear of emotion ($r = .69, p < .01$) and ruminative brooding ($r = .69, p < .01$).

The second set of mediation analyses explored whether fear of emotion and/or brooding accounted for the significant positive association between the mindful tendency to describe, act with awareness and be nonreactive and the disposition to take the perspective of another person. When the mindfulness facet describe, act with awareness or nonreactivity was controlled, neither fear of emotion nor brooding significantly predicted empathic perspective-taking. Because the third condition to establish mediation was not met, no further analyses were conducted. While a greater tendency to mindfully describe, act with awareness or be nonjudgmental of internal stimuli was associated with a greater tendency to take the perspective of someone else, it was not due to the degree to which one fears strong emotion or engages in self-focused brooding.

CHAPTER 4

DISCUSSION

Initial research has supported the possibility that mindfulness may enhance empathy (Block Lerner et al., 2007). However, both constructs are complex and multifaceted and little is known as to how specific mindfulness facets are related to empathy processes. Using the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006), this study examined the differential relationship of each mindfulness facet (observing, describing, acting with awareness, nonjudging and nonreactivity) to specific empathic processes, including trait and state empathic concern, trait perspective-taking and personal distress. This is also among the first studies of mindfulness and empathy to include a performance task of empathic accuracy. I hypothesized that the more one observes or describes internal and external stimuli, acts with awareness, or is nonreactive or nonjudging towards internal thoughts and feelings, the more that person will report a greater tendency to feel empathic concern, take the perspective of another, and experience less personal distress when faced with the distress of another. I also proposed that the five mindfulness facets would each be positively related to state empathic concern and empathic accuracy.

Results supported the hypotheses with a few notable exceptions. Trait perspective-taking was positively related with all mindfulness facets except nonjudging, for which the positive association was nonsignificant. Also as expected, all mindfulness

facets were inversely related to personal distress aside from observe, for which the inverse relationship was nonsignificant. The current study revealed that observe and describe are positively correlated with trait empathic concern. However, when controlling for meditation experience, only observe significantly predicted greater empathic concern. In addition, observe was the only facet to relate positively with state concern. Results for empathic accuracy revealed one significant relationship in the opposite direction as proposed; that nonreactivity was inversely related to empathic accuracy. For trait processes of empathy, these findings provide preliminary support that most mindfulness skills help foster empathy, particularly cognitively putting oneself in someone else's shoes, and managing feelings of distress. This is consistent with the theoretical rationale that mindfulness may foster cognitive flexibility and meta-perspective free from habitual emotional responding (Shapiro, et al., 2006; Hayes, Strosahl, & Wilson, 1999; Teasdale, Segal & Williams, 1995; Bishop et al., 2004). It also extends and supports previous findings that acting with awareness is positively related to the perspective-taking (Wachs & Cordova, 2007; Beital, Ferrer, Cecero, 2005). Findings for personal distress are also consistent with the hypothesis and previous research in that mindful observation did not relate to one's tendency to feel distress when faced with the distress of another whereas describe, acting with awareness and acceptance showed an inverse correlation (Dekeyser, et al., 2007). The finding that only observing and describing were related to concern for others was not expected and is in contrast to previous research. As such, potential explanations and implications will be considered.

A more nuanced relationship between mindfulness facets and empathic concern emerged in this study. While observe and describe were positively correlated with trait

empathic concern, acting with awareness, nonjudging and nonreactivity were not significantly related. However, describe also no longer significantly predicted empathic concern once experience with meditation was controlled. Acting with awareness was related to empathic concern in previous research (Wachs & Cordova, 2007; Beital, Ferrer, Cecero, 2005) but was nonsignificant in this study along with nonjudging and nonreactivity. Observe was also related positively with state concern. Observe items assess the tendency to notice internal sensations, thoughts and feelings in general and those evoked by environmental stimuli. This may infer a willingness to confront internal experience which is believed to foster self-control through clarity and de-literalization of thoughts and feelings (Linehan, 1993). Acting with awareness assesses the quality of general attention, specifically distractibility and awareness of one's behavior. Both observe and acting with awareness are conceptualized as attentional aspects of mindfulness. While observe is about the target of attention on internal experiences, acting with awareness is about the quality of general attention. Likewise, nonjudging and nonreactivity items are conceptualized as acceptance, capturing how one responds to feelings and thoughts. Might it be that attention to internal experiences rather than the quality of attention in general and acceptance is what matters for the extent of concern one feels for another? If so, then how is it that attending to sensations in the self relates to greater concern for others? Research suggests witnessing strong emotion evokes a similar physiological response in the observer (Levenson & Ruef, 1992). Perhaps if one is more mindfully observant of physical sensations and emotion, they may more likely perceive arousal evoked by others' distress. One theory posits empathy as involving both bottom-up and top-down processes (Decety & Jackson, 2004; Decety, 2011). Bottom-up

processes include affective sharing of emotion, or arousal. Top-down processes involve motivation, intention and self-regulation. This is consistent with related research that suggests empathic feelings are tempered or amplified by controlling exposure to empathy-evoking cues (Hodges & Biswas-Diener, 2007). Thus, physiological arousal may be one type of cue evoking empathy. Mindfully observing those experiences may in turn amplify empathic concern simply due to exposure to cues. Though data are correlational and so do not speak to causation, findings from this study may provide additional support for the link between observe and concern for others as it was the only facet to be positively related to state reports of concern following the performance task. The potential implications may be that paying attention to internal experiences, or bottom-up processes, when faced with the distress of another may help foster greater concern for others perhaps regardless of distractibility or acceptance. Interestingly, observe did not relate significantly to reduced personal distress when faced with the distress of another. Therefore, mindful observation to internal experience may be important for further research to explore as a potential process for the enhancement of concern for others while acting with awareness, describing, nonjudging and nonreactivity may be important in reducing distress.

Using a performance task of empathic accuracy, I explored the hypothesis that mindfulness facets will be positively related to the degree to which one can infer the thoughts and feelings of another. Results did not support this hypothesis as there was a lack of significant correlations for all mindfulness facets to empathic accuracy aside from nonreactivity which was in the opposite direction as expected. That is, those people who are more reactive towards their own thoughts and feelings actually are more accurate at

inferring the thoughts and feelings of another. Before considering the significant relationship between nonreactivity and empathic accuracy, it is worthwhile to consider how reliability and validity of the empathic accuracy paradigm generally, and the stimulus in this study in particular, may account for the null results.

One reason for the lack of empirical support may be due to the construct validity of the empathic accuracy paradigm in general and the specific standard stimulus used in this study. For instance, empathic accuracy and perspective-taking are conceptually similar in that they are believed to represent the cognitive capacity to infer the internal experience of another. However, their correlation was close to zero ($r = -.03$, n.s.) a possible indication of poor convergent validity. Using the same empathic accuracy stimulus and self-report empathy measure, Laurent and Hodges (2009) found that self-report empathic perspective-taking negatively predicted empathic accuracy ($\beta = -.16$, $p = .04$). Likewise, Klein and Hodges (2001) found either nonsignificant correlations or relationships in the opposite direction as hypothesized when using the IRI and the same video stimulus of the woman describing her GRE experience. In addition, Ickes (2001) noted that a previous meta-analytic review of empathic accuracy (Davis & Kraus, 1997) failed to find a consistent dispositional empathy self-report variable to predict empathic accuracy. In light of Nickerson's review (1999), Laurent and Hodges (2007) suggested that people refer to their own experience or knowledge to imagine the experience of another and that the degree to which they are unlike accounts for the negative relationship. Similarly, Ickes (2001) attributed Davis and Kraus's (1997) findings to a discrepancy between perceiver's self-perception and objective capability to infer thoughts and feelings of another. Such a rationale would suggest that participants in this study may

lack insight into how well they actually infer thoughts and feelings of another despite the self-perception to do so in daily life. Evidence to support this possibility was found when no significant relationship emerged between self-ratings of empathic accuracy of three target videos and actual empathic accuracy scores (Marangoni, Garcie, Ickes & Teng, 1995).

Although little research has found predictors of empathic accuracy, some research has demonstrated adequate predictive validity of the empathic accuracy paradigm using both the dyadic and standard stimulus paradigms (for a review see Ickes, 2001). For instance, close friends as opposed to strangers were significantly more accurate at inferring thoughts and feelings in a dyadic interaction (Stinson & Ickes, 1992; Graham, 1994 as reported in Ickes, 2001). Also using a dyadic structure, dating partners showed significantly poorer accuracy when the information was threatening to the well-being of a relationship (Simpson et al., 1995). Using a standard stimulus, therapists were better able to accurately infer client's thoughts and feelings through the course of therapy, particularly when provided feedback mid-way through treatment (Marangoni, et al., 1995). Lastly, when provided a "frame" for interpreting thoughts and feelings of a target, inferences were more accurate compared to those participants who were not provided a "frame." Given the face validity of the empathic accuracy task as a clear measurement of skill level, and evidence to support the predictive validity of the empathic accuracy paradigm itself, the null results in the current study may reflect a shortcoming of self-report assessment of interpersonal perception criticized by Cronbach (1955).

Despite the aforementioned concerns, it is also possible that the lack of convergence between self-report measures and the performance task simply reflect more

general issues of involved with correlating trait measures with behavioral tasks. One, it is possible that the trait measures and performance task could be measuring different constructs. For instance, the self-report measure is a personality assessment of the extent and frequency of perspective-taking, whereas the empathic accuracy task is an objective measurement of the skill itself. Therefore, while both measures may be an assessment of perspective-taking, one is looking at self-reported frequency of the behavior while the other is an assessment of the skill itself. Second, it could reflect the conceptualization of personality as a person-situation interaction (Mischel & Shoda, 1995). Perhaps the single –occasion stimulus used in this study did not adequately elicit traits that would predict greater empathic accuracy. Lastly, it is possible that a larger sample might have been more effective at reducing possible Type II errors.

It is also possible that using a standard stimulus task is a limitation in that there is no reciprocal interaction between the target and perceiver as may be more common outside of a laboratory setting. Given that this method is merely an analogue of a real-world situation, it may be an overstatement to attribute null findings to participants' lack of insight into their capability to infer the thoughts and feelings of another. Perhaps individuals do have some barometer for their ability to infer the thoughts and feelings of another informed by feedback they may receive from naturally occurring interactions. Likewise, evidence suggests that the traits and states of both the perceiver and target interact to predict empathic accuracy (Zaki, et al., 2008). Future research might continue efforts to assess whether giving the perceiver feedback as to the accuracy of their performance enhances performance on subsequent trials (Barone, Hutchings, Kimmel,

Traub Cooper, & Marshall, 2005). As well, assessment of the target as well as the perceiver may allow for modeling the interaction of both individuals.

Alternatively, it is possible that the reliability of this specific standard stimulus may account for the null findings. Specifically, the performance task may fail to reliably capture the proposed construct. While self-report measurement tends to capture general tendencies across situations and domains, the performance task of empathic accuracy used in this study captures the participants' ability to infer the thoughts and feelings of one specific individual, unknown to the participant, describing a specific situation. Therefore, how one performs at this task may not be representative of general accuracy that is captured in self-report trait measurement.

Participant comments during debriefing suggest additional issues regarding the reliability of this specific stimulus. Several participants remarked that the woman in the video did not seem upset about her situation. Studies show that perceivers who are more dispositionally empathic are better able to infer the thoughts and feelings of another when the target is emotionally expressive (Zaki, Bolger & Oschner, 2008). Perhaps this target was low on emotional expressivity which may have implications for understanding the null relationship of empathic accuracy and mindfulness facets. For instance, mindfulness has been advanced as a process aiding emotion regulation (Linehan, 1993). Perhaps if the target was not emotionally distressing, participants may not have experienced much arousal or distress. Thus, the benefits of mindfulness may not have been able to exert an effect in response to this video stimulus resulting in no significant relationship between mindfulness and empathic accuracy. In addition, should the stimulus be low on expressivity, perhaps the task difficulty was too high given that empathic accuracy is

informed by verbal and nonverbal channels of information (Hall & Mast, 2007). Consequently, this stimulus may not have reliably detected variation in perceiver's empathic acuity. However, examination of the mean score of empathic accuracy indicates a normal distribution of scores absent floor or ceiling effects. This suggests item difficulty was adequate to render a reliable assessment of empathic accuracy.

Further examination of the mean score for empathic accuracy raises the issue as to whether motivation confounded measurement of empathic accuracy. For example, the mean score appears to be slightly higher than the mean scores reported by other studies using the same stimulus (Klein & Hodges, 2000; Laurant & Hodges, 2009), indicative of greater accuracy. The mean score is most similar to that obtained by women when empathy was primed by completion of empathy-related questionnaires prior to the empathic accuracy task (Klein & Hodges, 2001). Klein and Hodges (2001) interpreted the priming effect by the demographic questionnaires as a reflection of motivation to perform more consistent with feminine stereotypes. In the current study, the demographic questionnaires were administered prior to the empathic accuracy task given that subjective measures are typically more vulnerable to demand characteristics than objective measures. However, upon examination of the mean score it is possible that the empathic accuracy task was also vulnerable to demand characteristics, in this case motivation. However, it is noteworthy that no significant group differences based on gender emerged for empathic accuracy. Therefore it is unlikely that the procedural order biased scores on empathic accuracy due to priming gender-related motivation. In addition, studies by Marangoni and colleagues (1995) and Gesn and Ickes (1999) each using three target tapes had perceivers perform more than one task to measure empathic

accuracy resulting in cross-target intraclass correlations of .86 and .91 respectively. Such results provide some indication that empathic accuracy may be a stable skill. Future research may benefit from inclusion of more video stimuli with a sample of individuals reflecting a range of emotional expressivity.

However, one significant correlation did emerge such that the more reactive one was towards internal experience, the more accurately they inferred the thoughts and feelings reported by the woman in the video. This finding suggests that people who are more reactive and struggle with remaining calm and reflective towards internal experiences are better able to infer the thoughts and feelings of others. Although findings are correlational, perhaps those who are most reactive may excel at other-oriented inferences due to a desire to escape or avoid contact with aversive internal experiences. This would be akin to a fear-based reaction in which one tries to escape or avoid contact with distressing stimuli. Might turning away from internal experience and toward environmental stimuli heighten perception of cues that inform one of another's experiences? Future research could explore if externally oriented attention is a mediator between greater reactivity and more accurate empathic inferences.

Alternatively, it could be that one who is more reactive experiences greater arousal or sharing of affect witnessed in the target, a theoretically important bottom-up process of empathic responding (Decety & Jackson, 2004; Decety, 2011). Previous research found target emotional expressivity to interact with trait concern of the perceiver to predict empathic accuracy (Zaki et al., 2008). This was interpreted as evidence that perceivers not only use the expressed emotion of the target, but their own experience of empathic arousal to infer thoughts and feelings. As previously discussed, if this target

happened to be low on emotional expressivity, it would make sense that those participants who were more reactive would more easily experience the shared emotion informing empathy. Those participants who were less reactive may not have experienced the shared arousal evoked by the target. Future research might explore whether affective-sharing accounts for the relationship of greater reactivity and empathic accuracy. However, given the limitations of reliability and validity discussed with the specific empathic accuracy task used in this study, these interpretations are with some reservation.

Mediation analyses support the hypothesis that reduced fear of emotion and reduced ruminative brooding partially account for the inverse relationships between all facets of mindfulness and reduced personal distress. However, significant alternative causal pathways emerged in post-hoc analyses. With regard to personal distress, acting with awareness and nonreactivity were each significantly inversely related to brooding. It is possible that brooding, a self-focused repetitive thinking pattern, may compromise present-moment attention and increase reactivity toward thoughts and feelings. This greater reactivity and distractibility might render one vulnerable to greater distress when faced with another's distress. Additionally, it was found that nonreactivity also partially mediated the relationship between fear of emotion and personal distress. Perhaps fear of strong emotion may lead to greater reactivity toward one's thoughts and feelings when faced with the distress of another, rendering one more vulnerable to feel distressed.

It was also hypothesized that fear of emotion and brooding would mediate relationships between mindfulness facets and perspective-taking. Though this was not supported statistically, an alternative model of mediation was found in post-hoc analyses. Specifically, nonreactivity was a full mediator between fear of emotion and perspective-

taking. As previously described, perhaps greater fear of strong emotion may lead one to be more reactive toward internal experiences. It is possible that this reactivity may then undermine the willingness or capacity to imagine another's internal experience. In addition, describe, acting with awareness and nonreactivity were all significantly inversely related to brooding. Perhaps one link by which greater brooding leads to less perspective-taking may be in part due to reduced willingness to attend and describe thoughts and feelings within the self. Likewise, self-focused brooding may reflect less present-moment awareness and acceptance of internal experience which may in turn compromise perspective-taking. Recall that perspective-taking is informed by attention to interpersonal cues as well as cognitive effort to imagine and infer another's experience.

Each of the aforementioned post-hoc analyses provide significant statistical support for meditational models in which the independent variable (mindfulness facet) and mediators (fear of emotion and brooding) are switched. One possible interpretation could be that the independent variable and mediator relate in a bi-directional manner. That is, increased mindful attention and acceptance create less of a tendency to brood or fear emotion. In turn, this engenders greater mindfulness through greater contact with stimuli that come into awareness; more "grist for the mill" so to speak (Block-Lerner et al, 2007). However, prior experimental evidence may provide at least some preliminary support that mindfulness may cause reduced rumination and fear of emotion. Specifically, one study found significant reduction in rumination after a mindful meditation intervention compared to a control group (Jain, Shapiro, Swanick, Roesch, Mills, Bell & Schwartz, 2007). As for brooding specifically, two mindfulness-based meditation interventions found reductions in brooding compared to control groups,

however neither reached statistical significance (Ramel, Philippe, Carmona & McQuaid, 2004; Chambers, Lo & Allen, 2008). With regard to fear of emotion, one study found participants with Generalized Anxiety Disorder reported significantly less fear of emotion following an acceptance-based therapy program that integrated mindfulness training (Roemer & Orsillo, 2007). Though preliminary, these interventions studies provide some indication of causality such that mindfulness facets may reduce brooding and fear of emotion. However, these findings are preliminary and further research using longitudinal or experimental design is needed to clarify directionality between mindfulness, brooding and fear of emotion.

With regard to mediation analyses it is also noteworthy that the effect of mediation mechanisms did not remain when controlling for neuroticism. Controlling for this variable was intended to allow exploration of the differential effect of fear of emotion and brooding from neuroticism in the potential mediation of relationships between mindfulness faces and empathic variables. In the current study, results revealed a strong correlation between neuroticism and fear of emotion. Previous research also found a strong correlation between neuroticism and fear of emotion while also demonstrating divergent validity of the constructs (Williams, Chambless, & Ahrens, 1997). Despite evidence suggesting that fear of emotion and neuroticism are distinct constructs; they have some overlap as evidenced by their strong intercorrelation. Perhaps the null result can be attributed to the overlapping qualities of these two constructs rather than the aspects of fear of emotion that are not shared with neuroticism. Similarly, ruminative brooding was strongly related to neuroticism. Some suggest that while ruminative brooding and neuroticism are distinct constructs, items assessing each tap into repetitive

thinking patterns (Barnhofer & Chittka, 2010). Perhaps repetitive thinking is a higher order factor that accounts for the relationship between mindfulness facets and personal distress, with both neuroticism and ruminative brooding serving as markers for repetitive thinking.

Despite the null effect when controlling for neuroticism, these findings do have potential implications. One, these results support and expand previous findings that mindfulness may facilitate regulation of distress while attending empathically to others in distress (Fruzzetti & Iverson, 2004). Also they expand existing literature by identifying those mechanisms that may partially account for how describing, acting with awareness, nonjudging and nonreactivity reduce personal distress. With the refined knowledge that reduced ruminative brooding and fear of emotion may be mechanisms of this change, it may be possible to develop more efficient and effective mindfulness interventions aimed at the reduction of distress in emotionally charged interpersonal interactions, a known shortcoming of previous empathy training protocols (Block-Lerner, et al., 2007). Each time you present a table, you must mention the table in the text before you can present it. Place the table as close as possible to its first mention in the text.

Limitations

The above interpretations of findings should be considered in light of study limitations. First, the data are correlational and were gathered cross-sectionally. Inferences about causality and the direction of relationships within the meditational model are limited. While this study examined fear of emotion and brooding as possible mediators between mindfulness facets and empathic processes, post-hoc analyses

revealed some circumstances in which mindfulness facets may mediate the relationships between fear of emotion or brooding and empathic processes. Causal relationships between mindfulness and empathy as well as mechanisms of change could best be best explored through experimental or longitudinal design.

It is also possible that an unknown covariate of the independent variable that also correlates with the dependent variable was not assessed. Thus, too much weight may have been given to the assessed variables, in this case, mindfulness facets. In addition, it is likely a significant effect could emerge simply due to chance when running many correlations. However, the latter limitation is tempered in part due to the theoretical basis from which the correlational hypotheses were made.

This study also relied heavily on self-report measures which have several limitations. One, they are susceptible to demand characteristics. With regard to empathy, people may respond in such a way as to maintain a favorable self-perception as an empathic person to themselves and to others (Ickes, 2001). Such responding would create a bias to reduce cognitive dissonance. In this study, minimization of responding in a socially desirable way was considered in the administration and design of this study. Participants were reminded of confidentiality during consent and prior to testing and provided a coded identification number. That being said, it is difficult to know if impression management influenced self-report. Future research might control for social desirability when using self-report measures of empathy.

Self-report mindfulness is also vulnerable to demand characteristics. A recent investigation found that item sets on the FFMQ were biased according to meditation experience (Van Dam, Earleywive & Danoff-Burg, 2011). That is, people with more

meditation experience endorsed positively-valenced items. This was interpreted to reflect responding in accordance with valued tendencies learned through meditation. Related research also suggests that people interpret items differently due to familiarity with meditation (Grossman, 2008). For instance “notice,” “awareness,” “paying attention,” “present moment,” and “judging” to someone naïve to meditation may have a different meaning than to someone who understands these actions through the context of meditation. This also highlights the potential paradox that a person naïve to mindfulness may be less acutely aware of their inattentiveness and judgmental tendencies than someone more familiar with these concepts. As a result they may genuinely rate themselves as more mindful than they may be when compared to a person who is objectively more mindful. Thus, it is possible that the measure of mindfulness used in this study performs differently depending on familiarity with meditation. Van Dam and colleagues (2011) suggest the removal of biased items such as, “I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow” when examining meditation as a moderator of outcomes. Alternatively, development of behavioral tasks of mindfulness may provide a more objective assessment of this complicated phenomenon.

There are some limitations to the study of self-report mindfulness at the facet level of analysis. Specifically, studies have found observe to perform differently than other facets of mindfulness depending on experience with meditation (Baer et al., 2006; 2008). Some posit that observe may be an outcome of cultivating other aspects of mindfulness such as a nonjudgmental and nonreactive stance toward stimuli. Findings from this study also provide some indication that observe performs differently than other

facets, however, to a lesser degree than previous literature (Baer, 2006) since observe was significantly correlated with describing and nonreactivity ($r = .294$ and $.288$ respectively, $p < .01$). Nonetheless, future research might explore if observe is indeed an outcome of other mindfulness facets and if it possibly acts as a mediator or moderator of empathic responding..

There is also evidence to suggest that everyday mindfulness assessed with the FFMQ is different than meditative mindfulness (Thompson & Waltz, 2007). That is, Thompson and Waltz (2007) found mindfulness reported by participants following meditation did not relate significantly to self-report everyday mindfulness. These results were interpreted to suggest that state mindfulness practiced in meditation may not be similar to trait mindfulness of everyday life. When there is no correlation between the two methods of measurement for a single construct, this could suggest that the two methods are measuring different phenomena. Some argue that development and validation of mindfulness inventories using a college population largely naïve to meditation may capture a different mindfulness construct than if one used a sample of long-term meditators (Grossman, 2008). In light of the recent evidence collected by Thompson and Waltz (2007), it is possible that there may indeed be two types of mindfulness. Therefore, findings such as those obtained in this study through self-report may not translate to intervention efforts that use meditation to produce expected outcomes such as greater empathy. It would be important to explore in future research whether self-report measures of mindfulness and mindfulness cultivated through meditation are measuring the same phenomenon so that self-report and experimental research might inform each other.

In addition to the issues of reliability and validity discussed earlier, the empathic accuracy task is another limitation. The protocol used in this study is a standard stimulus intended to simulate a real-world interaction. For one, this is a limitation in that it is not an actual interaction between two people. As such, it is absent the dynamic processes of verbal and nonverbal feedback that might ordinarily be available in a real-world situation. Second, it is a narrow assessment of a general skill as it only includes one person recalling one story. As previously mentioned, inclusion of additional standard stimulus videos may enhance generalizability. Also, future research might use the “unstructured dyadic interaction paradigm,” developed by Ickes (2001). Using this method, participants report their own thoughts and feelings and infer those of the partner following a brief emotionally-charged discussion. This method would provide a more spontaneous interaction from which to assess empathic accuracy.

Lastly, this is a convenience sample that is relatively homogenous in terms of age, race/ethnicity and sex compared to the general population. It would be important that future research investigates the relation of mindfulness and empathy using a diverse sample to increase generalizability to the normal population. In addition, research with a clinical population would improve clinical utility of mindfulness to enhance social functioning.

Despite the limitations reviewed above, findings from this study may have implications for clinical efforts using mindfulness in the enhancement of empathy. Existing empathy training has been criticized for not preparing one with skills to regulate empathic reactions in more emotionally charged situations (Block-Lerner, et al., 2007). This study adds to the literature supporting mindfulness as a potential adjunct to address

this issue. Findings replicated the fair amount of support that greater mindfulness is associated with the tendency to take the perspective of another while feeling less distress and begins to provide an understanding for possible mechanisms by which this may occur. Specifically, results suggest all facets of mindfulness aside from observe may decrease self-focused rumination and fear of emotion which in turn may help to reduce the feelings of distress. This suggests that mindfulness may indeed temper self-oriented and fear-based responding that may limit empathy in emotionally charged situations. This would be particularly helpful among individuals who find it a challenge to cope with distress while maintaining the capacity to respond empathically. For instance, individuals working in healthcare settings and people struggling with emotion regulation might find moment-to-moment observation and description of internal experience helpful in fostering concern for others. This is consistent with the theory informing Dialectical Behavior Therapy (DBT; Linehan, 1993) that suggests observing and labeling affective experience with words as initial steps for emotion regulation. With regard to couples, DBT theory suggests that mindfulness skills serve to validate one's emotional experience while attending to the experience of another. However, the causal links between these processes are as yet unknown, a question future research may be able to answer with experimental and longitudinal design.

Conclusion

This study demonstrates that mindfulness facets differentially relate to a performance measure of empathic processes as well as trait and state empathy. Although it was found that greater reactivity related to greater empathic accuracy, noteworthy

issues of reliability and validity of the empathic accuracy task limit confidence in this finding. In addition, while most facets of mindfulness related to trait perspective-taking and reduced personal distress, after controlling for meditation experience, observe emerged as an important facet related to greater concern for others. This suggests that the more one attends to present-moment arousal the greater concern one may feel for others, perhaps because mindful observation attunes one to the shared physiological experience of emotion. This study also identified that all mindfulness facets aside from observe were associated with reduced brooding and fear of emotion which in turn contributed to less distress when faced with the distress of another.

APPENDIX A

DEMOGRAPHIC QUESTIONNAIRE ITEMS

Instructions: “The following questions are intended to help us gather more general information about you. Please select the most appropriate response or fill in the blank”

Are you Male or Female?

What is your age?

How many years of education have you completed?

What is your race?

Is English your native language?

Instructions: “The following questions are intended to help us learn more about your familiarity with contemplative practices (meditation, transcendental meditation, yoga, guided imagery/breathing, and mindfulness)”

Are you currently practicing?

In a typical week, how many days do you practice?

For how long have you been practicing? Choose : < 1 month; 6-12 months; 1-5 years, or
> 5 years

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