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Effects of A Mindfulness-Based Mobile Application on Empathy and Mindfulness with Psychotherapists

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Effects of A Mindfulness-Based Mobile Application on Empathy and Mindfulness with Psychotherapists

by
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DISSERTATION

Submitted in partial fulfillment for the degree of Doctor of Psychology in the Department of Clinical Psychology at Antioch University New England, 2017

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DISSERTATION COMMITTEE PAGE

The undersigned have examined the dissertation entitled:

EFFECTS OF A MINDFULNESS-BASED MOBILE APPLICATION ON EMPATHY AND MINDFULNESS WITH PSYCHOTHERAPISTS

presented on October 26, 2017

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# TABLE OF CONTENTS

Acknowledgements .......................................................................................................................... V
Abstract............................................................................................................................................... 1
Statement of the Problem ...................................................................................................................... 6
Background and Context .................................................................................................................... 6
  Clinical Context.................................................................................................................................. 9
  Mindfulness as Clinical Training ....................................................................................................... 13
  Mindfulness-Based Mobile Applications .......................................................................................... 17
Significance of the Study ..................................................................................................................... 19
Purpose of the Study ........................................................................................................................... 20
Research Method .............................................................................................................................. 20
  Study Design .................................................................................................................................... 21
  Participants ........................................................................................................................................ 21
  Measures ........................................................................................................................................... 22
    Interpersonal Reactivity Index (IRI).................................................................................................. 22
    Five Facet Mindfulness Questionnaire (FFMQ) ............................................................................. 24
Procedure ........................................................................................................................................... 25
Statistical Analysis ............................................................................................................................. 27
Results ................................................................................................................................................ 27
  Hypothesis 1 ..................................................................................................................................... 29
  Hypothesis 2 ..................................................................................................................................... 29
  Hypothesis 3 ..................................................................................................................................... 30
  Hypothesis 4 ..................................................................................................................................... 30
  Hypothesis 5 ..................................................................................................................................... 30
  Hypothesis 6 ..................................................................................................................................... 31
  Hypothesis 7 ..................................................................................................................................... 32
  Hypothesis 8 ..................................................................................................................................... 32
  Hypothesis 9 ..................................................................................................................................... 33
Discussion ........................................................................................................................................... 33
Limitations and Future Directions ..................................................................................................... 35
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Abstract

This study explores the feasibility of using a mindfulness-based mobile application (MBMA) with psychotherapists, and investigates whether the use of the MBMA has an impact on psychotherapists’ levels of empathy and mindfulness. The study employs a within-subjects, pretest-posttest design in which participants (n=16) completed questionnaires 30 days apart. Between these questionnaires, the participants utilized the smartphone application Insight Timer (Insight Network, Inc., 2016) on a daily basis. Professionally qualified therapists and doctoral psychology trainees currently practicing psychotherapy who have no or minimal experience with mindfulness practice were considered for inclusion in this study. The study generated paired samples t-tests using SPSS to determine if the intervention is associated with increased levels of mindfulness and empathy as measured by self-report scales. Findings indicate a low degree of engagement with professional psychotherapists in the study. Participants demonstrated improvement on overall mindfulness ($t(15)=-4.69, p<.001$), as well as on 4 out of the 5 facets of mindfulness including observing ($t(15)=-4.62, p<.001$), describing ($t(15)=-3.19, p=.006$), nonjudging ($t(15)=-3.44, p=.004$), and nonreactivity ($t(15)=-4.17, p<.001$). Participants did not show improvement on the acting with awareness ($t(15)=-2.65, p=.018$) facet of mindfulness, or on any of the 3 factors of empathy: empathic concern ($t(15)=-0.88, p=.391$), personal distress ($t(15)=0.41, p=.690$), and perspective taking ($t(15)=-2.05, p=.058$). These findings suggest that smartphone MBI delivery has the potential to improve psychotherapist mindfulness in a brief time period, but does not show promise for improving psychotherapist empathy.

Keywords: mindfulness meditation, loving-kindness, mindfulness-oriented, mindfulness-based, mindfulness-informed, therapeutic presence, bare attention, empathy, mindfulness, mindfulness-based mobile application
Effects of a Mindfulness-Based Mobile Application on Empathy and Mindfulness with Psychotherapists

This dissertation explored the feasibility of using a mindfulness based mobile application (MBMA) to train psychotherapists in mindfulness, and to examine the effects of utilizing a MBMA on psychotherapists’ levels of empathy and mindfulness. The study employed a within-subjects, pretest-posttest design in which 16 participants who were at least third-year doctoral students in a clinical or counseling psychology program, and who were naïve meditators, completed questionnaires 30 days apart. Between these questionnaires, the participants were instructed to utilize the smartphone application Insight Timer (Insight Network, Inc., 2016) on a daily basis.

The initial web-based questionnaire asked potential participants screening questions to determine if they meet inclusion criteria for the study, as well as basic demographic information. The questionnaire contained two scales designed to measure each of the constructs of interest. Empathy was measured using the Interpersonal Reactivity Index (IRI; Davis, 1980) while mindfulness was measured using the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006). At the conclusion of the 30-day period, participants were sent an email prompting them to follow a link to the follow-up questionnaire where they once again completed the FFMQ and IRI. Participants were also instructed to take a screenshot photo of their Insight Timer session log statistics and upload this image file to the follow-up questionnaire. The session log statistics is a record of the users’ frequency and duration of mindfulness practice as the app is used. This dissertation generated paired samples t-tests using SPSS to determine if use of the MBMA is associated with increased levels of mindfulness and empathy as measured by the self-report scales.
This dissertation is structured in sections with a review of the literature underlying the conceptual framework of this study, followed by a statement of the problem this research addresses. A review of the literature covering the pertinent areas of this study includes (a) the background and context of mindfulness meditation, (b) the clinical context of mindfulness, (c) mindfulness as clinical training, and (d) mindfulness-based mobile applications. The significance of the study is offered, followed by the purpose of the study, research questions, and the research method including a description of the study design, participants, measures, procedures, and data analyses. Finally, the results are presented and discussed along with limitations and suggestions for future research.

Reviews of psychotherapy outcome literature reveal that psychotherapeutic treatment yields positive results across a variety of approaches (Luborsky, Singer, & Luborsky 1975; Rosenzweig, 1936; Wampold et al., 1997). Patient improvement appears to be more related to factors common across treatments than to the specific techniques of any one approach (Lambert & Ogles, 2004; Lubrosky et al., 1975; Rosenzweig, 1936; Wampold et al., 1997). Norcross and Lambert (2011) estimated that common factors account for 30% of the explained psychotherapy outcome variance, with emphasis on the therapeutic relationship as a factor facilitated by the person of the therapist.

Norcross (2011) presented the findings of the interdivisional Task Force on evidence based therapy relationships. The Task Force presented original meta-analyses in the service of identifying the effective elements of the therapy relationship. The Task Force defined the therapeutic relationship as “the feelings and attitudes that therapist and client have toward one another, and the manner in which these are expressed” (Norcross & Lambert, 2011, p. 4). The elements outlined by the Task Force include (a) empathy, (b) goal consensus and collaboration,
(c) positive regard and affirmation, (d) congruence, (e) collecting client feedback, (f) repairing alliance ruptures, and (g) managing counter transference. Although considerable attention is given to therapeutic alliance, Horvath, Del Re, Flückiger, and Symonds (2011) were clear to distinguish that alliance is neither an element of, nor the same as, the therapeutic relationship. The authors defined alliance as a dynamic factor that is built by doing the work of the therapy in a way that appropriately leverages all the previously listed elements of the relationship (Horvath et al., 2011).

The empirical significance of the therapeutic relationship as a factor of patient improvement is of applied importance for training effective psychotherapists. Researchers have investigated methods for training psychotherapists to cultivate factors of the therapeutic relationship including (a) empathy, (b) positive regard, (c) congruence, (d) repairing alliance ruptures, and (e) managing counter transference. These factors are supported by mindful awareness on the part of the therapist and have the potential to be acquired through mindfulness practice (Baldini, Parker, Nelson, & Siegel, 2014; Hick, 2008; Shapiro & Carlson, 2009a; Siegel, 2010).

For thousands of years, humans across cultures have engaged in various forms of meditation. Mindfulness meditation is historically rooted in ancient Buddhist teachings. Over the past 30 years, research in the potentially useful applications of mindfulness meditation in mental health care has grown exponentially (Germer, 2013). Clinical psychology has turned its attention to building empirical support for the practical applications of mindfulness in the interest of expanding and improving the quality of psychotherapeutic service delivery.

Mindfulness practice is thought to enhance treatment outcome by engendering relationship characteristics of the psychotherapist that are common across successful therapies
regardless of theoretical orientation (Shapiro & Carlson, 2009a). Relationship characteristics including empathy (Fulton & Cashwell, 2015; Gökhan, Meehan, & Peters, 2010; Greason & Cashwell, 2009; Keane, 2014; Newsome, Christopher, Dahlen, & Christopher, 2006; Schure, Christopher, & Christopher, 2008), self-awareness (Gökhan et al., 2010; Keane, 2014; McCollum & Gehart, 2010; Moore, 2008; Newsome et al., 2006; Razzaque, Okoro, & Wood, 2015; Schure et al., 2008), emotion regulation (de Zoysa, Ruths, Walsh, & Hutton, 2014; Hopkins & Proeve, 2013; McCollum & Gehart, 2010; Newsome et al., 2006; Razzaque et al., 2015; Schure et al., 2008), attention (Chrisman, Christopher, & Lichtenstein, 2009; de Zoysa et al., 2014; Greason & Cashwell, 2009; Keane, 2014; Newsome et al., 2006; Schure et al., 2008), and presence and attunement (Brady, O’Connor, Burgermeister, & Hanson, 2011; Chrisman et al., 2009; Keane, 2014; McCollum & Gehart, 2010) have received the most empirical support and attention in the research. A growing body of research has also indicated a positive relationship between mindfulness-based interventions and decreased burnout among psychotherapists and other health care providers (Aggs & Bambling, 2010; Burton, Burgess, Dean, Koutsopoulou, & Hugh-Jones, 2016; Carmody & Baer, 2008; Collard, Avny, & Boniwell, 2008; Fortney, Luchterhand, Zakletskia, Zgierska, & Rakel, 2013; Goodman & Schorling, 2012; Martin-Asuero & Garcia-Banda, 2010; Razzaque et al., 2015; Shapiro, Brown, & Biegel, 2007). Several studies have also demonstrated a positive relationship between provider mindfulness practice and various indicators of patient improvement, including interpersonal functioning (Ryan, Safran, Doran, & Muran, 2012), symptom scales (Grepmaier, Mitterlehner, Loew & Nickel, 2007), and patient satisfaction (Beach et al., 2010; Grepmaier et al., 2007; Ivanovic, Swift, Callahan, & Dunn, 2015).
Statement of the Problem

Research demonstrating how the psychotherapist may be affected by mindfulness practice and the potential impact on therapeutic effectiveness remains inconclusive (Fulton, 2013; Pollak, Pedulla, & Siegel, 2014). Escuriex and Labbé (2011) critically examined the research investigating the relationship between therapist mindfulness and treatment outcome. Of the nine studies included, results were mixed with some indicating no correlation, others a positive correlation, and still others showing a negative correlation. Further empirical research is needed to elucidate the potential relationship between therapist meditation practice and the common factors known to contribute to successful treatment outcome.

In a review of the research on mindfulness-based interventions (MBIs) with health care professionals, Burton et al. (2016) identified the intensive nature of some trainings as a considerable barrier for participants. Intensive time and effort of formal meditation was also cited by de Zoysa et al. (2014) as a barrier for psychologists participating in their qualitative research. To address the concern of participants’ lack of time, studies have begun to investigate the effect of low-dose, brief training (Fortney et al., 2013; Gockel, Burton, James, & Bryer, 2012; Moore, 2008). Further research is needed to investigate the practice threshold for low-dose mindfulness based interventions and their potential feasibility for health care professionals.

Background and Context

Mindfulness is an English translation of the Pali term sati, the language of the earliest Buddhist writings, which can also translate to awareness, attention, and remembering (Siegel, Germer, & Olendzki, 2009). Sati connotes the task of mindfulness meditation, which is to notice whatever predominates in awareness, moment-to-moment (Germer, 2013). Buddhist teachings emphasize the human capacity to bring awareness to our own minds and discover how we create suffering (Germer, 2013; Watts, 1957). Mindfulness practice is an invitation to explore changing
experience and cultivate insight into the nature of one’s conditioned habitual patterns (Siegel et al., 2009).

Watts (1957) described mindfulness meditation as the practice of engaging in the method of Buddhism, which he defined as a way of living with clear awareness. As observed by Watts, it is easier to explain what Buddhism is not, which is to say that it is neither a formal religion, nor a philosophy, but offers “guidance to the art of living” (p. iiv). At their root, Buddhist teachings offer a way of alleviating human suffering. In his first sermon the Buddha spoke of Four Noble Truths: (a) duhkha, or suffering, is a fundamental condition of human life as we live it; (b) the desire to grasp (trishna) for control of life is the origin of suffering; (c) nirvana, or awakening, is lived by understanding the relationship between suffering and desire, and shifting one’s attitude to the acceptance of unpleasant experiences; and (d) the Eightfold Path of dharma is the method of ending self-frustration (Germer, 2013; Watts, 1957). The Buddha urged his students to learn the truth of his teachings through personal observation in mindfulness meditation.

For over 2,500 years mindfulness has encountered many cultures, each transforming the teachings and practice leaving a distinctive imprint that persists today. Meditation practice essentially takes two forms: (a) concentration (samatha) and (b) insight (vipassana; Siegel et al., 2009). In concentration the task is to focus on a concept, image, or mantra, entering a state of one-pointed awareness wherein there is only pure experience and no longer the dualism of the knower and the known (Germer, 2013; Watts, 1957). Concentrative practice can bring a sense of deep calm and wellbeing, and may also be used as a skill to stabilize attention or anchor awareness in the present moment during mindfulness meditation (Siegel et al., 2009). In mindfulness, or insight meditation, one allows the mind to open the field of awareness and move from one object to another as stimuli present themselves (Germer, 2013). Mindfulness practice
requires remembering to disentangle our minds from our perceptions of experience and return to the present moment as it is happening. Sustained mindfulness leads to insight into the subjective construction of experience by looking beneath our conditioned perceptions and reactions to see things as they are (Germer, 2013).

Mindfulness meditation is practiced with the quality of loving-kindness. Loving-kindness is the cultivation of love for yourself and others as you are, without blame or criticism (Stahl & Goldstein, 2010). Morgan, Morgan, and Germer (2013) described loving-kindness as the attitude or emotion of mindful meditation. From the Pali metta, loving-kindness is the antithesis of rejection, resistance, or avoidance – rather it provides comfort and soothing that allows one to open awareness to difficult experiences (Morgan et al., 2013). To strengthen this quality, loving-kindness is cultivated intentionally through metta meditation by dwelling gently on phrases such as, “May I be happy,” “May I have ease of well-being,” “May I be free from negative emotions,” and “May I be safe” (Bien & Didonna, 2009).

Mindfulness can be practiced both formally and informally. Formal practice refers to meditation, which is a sustained, disciplined introspection that takes the three forms described above: (a) focused attention, (b) open monitoring, and (c) loving-kindness (Germer, 2013). Contemporary practice encourages meditators to move flexibly from one skill to another as a way of settling into one’s current experience (Siegel et al., 2009). Meditators may direct their attention to any of the senses, such as seeing, hearing, or smelling, to make contact with the present moment (Germer, 2013). Buddhist psychology recognizes the mind as a sense organ. Therefore, noticing thoughts in meditation is akin to bringing other sensations into awareness (Siegel et al., 2009). Mindfulness meditation also emphasizes feeling into the body with awareness for negative, neutral, or positive sensations as they arise (Olendzki, 2009). Body scan
meditation practice can be used to guide us toward noticing the tone of our feeling state and the quality of emotions as they come and go (Germer, 2013). Meditation is most often practiced while sitting or walking, but can also be done laying down, standing, or during yoga (Bien & Didonna, 2009).

Informal mindfulness practice generalizes the skills of mindfulness meditation to everyday life. Similar to formal practice, informal mindfulness uses the senses to bring awareness to surrounding stimuli, such as ambient noise, the movement of a breeze across your skin, or the sight of food on your plate (Germer, 2013). Mindfulness can be brought to daily activities, such as washing the dishes or brushing your teeth. Informal mindfulness practice can help us learn how to engage in meaningful actions by bringing awareness to our intentions and noticing the impulse to act before we follow through. For instance, Hayes-Skelton, Roemer, and Orsillo (2013) describe how informal mindfulness practice can help with tolerating the uncomfortable physiological and emotional qualities of anxiety in challenging situations. Mindfulness helps us notice the impulse to fight, freeze, or flee, and our experience in the moment outside of fear and discomfort. Awareness at this level creates the opportunity for intentional action as well as an entry point for cultivating self-compassion.

Clinical Context

Over the past 30 years, research in the potentially useful applications of mindfulness meditation has grown exponentially (Germer, 2013). The fields of Western medicine and psychology share with Buddhist psychology the common interest of reducing human suffering. Mindfulness meditation training appears to be effective in helping patients regulate chronic pain (Kabat-Zinn, Lipworth, & Burney, 1985), decrease stress and mood disturbance (Brown & Ryan, 2003), and reduce anxiety and depression (Eberth & Sedlmeier, 2012). Given the building
empirical support for the practical applications of mindfulness practice, clinical psychology has capitalized on the benefits of mindfulness in the interest of expanding and improving the quality of psychotherapeutic service delivery. Germer outlined three ways a clinician may integrate mindfulness into therapeutic work, which fall under the umbrella term *mindfulness-oriented psychotherapy*.

In *mindfulness-based* psychotherapy, the clinician teaches patients mindfulness exercises that can be practiced between sessions. Several structured treatments incorporate mindfulness skills for a range of psychological conditions, such as Mindfulness Based Stress Reduction (MBSR; Kabat-Zinn, 1982; Kabat-Zinn, Lipworth, Burney, & Sellers, 1986), Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999; Hayes, Strosahl, & Houts, 2005), Dialectical Behavior Therapy (DBT; Linehan, 1993), and Mindfulness Based Cognitive Therapy for Depression (Segal, Williams, & Teasdale, 2002). Psychotherapeutic instruction in mindfulness allows patients to derive the benefits of mindfulness practice, which appear to be dose dependent, and requires time, commitment, and discipline (Germer, 2013; Pollak, 2013).

Pollak, Pedulla, and Siegel (2014) outlined seven considerations for psychotherapists engaging in mindfulness-based psychotherapy: (a) which skills to emphasize; (b) informal, formal, or retreat practice; (c) which objects of attention; (d) religious or secular practices; (e) turning toward safety or sharp points; (f) narrative or experiential focus and (g) focus on relative or absolute truth. Patients can become overwhelmed by the intensity of what arises during mindfulness practice. Finding a balance between concentration, open-monitoring, and acceptance practices from moment-to-moment is an art. Teasdale, Segal, and Williams (2003) suggested that positive effects for mindfulness-based interventions have focused on instructors who imbed mindfulness training within a congruent formulation of emotional distress and who deliver
mindfulness training in a way that is attuned to the needs of the client in the moment.

Mindfulness-informed psychotherapy takes as its theoretical frame of reference insights from the practice and study of mindfulness (Germer, 2013; Shapiro & Carlson, 2009b). Clinicians who practice mindfulness-informed psychotherapy do not necessarily teach mindfulness to their patients, but typically have a relational or psychodynamic orientation that values the therapeutic relationship as central and transformative in the patient’s change process (Germer, 2013). Mindfulness-informed clinicians draw from their direct experience with mindfulness practice, which is imperative for integrating it into psychotherapy in a skillful and nuanced way (Shapiro & Carlson, 2009b). Shapiro and Carlson (2009b) suggested possible themes from mindfulness practice, such as impermanence, curiosity, acceptance, and mindful response, which may inform psychotherapeutic approach. Germer added that mindfulness-informed psychotherapists also pay particular attention to the patient’s resistance of mental and emotional experiences.

Clinicians may also be considered a mindfulness-oriented psychotherapist by practicing mindfulness to cultivate therapeutic presence. As with others who practice mindfulness, clinicians derive psychological benefits from mindfulness meditation, such as an increased sense of well-being (Aggs & Bambling, 2010; Cohen & Miller, 2009), decreased stress and anxiety, and increased self-compassion (Shapiro, Astin, Bishop, & Cordova, 2005; Shapiro et al., 2007). In addition, mindfulness meditation seems to be uniquely beneficial for counselors and health care professionals by enhancing therapeutic skills such as attunement, empathy, and compassion (Bruce, Shapiro, Constantino, & Manber, 2010; Christopher et al., 2011; Schure et al., 2008). Cigolla and Brown (2011) presented a qualitative study exploring the experiences of therapists who practice mindfulness. The participants described increased self-awareness and an ability to
follow the unfolding therapeutic relationship, which allowed for intentional response to the client and “relational depth” (p. 714). Cigolla and Brown referred to this theme as “a way of being” that emerged in participants’ personal lives and in therapy (p. 712).

Kostner (2015) reminded us that the intention of mindfulness practice is to create an environment, as in psychotherapy, that allows the defense processes to loosen and the nuanced interplay of sensation, thought, and emotion to arise. The quality of attention, or attentional posture, in mindfulness practice parallels the presence, attunement, and resonance of psychotherapy (Epstein, 1995; Seigel, 2010). Epstein described the parallel between Freud’s recommended attentional stance of evenly hovering attention and the attentional posture of bare attention in meditation. Whereas Freud, as cited in Epstein, recommended that practicing psychoanalysts should “suspend the critical faculty” and “give impartial attention to everything there is to observe,” Epstein noted the instruction of bare attention is to “pay precise attention, moment by moment, to exactly what you are experiencing, right now, separating out your reactions from the raw sensory events” (p. 110). Epstein also compares the psychic space of bare attention to Winnicott’s transitional space of childhood, noting that the open, non-judgmental, interested, and patient qualities of bare attention facilitate one’s ability to transform psychic disturbances into objects of meditation.

Bare attention, or wholehearted attention, can be learned, practiced, and deepened through mindfulness (Fulton, 2013; Horney, 1952/1998; Pollak et al., 2014). Karen Horney described wholeheartedness as “being all there in the job one is doing” and “at the same time having the highest presence and the highest absence” (p. 35). Horney’s description of experiencing with separation mirrors Carl Rogers’ (1961) definition of empathy, which he described as “the ability to sense the client’s private world as if it were your own, but without
losing the ‘as if’ quality” (p. 284).

The terms presence, attunement, and resonance have also been used to describe similar phenomena in the therapeutic relationship. Goodman (2013) defined therapeutic presence as allowing the therapist to be compassionately engaged and yet disentangled from the client’s experience. Olson, Unger, Kaklauskas, and Swann (2008) defined attunement as the psychotherapist sensing the client’s emotional and mental states, while consciously and non-judgmentally observing his own internal process. According to Seigel (2010), resonance is the dynamic and interactive state when two people are each attuned to the internal state of the other, and having registered this attunement, the two feel connected. Silverberg (2008) similarly defined therapeutic resonance as the process of opening to and connecting with the client’s experience. Both emphasize that resonance requires awareness that the process is occurring.

**Mindfulness as Clinical Training**

Fauth, Gates, Vinca, Boles, and Hayes (2007) suggested that to improve the effectiveness of psychotherapists in a lasting way, clinical training might emphasize therapeutic responsiveness, the key to which is the development of meta-cognitive skills, including *mindfulness*. Mindfulness, defined as awareness and acceptance of present moment experience, allows the psychotherapist to tune into and respond effectively to the client as the session unfolds (Fauth et al., 2007). Fauth et al. held that optimal therapeutic responsiveness incorporates effective countertransference management, the repair of alliance ruptures, and empathy with self and others, and may be trained experientially through mindfulness practice.

Bruce et al. (2010) similarly proposed mindfulness practice as means for training psychotherapists to develop interpersonal attunement. They argued that attunement, defined as focusing on the internal world of another person such that the other feels connected, is an
important psychotherapeutic relational quality that may promote patients’ wellbeing (Bruce et al., 2010). Bruce et al. additionally described mindfulness practice as promoting an increased awareness of ruptures, the ability to work through a rupture with a non-defensive attitude, a willingness to listen to the experience of the client, and a willingness to change one’s own behavior.

Several studies lend support to the model of using mindfulness practice to train psychotherapists to cultivate therapeutic relational qualities. In a qualitative study exploring the effects of Qigong on master’s-level counseling students, Chrisman et al. (2009) identified increased awareness, acceptance of themselves and others, and a strong sense of connection with themselves and with the group as themes across participant experiences. Rothaupt and Morgan (2007) similarly reported a theme of connectedness in their qualitative investigation of the mindfulness practices of 6 counselors and counselor educators. The participants spoke about recognizing and valuing connection to others as a result of their intentional efforts to practice mindfulness. Participants also noted that central to feeling connected with others was the ability to maintain a nonjudgmental acceptance and awareness of others without defensiveness or judgement (Rothaupt & Morgan, 2007).

McCollum and Gehart (2010) presented a qualitative analysis of 13 master’s marriage and family therapy students’ journals that describe how practicing mindfulness affected their work as therapists. McCollum and Gehart identified therapeutic presence as a primary theme, with participants noting an increased ability to attend to their inner experience, an increased awareness of what was happening with their clients, and an increased ability to act from an integrated sense awareness with compassion and acceptance toward themselves and their clients. Newsome et al. (2006) reported a qualitative analysis of 33 journal entries of master’s-level
graduate students in counseling programs who recorded their experiences during a 15-week elective course based on MBSR. Newsome et al. reported that participants identified increased awareness, greater capacity for empathy and compassion, and an increased ability to focus on the therapeutic process as outcomes of the course.

Results of studies examining the impact of mindfulness-based interventions with mental health providers have demonstrated promise for the improvement of psychotherapy process and outcome. Brady et al. (2011) investigated the impact of an MBSR program as an intervention with behavioral health staff on an acute psychiatric unit. Results included increased interpersonal presence, increased patient satisfaction with nurses and therapists, and decreased patient safety events in the 3 months following MBSR (Brady et al., 2011). Grepmair, Mitterlehner, Loew, and Nickel (2007) examined whether concurrent practice of Zen meditation by psychotherapists in training would influence the treatment results of their patients. The results showed the Zen meditation group received significantly higher evaluation of individual therapy by their patients, and their patients presented with significantly greater improvement on symptom scales at the completion of treatment (Grepmair et al., 2007).

Despite the building empirical support for a relationship between mindfulness practice and effective psychotherapy treatment, a compelling proportion of the research base has suggested potential negative effects of meditation practice. In a qualitative analysis of 30 male participants’ experiences of meditation practice, psychological challenges associated with meditation practice accounted for approximately one quarter of the data, and all participants reported challenges with meditation at some point in their narrative (Lomas, Cartwright, Edginton, & Ridge, 2015). Challenges included preexisting psychological problems being exacerbated and troubling experiences of self. With similar results, Boellinghaus, Jones, and
Hutton (2012) reviewed the effectiveness of mindfulness-based interventions (MBIs) and loving-kindness meditation (LKM) in cultivating clinicians’ self-compassion and other-focused concern. Boellinghaus et al. identified potential challenges for some participants engaging in LKM, including an initial drop in positive emotions. Studies also showed that particularly those participants with a tendency to ruminate did not show a brain response associated with positive emotions, and those who are highly self-critical exhibited a physiological threat response when trying to be more self-compassionate.

Research attempting to elucidate the relationship between psychotherapist meditation and treatment outcome has not provided clarity to these contradictory data (Fulton, 2013). One factor contributing to the lack of clarity is absence of a consensus with regard to training standards for mindfulness-oriented psychotherapists. Existing studies on mindfulness interventions with health care professionals have utilized training approaches that differ across practice, length of training, length of encouraged practice, and instructor qualifications. Of the studies reviewed here, mindfulness practices include qigong, yoga, meditation, Mindfulness Based Stress Reduction (MBSR), Mindfulness Based Cognitive Therapy (MBCT), and a skills group. Curricula include online training, classroom instruction, assigned readings, and journaling. Length of training schedules range from 1 day to 15 weeks, while encouraged home-practice time ranges from 10 to 45 minutes, one to seven days per week. Instructors included those trained in MBSR or other professional mindfulness training, psychologists with mindfulness experience, and nurses with mindfulness experience.

As previously described, the intensive nature of some mindfulness-based interventions has been cited as a considerable barrier for health care professionals (Burton et al., 2016; de Zoysa et al., 2014). These insights highlight the potentially limited efficacy of mindfulness-based
interventions with real-world populations. To address the concern of limited time and resources for health care professionals, studies have begun to investigate the effect of low-dose, brief training (Fortney et al., 2013; Gockel et al., 2012; Moore, 2008). Promising results from a review of the research on MBIs with health care professionals illustrated that all forms of MBIs, including those that were modified or abbreviated, were beneficial for reducing stress (Burton et al., 2016). Others have suggested that any technique that engenders mindfulness may be considered a mindfulness technique, and does not need to be meditation (Bishop et al., 2004; Hayes et al., 1999). One potential solution for investigation is the use of mindfulness-based technology, specifically smartphone applications that offer a portal for engaging participants in their daily context.

**Mindfulness-Based Mobile Applications**

According to the most recent Ericson Mobility Report (2016), there are approximately five billion mobile subscribers worldwide. Smartphone subscriptions are projected to surpass those for basic phones before the end of 2016, and they accounted for approximately 80% of all mobile phones sold in the first quarter of this year (Ericson, 2016). By the end of 2015, the smartphone application accounted for 47% of total digital media engagement, and was projected to continue to grow in 2016 (comScore, Inc., 2016). Daily behaviors, such as fitness tracking, are powerful drivers of app usage (comScore, Inc., 2015). The widespread availability of increasingly powerful smartphones is influencing sectors of everyday life including health and education services (GSM Association, 2016).

Preziosa, Grassi, Gaggioli, and Riva (2009) investigated the areas in which mobile phones have already been applied in treatment. The limited data from preliminary studies investigating the integration of mobile technologies into mental health treatment suggests that
use of mobile phones has increased patient compliance and offers patients the ability to self-administer clinical content in a portable fashion throughout their daily lives (Preziosa et al., 2009). According to Plaza, Demarzo, Herrera-Mercadal, and Garcia-Campayo (2013), more than 50 different mindfulness-based mobile applications are available for Android, IOS, and Windows devices, few of which have undergone scientific evaluation.

The results of a few preliminary studies indicate the potential feasibility and efficacy of delivering mental health interventions through mobile phones. Villani et al. (2013) conducted a preliminary study with oncology nurses on the short-term effects of a stress management training intervention delivered through mobile phones for a four-week period. Results showed a significant decrease in state anxiety at the end of each session, as well as anxiety trait reduction and coping skill acquisition at the conclusion of the intervention as compared with the control group (Villani et al., 2013). Howells, Ivtzan, and Eiroa-Orsa (2016) conducted a randomized-controlled trial of the mindfulness-based mobile application Headspace On-The-Go with a self-selected population of happiness seekers for 10 days. Results demonstrated successful delivery of a mindfulness-based intervention via smartphone application, as well as significant gains in positive affect and reduced depressive symptoms (Howells et al., 2016). Chittaro and Vianello (2014) developed a smartphone application aimed at helping users practice a mindfulness-based thought-distancing technique. Chittaro and Vianello (2016) assessed the effectiveness of their mobile mindfulness application when used by participants in everyday contexts over a four-week period. Results demonstrated that participants with no or minimal experience with mindfulness practice significantly increased their capacity for decentering after the mindfulness-based smartphone intervention (Chittaro & Vianello, 2016).

Laurie and Blanford (in press) investigated how a group of 16 participants used and
experienced the mindfulness meditation training application Headspace for a period of 30-40 days. Their conclusions offer preliminary insights and considerations for mindfulness-based mobile application development and promotion, including points of engagement and potential barriers to use. Overall, naïve meditators reported guided meditations were particularly helpful to focus their meditation and to learn about meditation (Laurie & Blanford, in press). Participants, however, responded both positively and negatively to voice guidance, leading to the recommendation that guidance should be offered while allowing users to choose from a selection of guides. Laurie and Blanford also concluded that environmental conditions, including busy routines as well as locations, impacted user engagement with the app, such that users were most likely to engage if they had a formal routine and were able to find quiet spaces and quiet periods of the day. An appropriate initial instruction for users would be to find a location and time that will support mindfulness practice. In addition, Laurie and Blanford found that emotion played a substantial role in participant use patterns, such that users were able to use the app to help them deal with difficult emotions, yet when agitation reached a certain threshold, meditation became more difficult and users turned to more physical activity. The authors recommended providing active exercises for users to engage in when managing higher levels of agitation.

**Significance of the Study**

Research in the area of therapists’ personal practice of mindfulness meditation is of applied importance for the individuals and groups who seek services. Investigation into the impact of therapists’ personal practice of mindfulness meditation may inform the monitoring of clinical practice, specifically the development and training of effective psychotherapists. The building empirical support for the relationship between mindfulness practice and the common factors known to contribute to successful treatment outcome warrants further investigation. In
addition, exploring the effectiveness of more accessible mindfulness training approaches has the potential to increase feasibility for health care professionals seeking to improve their intervention delivery.

**Purpose of the Study**

The study has two primary aims: (a) to explore the feasibility of using a mindfulness-based mobile application with practicing psychotherapists, and (b) to examine the effects of utilizing a MBMA on psychotherapists’ levels of empathy and mindfulness. Three research questions were used in the study:

Research Question 1: Is use of the Insight Timer mobile application by psychotherapists associated with increased mindfulness? I hypothesized that psychotherapists who utilize the Insight Timer mobile application will demonstrate increased post-test levels of mindfulness on the FFMQ as compared with pre-test scores.

Research Question 2: Is use of the Insight Timer mobile application by psychotherapists associated with increased empathy? I hypothesized that psychotherapists who utilize the Insight Timer mobile application will demonstrate increased post-test levels of empathy on the IRI as compared with pre-test scores.

Research Question 3: Is the amount of time psychotherapists spend engaging in a mindfulness activity with the Insight Timer mobile application associated with higher levels of mindfulness? I hypothesized that the amount of time psychotherapists spent engaging in a mindfulness activity with the Insight Timer mobile application will be positively correlated with mindfulness scores on the FFMQ.

**Research Method**

This section describes the methodology of this study. A discussion of the design,
participants, measures, procedures, and data analyses are presented.

**Study Design**

This dissertation outlined the use of a within-subjects, pretest-posttest design in which participants completed questionnaires 30 days apart. Between these questionnaires, the participants utilized the smartphone application Insight Timer (Insight Network, Inc., 2016) on a daily basis. The purpose of this study was to assess the feasibility of using a mindfulness-based mobile application (MBMA) with psychotherapists and investigates whether the use of the MBMA had an impact on psychotherapists’ levels of empathy and mindfulness. Quantitative analyses focused on assessing whether the intervention was associated with increased levels of mindfulness and empathy as well as the magnitude of the relationship between the amount of time participants spent practicing mindfulness and changes in participants’ levels of mindfulness and empathy.

**Participants**

Sixteen participants were recruited through social media and email advertising. The advertisements contained a brief description of the study, as well as details of informed consent, confidentiality, and anonymity. The study was described as investigating mindfulness-oriented psychotherapy and the email contained a link to a web-based questionnaire and instructions on downloading Insight Timer (Insight Network, Inc., 2016) to a smartphone device. Participants were told that upon completion of the study they would be entered into a raffle for a chance to win one of five $25 gift cards.

Participants who were at least third year doctoral students in a clinical or counseling psychology program, or who were licensed psychotherapists, were considered for inclusion in this study. Eligible participants also met the criterion of naïve meditator, a term used by Lau et
al. (2006) to refer to people with either no experience at all or less than eight weeks of experience of daily practice with meditation (including yoga, tai chi, and qi-gong). Participants were required to have daily access to a smartphone for the duration of the study. Participants were between 24 and 74 years of age with a median age of 29. Participants predominantly identified as female (94%), white (75%), and none were Hispanic or Latino. Doctoral trainees (69%) represented the greatest proportion of participants and 81% of participants identified Cognitive Behavioral as their theoretical orientation. A complete listing of demographic variables is found in Table 1.

**Measures**

The pre-test measure was an online survey consisting of 3 qualifying questions, 5 demographic questions, and 67 Likert scale questions. Demographic questions included (a) gender, (b) age, (c) race, (d) ethnicity, (e) and (f) theoretical orientation. Participants were then presented with the Five Facet Mindfulness Questionnaire (FFMQ) followed by the Interpersonal Reactivity Index (IRI). The post-test measure contained a question asking participants to upload an image file of their Insight Timer session log statistics followed by the FFMQ and the IRI. The full survey is presented in Appendix A.

**Interpersonal Reactivity Index (IRI).** The dependent variable, empathy, is operationally defined as three constructs including: (a) perspective taking, (b) empathic concern, and (d) personal distress (Davis, 1980). Empathy was measured using the IRI, which examines affective and cognitive components of empathic response (Davis, 1980). The IRI is a self-report instrument containing 28 items, which encompasses four discrete, seven-item subscales. Each of the four subscales contains 7 items rated on a five-point scale ranging from “Does not describe me well” to “Describes me very well” (Davis, 1980). The IRI is reprinted in Appendix A with
written permission from the author.

The perspective-taking subscale seems to reflect an ability to adopt the perspective of others, or to step outside one’s self when interacting with other people (Davis, 1980). An item example is, “I sometimes try to understand my friends better by imagining how things look from their perspective” (Davis, 1980, p. 11). The empathic concern subscale appears to reflect the respondent’s capacity for experiencing feelings of warmth, compassion and concern for others (Davis, 1980). An item example is “I am often quite touched by things that I see happen” (Davis, 1980, p. 11). The personal distress subscale taps into the respondent’s “own feelings of fear, apprehension and discomfort at witnessing the negative experiences of others” (Davis, 1980, p. 12). An item example is, “Being in a tense emotional situation scares me” (Davis, 1980, p. 11). Davis reported that the personal distress subscale was negatively correlated with the other three subscales, which is consistent with the development pattern hypothesized by Hoffman (1976) that “greater perspective-taking tendencies are associated with less personal distress to others’ experiences and more concern for the other” (Davis, 1980, p. 16). The fantasy subscale “appears to tap the tendency to imaginatively transpose oneself into fictional situations (e.g., books, movies, daydreams)” (Davis, 1980, p. 11). Davis reported that the fantasy subscale represents more intermediate aspects of empathy. As a result, only the perspective taking, empathic concern, and personal distress scales were used to measure empathy in the current study.

Davis (1980) reported the results of factor analyses for both males and females showed that the seven items which load most heavily on each factor are the seven subscale items, indicating strong support for the four empathy scales. Davis reported the internal reliability coefficients (Chronbach’s alpha) for each of the four subscales in each sex, males and females, respectively: Fantasy .78 and .75, Perspective Taking .75 and .78, Empathic Concern .72 and .70,
and Personal Distress .70 and .70. Davis also reported test-retest reliabilities for a two-month phase ranging from .61 to .79 for males and .62 to .81 for females.

**Five Facet Mindfulness Questionnaire (FFMQ).** The dependent variable; mindfulness; is operationally defined as five facets: (a) nonreactivity to inner experience; (b) observing, noticing, and attending to sensations, perceptions, thoughts, and feelings; (c) acting with awareness, concentration, and nondistraction; (d) describing or labeling with words and (e) nonjudging of experience (Baer et al., 2006). Mindfulness was measured using the Five Facet Mindfulness Questionnaire (Baer et al., 2006). The FFMQ was derived through an investigation of the psychometric qualities of five mindfulness measures: (a) Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2004), (b) the Freiburg Mindfulness Inventory (FMI; Buchheld, Grossman, & Walach, 2001), (c) the Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004), (d) the Cognitive and Affective Mindfulness Scale (CAMS; Feldman, Hayes, Kumar & Greeson, unpublished manuscript, as cited in Baer et al., 2006), and (e) the Mindfulness Questionnaire (MQ; Chadwick, Hember, Mead, Lilley, & Dagnan, unpublished manuscript, as cited in Baer et al., 2006).

The FFMQ contains 39 items representing five facets of mindfulness: (a) observing, (b) describing, (c) acting with awareness, (d) nonjudging of inner experience, and (e) nonreactivity to inner experience (Baer et al., 2008). According to Baer et al. (2008):

*Observing* includes noticing or attending to internal and external experiences, such as sensations, cognitions, emotions, sights, sounds, and smells. *Describing* refers to labeling internal experiences with words. *Acting with awareness* includes attending to one’s activities of the moment and can be contrasted with behaving mechanically while attention is focused elsewhere (often called *automatic pilot*). *Nonjudging of inner*
experience refers to taking a nonevaluative stance toward thoughts and feelings.

Nonreactivity to inner experience is the tendency to allow thoughts and feelings to come and go, without getting caught up in or carried away by them. (p. 330)

Items are rated on a 5-point scale ranging from “never or very rarely true” to “very often or always true.” Sample questions include, “When I have distressing thoughts or images I am able just to notice them without reacting,” and “When I have a sensation in my body, it’s difficult for me to describe it because I can’t find the right words” (Baer et al., 2006). The FFMQ takes approximately 5 to 10 minutes to complete and higher scores are associated with a stronger sense of mindfulness. The alpha coefficients for each of the facets were reported as describing (.91), acting with awareness (.87), nonjudging (.87), observing (.83), and nonreacting (.75; Baer et al., 2008). Correlations between facets ranged from .15 to .34, indicating that each subscale measures a distinct facet (Baer et al., 2008). Baer et al. (2008) indicated that the FFMQ measures discrete components of mindfulness and that the facets have strong internal consistency. The global score, including all the five facets, were used for this study.

**Procedure**

The survey was advertised through email advertisements sent to the listservs for Antioch University New England Clinical Psychology Department, the Association for Contextual Behavioral Science, the New Hampshire Psychological Association, the Society for the Advancement of Psychotherapy, the Society for Media Psychology and Technology, and Division 39 Psychoanalysis. Web link advertising was used to recruit participants on the Facebook page for the Society for Media Psychology and Technology, and the LinkedIn groups Therapists Linked, Links for Shrink, Psychology Students Network, Counseling Professionals, and Mindfulness and Psychotherapy. Email advertisements were also sent to the training
directors of all clinical and counseling psychology programs in the United States as listed on the website for the American Psychological Association.

The survey was hosted through surveymonkey.com. Participants used the provided link and were first directed to the informed consent page which described the research as well as the risks and benefits to participating in the study. Questions were presented in the order of qualifying questions, demographics, FFMQ, and IRI. Participants were provided with a written guide including screen-shot pictures to explain the features of Insight Timer (Insight Network, Inc., 2016) and the process of downloading the application to a smartphone device. Participants were encouraged to begin their first mindfulness practice immediately and integrate it into their daily lives for 30 days. Participants were invited to explore the app and use any of its features, including the library of 2,156 guided practices for activities including sitting meditation, walking meditation, yoga, mindful eating, prayer, and chanting. Participants were also asked to provide a self-ascribed name at the end of the initial questionnaire and email this name to the research email address: research.mindful@gmail.com.

At the conclusion of the 30-day period, participants were sent an email prompting them to follow a link to the follow-up questionnaire. Participants were asked to provide their self-ascribed name for the purposes of matching pre- and post-test data. They were then instructed to take a snapshot photo of their session log statistics and upload this image file to their follow-up questionnaire. The session log statistics is a record of the user’s mindfulness practice as the app is used, including total time spent practicing. No identifying information is kept in this log. Participants then completed the FFMQ and IRI. No face-to-face interaction between the experimenter and participants occurred throughout the entire study. The quantitative data was analyzed using IBM’s SPSS version 21.
**Statistical Analysis**

Demographic data are reported for all participants who completed both initial and follow up surveys. Data was assessed for skewness and kurtosis to determine the feasibility of univariate testing. Due to the large number of statistical tests performed, a Bonferroni correction is used to reduce the likelihood of incorrectly rejecting the null hypothesis. With a desired overall alpha level of 0.05 for 9 hypotheses, a significance value of $p<.01$ was utilized for this study.

Paired samples $t$-tests were performed for the observing, describing, acting with awareness, nonjudging of inner experience, nonreactivity to inner experience, and overall subscales of the FFMQ to evaluate the null hypotheses that there was no change in participants’ mindfulness scores when measured before and after use of the MBMA. Paired samples $t$-tests were also performed for the perspective taking, empathic concern, and personal distress subscales of the IRI to evaluate the null hypotheses that there would be no change in participants’ empathy scores when measured before and after use of the MBMA.

**Results**

Of the 108 initial survey respondents, 44 did not go on to complete the survey, and 19 did not meet the eligibility criteria of novice mindfulness practitioner. A total of 45 participants completed the initial survey. Of those, only 37 followed the instruction to email their self-ascribed name to the research email address, which excluded 8 participants from follow up. Of the remaining 37 participants, 19 completed the follow up survey. Upon reaching the analysis phase, it was discovered that 3 participants did not include their self-ascribed name on the initial survey, which prevented paired-samples analysis. Ultimately, a total of 16 participants were included in the dependent samples $t$-test analyses. The dropout rate is considered to be the
difference between the 37 participants who completed the initial survey and the 19 who completed the follow up (18; 48.6%). Figure 1 displays the flow of participants through the study.

Of the 16 participants who completed the study, only a remaining 9 were able to provide their session log statistics. Participants either skipped this question on the follow-up survey or did not upload an image of their session log statistics that included total time practicing. For these 9 participants, the total time spent practicing mindfulness over the 30-day period ranged from 5 to 655 minutes. On average, participants spent a total of 196 minutes practicing mindfulness. When the outlier of 5 minutes is excluded, the average time spent using the MBMA increases to 220 minutes. The results of this study were insufficient to assess the magnitude of the relationship between the amount of time participants spent practicing mindfulness and changes in participants’ levels of mindfulness and empathy. Therefore, the hypothesis that the amount of time psychotherapists spend engaging in a mindfulness activity with the Insight Timer mobile application will be positively correlated with mindfulness scores on the FFMQ cannot be addressed.

To assess the nine hypotheses that psychotherapists who utilize the Insight Timer mobile application will demonstrate increased post-test levels of mindfulness on the FFMQ and increased post-test levels of empathy on the IRI as compared with pre-test scores, dependent samples t-tests were performed. Prior to conducting the analysis, the assumption of normally distributed difference scores was examined. The assumption was considered satisfied, as the skew and kurtosis levels were estimated at less than the maximum allowable values for a t-test (skew $<|2.0|$ and kurtosis $<|9.0|$; Posten, 1984).
Hypothesis 1

The null hypothesis of equal observing means was rejected, $t(15)=-4.62$, $p<.001$. The post-training mean ($M=28.81$, $SD=4.58$) was statistically significantly higher than the pre-training mean ($M=23.81$, $SD=5.48$). Cohen’s $d$ was estimated at 1.10, which is a large effect based on Cohen’s (1992) guidelines. The correlation between the two conditions was estimated at $r=.55$, $p=.026$, suggesting that the dependent samples $t$-test is appropriate in this case and the observing subscale has good test-retest reliability. These results indicate that there was a statistically significant increase in participants’ scores on the observing subscale of the FFMQ after the 30-day period of using Insight Timer. Participants reported an increased ability to notice or attend to internal and external experiences after use of the MBMA for 30 days. The large effect size supports that the observable difference between pre- and post-training means is substantial. This result supports the hypothesis that psychotherapists who utilize the Insight Timer mobile application will demonstrate increased post-test levels of mindfulness on the FFMQ.

Hypothesis 2

The null hypothesis of equal describing means was rejected, $t(15)=-3.19$, $p=.006$. The post-training mean ($M=32.50$, $SD=4.98$) was statistically significantly different than the pre-training mean ($M=29.25$, $SD=4.67$). Cohen’s $d$ was estimated at a medium effect size of 0.67. The correlation between the two conditions was estimated at $r=.65$, $p=.007$, suggesting good test-retest reliability. These results indicate that there was a statistically significant increase in participants’ scores on the describing subscale of the FFMQ after the 30-day period of using Insight Timer. Participants reported an increased ability to label internal experiences with words after use of the MBMA for 30 days. This result supports the hypothesis that psychotherapists
who utilize the Insight Timer mobile application will demonstrate increased post-test levels of mindfulness on the FFMQ.

**Hypothesis 3**

The null hypothesis of equal acting with awareness means cannot be rejected after experiment wise Bonferroni adjustment, \( t(15) = -2.65, p = .018 \). The post-training mean (M=25.94, SD=3.61) was not statistically significantly different than the pre-training mean (M=22.94, SD=4.95). Cohen’s \( d \) was estimated at a medium effect size of 0.69. The correlation between the two conditions was estimated at \( r = .48, p = .063 \), suggesting poor test-retest reliability. These results indicate that after adjusting the alpha level to account for the number of tests conducted in the study in order to reduce the risk of Type I error, there was not a statistically significant increase in participants’ scores on the acting with awareness subscale of the FFMQ after the 30-day period of using Insight Timer. Participants did not report an increased ability to attend to their activities in the moment after use of the MBMA for 30 days. This result does not support the hypothesis that psychotherapists who utilize the Insight Timer mobile application will demonstrate increased post-test levels of mindfulness on the FFMQ.

**Hypothesis 4**

The null hypothesis of equal nonjudging of experience means was rejected, \( t(15) = -3.44, p = .004 \). The post-training mean (M=34.13, SD=3.67) was statistically significantly higher than the pre-training mean (M=30.31, SD=5.44). Cohen’s \( d \) was estimated at a large effect size of 0.82. The correlation between the two conditions was estimated at \( r = .587, p = .017 \), suggesting that the dependent samples \( t \)-test is appropriate. These results indicate that there was a statistically significant increase in participants’ scores on the nonjudging of experience subscale of the FFMQ after the 30-day period of using Insight Timer. Participants reported an increased
ability to take a non-evaluative stance toward their thoughts and feelings after use of the MBMA for 30 days. The large effect size supports that the observable difference between pre and post training means is substantial. This result supports the hypothesis that psychotherapists who utilize the Insight Timer mobile application will demonstrate increased post-test levels of mindfulness on the FFMQ.

**Hypothesis 5**

The null hypothesis of equal nonreactivity to inner experience means was rejected, $t(15)=-4.17$, $p<.001$. The post-training mean ($M=24.81$, $SD=3.47$) was statistically significantly higher than the pre-training mean ($M=21.63$, $SD=4.08$). Cohen’s $d$ was estimated at a large effect size of 0.84. The correlation between the two conditions was estimated at $r=.68$, $p=.004$, suggesting that the dependent samples $t$-test is appropriate. These results indicate that there was a statistically significant increase in participants’ scores on the nonreactivity to inner experience subscale of the FFMQ after the 30-day period of using Insight Timer. Participants reported an increased ability to allow thoughts and feelings to come and go after use of the MBMA for 30 days. The large effect size supports that the observable difference between pre- and post-training means is substantial. This result supports the hypothesis that psychotherapists who utilize the Insight Timer mobile application will demonstrate increased post-test levels of mindfulness on the FFMQ.

**Hypothesis 6**

The null hypothesis of equal global FFMQ means was rejected, $t(15)=-4.69$, $p<.001$. The post-training mean ($M=146.19$, $SD=12.94$) was statistically significantly higher than the pre-training mean ($M=127.38$, $SD=19.16$). Cohen’s $d$ was estimated at 1.15, which is a large effect. The correlation between the two conditions was estimated at $r=.56$, $p<.024$, suggesting
that the dependent samples \(t\)-test is appropriate. These results indicate that there was a statistically significant increase in participants’ overall scores on the FFMQ after the 30-day period of using Insight Timer. Participants responses indicate an increase in overall mindfulness after use of the MBMA for 30 days. The large effect size supports that the observable difference between pre- and post-training means is substantial. This result supports the hypothesis that psychotherapists who utilize the Insight Timer mobile application will demonstrate increased post-test levels of mindfulness on the FFMQ.

**Hypothesis 7**

The null hypothesis of equal empathic concern means cannot be rejected, \(t(15)= -0.88, p=.391\). The post-training mean (\(M=21.94, SD=3.21\)) was not statistically significantly different than the pre-training mean (\(M=21.25, SD=2.96\)). Cohen’s \(d\) was estimated at a small effect size of 0.22. The correlation between the two conditions was estimated at \(r =.49, p=.052\), suggesting poor test-retest reliability. These results indicate that there was no increase in participants’ scores on the empathic concern subscale of the IRI after the 30-day period of using Insight Timer. Participants did not report an increase in their capacity for experiencing feelings of warmth, compassion and concern for others after use of the MBMA for 30 days. This result does not support the hypothesis that psychotherapists who utilize the Insight Timer mobile application will demonstrate increased post-test levels of empathy on the IRI.

**Hypothesis 8**

The null hypothesis of equal personal distress means cannot be rejected, \(t(15)= 0.41, p=.690\). The post-training mean (\(M=9.31, SD=3.95\)) was not statistically significantly different than the pre-training mean (\(M=9.63, SD=4.44\)). Cohen’s \(d\) was estimated at 0.08. The correlation between the two conditions was estimated at \(r =.74, p<.001\), suggesting good test-retest
reliability. These results indicate that there was no decrease in participants’ scores on the personal distress subscale of the IRI after the 30-day period of using Insight Timer. Participants did not report a decrease in their feelings of fear, apprehension or discomfort at witnessing the negative experiences of others after use of the MBMA for 30 days. This result does not support the hypothesis that psychotherapists who utilize the Insight Timer mobile application will demonstrate increased post-test levels of empathy on the IRI.

**Hypothesis 9**

The null hypothesis of equal perspective taking means cannot be rejected, \(t(15) = -2.05\), \(p = .058\). The post-training mean (\(M = 21.81, SD = 4.14\)) was not statistically significantly different than the pre-training mean (\(M = 20.63, SD = 3.91\)). Cohen’s \(d\) was estimated at a small effect size of 0.29. The correlation between the two conditions was estimated at \(r = .84\), \(p < .001\), suggesting good test-retest reliability. These results indicate that there was no increase in participants’ scores on the perspective taking subscale of the IRI after the 30-day period of using Insight Timer. Participants did not report an increase in their ability to adopt the perspective of others after use of the MBMA for 30 days. This result does not support the hypothesis that psychotherapists who utilize the Insight Timer mobile application will demonstrate increased post-test levels of empathy on the IRI.

**Discussion**

The purpose of this study was to explore the feasibility and effectiveness of using a mindfulness-based mobile application with practicing psychotherapists to increase empathy and mindfulness. Results suggest that enrollment interest of professional therapists who are novice mindfulness practitioners was low (\(n = 18\)). The sample population was expanded after 55 days of open enrollment to include doctoral psychology trainees in order to increase the likelihood of
reaching a robust sample size. The attrition rate of 48.6% is comparable to similar studies, such as the 58% dropout rate from the intervention group in van Emmerik, Berings, and Lancee’s (2017) study looking at the effects of a mindfulness-based mobile application with a general population. More work is needed to identify ways to make sustained engagement in studies of self-guided mindfulness practice more feasible for participants.

The current results support the effectiveness of the 30-day MBMA intervention. The observing, describing, nonjudging, and nonreacting subscales of the FFMQ, as well as overall mindfulness, showed large and significant improvements from before to after the intervention. These results are consistent with previous studies of brief MBIs (Gockel et al., 2012; Moore, 2008; van Emmerik et al., 2017). The non-significant finding on the acting with awareness scale ($t(15)=-2.65, p=.018$) after Bonferroni adjustment, may be attributable to the limitations of self-report measures of mindfulness. The acting with awareness scale in particular requires the participant to assess his or her own level of distraction with the assumption that a significant facet of mindfulness is the ability to maintain attention of one’s present moment experience. This assumption is confounded by participants’ increased capacity to recognize and report that they have become distracted with more mindfulness training (Van Damm et al., 2009; Van Damm et al., 2010). The current study demonstrates the potential effectiveness of mindfulness-based mobile applications as brief, affordable, and easily accessible training in mindfulness for psychotherapists and psychology trainees.

The results of this study show no changes in empathy as measured by the IRI. The results indicate that before and after the intervention participants endorsed extremely high scores on both the perspective (20.23; 21.81) and concern (21.25; 21.94) subscales. On the distress subscale, the participants’ reports were analogously low (9.63; 9.31). These IRI results indicate
that the present sample’s baseline empathy scores may have been too extreme for detectable change by the IRI. Previous studies examining the effects of mindfulness interventions on empathy have also failed to detect changes on the IRI due to a ceiling effect (Beddoe & Murphy, 2004; Birnie, Speca, & Carlson, 2009; Galantino et al., 2005). These results may indicate that the scales of the IRI are not sensitive enough to detect change after brief interventions, or that mindfulness-based interventions do not affect empathy. Further research regarding empathy and its sensitivity to mindfulness-based interventions is needed. In addition, further development of empathy scales specific to psychotherapists is needed to facilitate the detection of changes in empathy that could inform clinical training.

Limitations and Future Directions

The results of this study should be considered within the limitations of the study design and sample. In addition to the small sample size, participants were predominantly white, female, and psychology trainees. Future research should address the need for studies with larger and more diverse samples. Also, the initial aim of this research was to target a population of professional psychotherapists. There remains a gap in the research with regard to assessing the feasibility and effectiveness of brief MBIs with professional psychotherapists. The small sample size and web-interface design weakened this study’s ability to determine the magnitude of the relationship between time spent meditating and levels of mindfulness and empathy. Participants had technical difficulty uploading screenshots of their session log statistics, which prevented collection of this data. This study was also weakened by the number of tests required to examine changes in participants’ scores over two time points. Future research would be strengthened by adding an additional measurement time point, which would allow the use of fewer analyses, such as a repeated measures ANOVA.
The present study design also did not qualitatively assess participant dropout. This study was therefore unable to determine which factors contributed to participant attrition. Previous studies have been able to demonstrate the influence of participants’ life events, schedules, app satisfaction, emotions, expectations, perceived value and impact of mindfulness, and self-efficacy (Galantino et al., 2005; Laurie & Blanford, 2016; Luberto et al., 2017). Participant dropout may also be attributable to the extensive time requirement of the 30-day period. The present study also cannot fully address factors of low engagement that may be specific to professional psychotherapists. Future research should investigate with greater depth the factors that facilitate and deter engagement with self-guided MBIs. Also, the study design did not allow for assessment of the type of guided or timed mindfulness activities participants engaged in. Qualitative analysis of this type of data may allow for greater insight into the utility of specific mindfulness practices. For example, previous studies have shown that Metta meditation in particular may enhance empathy (Birnie et al., 2009).

An additional limitation of this study is its nonrandomized design with no control group with which to compare participants who completed the 30-day MBMA intervention. The results of this study, therefore, cannot be attributed directly to the intervention or the passage of time. This design, however, was intentional and is also a strength of this study. This study attempted to assess real-world feasibility and effectiveness of smartphone-based mindfulness intervention delivery. The design was also intended to stand in contrast to intensive mindfulness-based trainings that can be time and cost prohibitive for professional psychotherapists and trainees. Insight Timer is a free, mindfulness-based mobile application available to anyone with a smartphone and offers users access to a library of more than 2,000 guided tracks that cover a variety of mindfulness activities including sitting meditation, walking meditation, yoga,
chanting, and prayer from more than 500 teachers in 22 languages. The library also offers talks and courses for learning more about mindfulness practice. It was the intention of the study design to examine the effects of a self-guided resource that offers users flexibility, while also requiring them to sustain their own practice without the support of a structured course or scheduled reminders.

**Conclusions**

The purpose of this study was to explore the feasibility and effectiveness of using a mindfulness-based mobile application with practicing psychotherapists to increase empathy and mindfulness. Results suggest that the feasibility of engaging professional psychotherapists was low as compared to doctoral psychology trainees, while sustained engagement was comparable to similar studies. More work is needed to identify ways to make sustained engagement in self-guided mindfulness practice more feasible.

The current study demonstrates the potential effectiveness of mindfulness-based mobile applications as brief, affordable, and easily accessible training in mindfulness for psychotherapists and psychology trainees. The results of this study do not indicate that MBMA are effective for improving empathy in psychotherapists. Further research regarding empathy and its sensitivity to mindfulness-based interventions is needed. In addition, further development of empathy scales specific to psychotherapists is needed to facilitate the detection of changes in empathy that could inform clinical training.
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have prizes.’. Psychological Bulletin, 122, 203-215. doi:10.1037/0033-2909.122.3.203

Figure 1

Participation flow chart

Initial Survey Respondents  
n=108

Incomplete Survey  
n=44

Ineligible Respondents  
n=19

Completed Initial Survey  
n=45

Emailed Self-Ascribed Name  
n=37

Did not include self-ascribed name on initial survey  
n=3

Completed Follow up survey  
n=19

Analysis  
n=16

Incomplete Session Log Statistics  
n=7

Insufficient Power for Analysis of meditation time as a moderating variable  
n=9
Table 1

*Participant demographics (N=16)*

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<th></th>
<th>n</th>
<th>%</th>
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<td>Female</td>
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<tr>
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<td>Asian/White</td>
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<tr>
<td>Black or African American</td>
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<tr>
<td>White</td>
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<td>0%</td>
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<tr>
<td>Not Hispanic or Latino</td>
<td>16</td>
<td>100%</td>
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<tr>
<td><strong>Theoretical Orientation</strong></td>
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<td>Cognitive Behavioral</td>
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<td>Feminist</td>
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Table 2

*Paired samples t-tests.*

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<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>t(15)</th>
<th>p</th>
<th>LL</th>
<th>UL</th>
<th>Cohen’s d</th>
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<tr>
<td>Describing</td>
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<td>4.67</td>
<td>32.50</td>
<td>4.98</td>
<td>-3.19</td>
<td>.006</td>
<td>-5.42</td>
<td>-1.08</td>
<td>0.67</td>
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<tr>
<td>Acting</td>
<td>22.94</td>
<td>4.95</td>
<td>25.94</td>
<td>3.61</td>
<td>-2.65</td>
<td>.018</td>
<td>-5.42</td>
<td>-0.56</td>
<td>0.69</td>
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<td>30.31</td>
<td>5.44</td>
<td>34.13</td>
<td>3.69</td>
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<td>.004</td>
<td>-6.17</td>
<td>-1.45</td>
<td>0.82</td>
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<tr>
<td>Nonreactivity</td>
<td>21.63</td>
<td>4.08</td>
<td>24.81</td>
<td>3.47</td>
<td>-4.17</td>
<td>.001</td>
<td>-4.82</td>
<td>-1.56</td>
<td>0.84</td>
</tr>
<tr>
<td>FFMQ</td>
<td>127.38</td>
<td>19.16</td>
<td>146.19</td>
<td>12.94</td>
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<td>&lt;.001</td>
<td>-27.35</td>
<td>-10.28</td>
<td>1.15</td>
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<tr>
<td>Concern</td>
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<td>2.96</td>
<td>21.94</td>
<td>3.21</td>
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<td>.391</td>
<td>-2.35</td>
<td>0.97</td>
<td>0.22</td>
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<tr>
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<td>0.08</td>
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<td>4.14</td>
<td>-2.05</td>
<td>.058</td>
<td>-2.42</td>
<td>0.05</td>
<td>0.29</td>
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</table>

*Note.* CI = confidence interval; LL = lower limit; UL = upper limit.
Appendix A

Instruments and Questionnaires

Qualifying Criteria for Inclusion

1. Have you ever attended a course on or practiced any form of mindfulness, e.g. meditation, yoga, tai chi, or qigong? Y___ N___

2. Have you ever practiced or are practicing daily meditation techniques for at least eight consecutive weeks? Y___ N___

3. Are you currently practicing psychotherapy? If yes, what is your license type and how many years have you been licensed? ____________________.

Demographic Information

1. How do you identify your gender? Female; Male; Transgender; Agender; Other.

2. What is your age? ____

3. How do you identify your race? (select all that apply) American Indian or Alaskan Native; Asian; Black or African American; Native Hawaiian or Other Pacific Islander; White; Other.

4. What is your ethnicity? Hispanic or Latino; Not Hispanic or Latino.

5. What is your theoretical orientation? (may choose up to three responses) Behavioral; Cognitive Behavioral; Existential; Feminist; Humanistic; Integrative; Psychoanalytic; Psychodynamic.
Five-Facet Mindfulness Questionnaire

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

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

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

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

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

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

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

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

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

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

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

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

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

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

_____ 13. I am easily distracted.

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

_____ 15. I pay attention to sensations, such as the wind in my hair or sun on my face.
16. I have trouble thinking of the right words to express how I feel about things.

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

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

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

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

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

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

23. It seems I am “running on automatic” without much awareness of what I’m doing.

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

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

26. I notice the smells and aromas of things.

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

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

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

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

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

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

33. When I have distressing thoughts or images, I just notice them and let them go.
34. I do jobs or tasks automatically without being aware of what I’m doing.

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

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

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

38. I find myself doing things without paying attention.

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

**Interpersonal Reactivity Index**

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you by choosing the appropriate letter on the scale at the top of the page: A, B, C, D, or E. When you have decided on your answer, fill in the letter on the answer sheet next to the item number. READ EACH ITEM CAREFULLY BEFORE RESPONDING. Answer as honestly as you can. Thank you.

**ANSWER SCALE:**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOES NOT DESCRIBE ME WELL</td>
<td>DESCRIBES ME VERY WELL</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. I daydream and fantasize, with some regularity, about things that might happen to me.

2. I often have tender, concerned feelings for people less fortunate than me.

3. I sometimes find it difficult to see things from the "other guy's" point of view.

4. Sometimes I don't feel very sorry for other people when they are having problems.

5. I really get involved with the feelings of the characters in a novel.

6. In emergency situations, I feel apprehensive and ill-at-ease.

7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it.

8. I try to look at everybody's side of a disagreement before I make a decision.
9. When I see someone being taken advantage of, I feel kind of protective towards them.

10. I sometimes feel helpless when I am in the middle of a very emotional situation.

11. I sometimes try to understand my friends better by imagining how things look from their perspective.

12. Becoming extremely involved in a good book or movie is somewhat rare for me.

13. When I see someone get hurt, I tend to remain calm.

14. Other people's misfortunes do not usually disturb me a great deal.

15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments.

16. After seeing a play or movie, I have felt as though I were one of the characters.

17. Being in a tense emotional situation scares me.

18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them.

19. I am usually pretty effective in dealing with emergencies.

20. I am often quite touched by things that I see happen.

21. I believe that there are two sides to every question and try to look at them both.

22. I would describe myself as a pretty soft-hearted person.

23. When I watch a good movie, I can very easily put myself in the place of a leading character.

24. I tend to lose control during emergencies.

25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.

26. 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.

27. When I see someone who badly needs help in an emergency, I go to pieces.

27. Before criticizing somebody, I try to imagine how I would feel if I were in their place.
Appendix B

Informed Consent

Introduction

The purpose of this form is to provide you with information that may affect your decision to participate in this research study. If you decide to participate in this study, this form will also be used to record your consent.

You have been asked to participate in a research project studying mindfulness training with psychotherapists. The purpose of this study is to assess the effects of a mindfulness-based mobile application on empathy and mindfulness. You were selected to be a possible participant because you are at least a third year clinical or counseling psychology trainee and novice meditator.

What will I be asked to do?

If you agree to participate in this study, you will be asked to participate in a 30-day research study. All participants will be asked to complete a short demographic form and two brief surveys about empathy and mindfulness skills at the beginning and at the conclusion of the research period. One is 39 items and one is 28 items. All participation will be completed online from your personal smartphone or computer.

You will be asked to download Insight Timer (Insight Network, Inc., 2016), a free app available from the Apple Store and Google Play, to a smartphone device. You will then be asked to use the app to practice mindfulness on a daily basis for 30 days. You are invited to explore the app and use any of its features, including the library of 2,156 guided practices. At the conclusion of the 30-day period, you will be sent an email prompting you to complete the two brief surveys about empathy and mindfulness skills. The survey will also ask you to log into InsightTimer.com to export your Session Log Statistics, and attach this document to the survey.

What are the risks involved if I participate in this study?

The risks associated with this study are minimal and not greater than risks encountered in any meditation practice. Such risks would be limited to some discomfort with examining thoughts, emotions, or physical sensations, an initial drop in positive emotions, or preexisting psychological problems being exacerbated.

What are the possible benefits if I participate in this study?

The possible benefits of participation include the opportunity to learn mindfulness skills, connect more effectively with clients, and improve the psychotherapy process. While this may cause minimal discomfort in some participants, others may experience the process as empowering as they are contributing to what is known about current psychotherapist training practices. This study may benefit society in that it aims to inform the counseling field about effective techniques...
for the development and training of psychotherapists. In addition, exploring the effectiveness of more accessible mindfulness training approaches has the potential to increase feasibility for health care professionals seeking to improve their intervention delivery.

**Do I have to participate?**

No. Your participation is voluntary. You may decide not to participate or to withdraw at any time without your current or future relations with Antioch University New England being affected.

**Will I be compensated?**

You will be entered into a raffle for a chance to win 1 of 5 $25 Amazon gift cards. If you are selected, you will be contacted by email 60 days after the conclusion of this research.

**Who will know about my participation in this research study?**

This study is **confidential** and the records of this study will be kept private. No identifiers linking you to this study will be included in any sort of report that might be published or presented. Research records will be stored securely and only Sarah M. Kopencey will have access to the records.

**Whom do I contact with questions about the research?**

If you have questions regarding this study, you may contact Sarah M. Kopencey by phone at 860-690-1609 or by e-mail at skopencey@antioch.edu or Dr. Roger Peterson at 603-283-2178 or by e-mail at rpeterson@antioch.edu.

**Whom do I contact about my rights as a research participant?**

This research study has been reviewed by the Institutional Review Board at Antioch University New England. If you have any questions about your rights as a research participant, you may contact Kevin Lyness, Chair of the Antioch University New England Institutional Review Board at klynness@antioch.edu (603-283-2101) or Melinda Treadwell, Provost at mtreadwell@antioch.edu (603-283-2444).

**Agreement to Participate**

You agree to participate in the study by checking the box at the bottom of this consent form and completing the following surveys. **Please do not complete the surveys if you do not wish to participate in this study.**
Permissions for use of the IRI

davismh <davismh@eckerd.edu>  
To: Sarah Kopencey <skopencey@antioch.edu>  
Mon, Nov 14, 2016 at 4:21 PM

Dear Sarah:

Thanks for your interest in the IRI. You have my full permission to use the instrument in your dissertation, and to reproduce it in any way necessary for that purpose. I am attaching a few items that might be of use to you. Please let me know if I can be of any further assistance.

Best wishes,

Mark

[Quoted text hidden]

4 attachments

- Advice on Using the IRI.doc
  - 31K
- Davis (1980).pdf
  - 100K
  - 128K
- IRIword.doc
  - 26K