IN THIS MOMENT:
DOES MINDFUL WALKING INCREASE MINDFULNESS SKILLS AND
PSYCHOLOGICAL WELL-BEING IN OLDER ADULTS?

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ABSTRACT

That mindfulness is healthy not only for the soul, but for the mind and body as well, has long been accepted as true by practitioners of Zen Buddhism, yoga, and other meditative disciplines. Western mental health professionals have recently begun to delve into the area of mindfulness, confirming with the scientific method what the ancients already knew: living in a state of mindfulness can reduce perceptions of chronic pain, depressive symptoms, stress, and manifestations of various physical ailments, including psoriasis and hypertension. Researchers have begun to develop measures to parse the components of the seemingly nebulous construct of mindfulness and to delineate the specific relations that exist between mindfulness skills and practice and behavioral and cognitive indices of mental health. As well, ongoing research makes use of these measures to determine what interventions can assist individuals in increasing mindfulness skills, which increase can then mitigate against a host of mental and physical ills. This study expands the mindfulness knowledge base through partial replication of earlier research that demonstrated, in a college-age population, correlations between mindfulness and personality traits, physical symptoms, experiential avoidance, and life satisfaction. The current study examines which such correlations exist in an older population. In addition, this study examines correlations between mindfulness skills and spiritual/religious practices and beliefs and between mindfulness skills and empathy, which has been shown to be correlated with attentional skills, which are a component of mindfulness. Further, the current study tests the hypothesis that mindfulness skills can be increased not only through traditional breathing focus and meditative practices, for which some individuals may lack either capability or interest, but also, following brief instruction in achieving mindful awareness, through simple physical activity, such as walking, which can be practiced by almost anyone, anywhere.
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I thank the good people of Oak Island who participated in this study with eagerness, excitement, and a genuine desire to assist in the expansion of knowledge of human behavior. Without their willingness and commitment, there would be no thesis.

I am grateful, as well, to my research assistant, Perry Grosch, who played a most important role in seeing this study to completion.

My steadfast friend Jane Kulesza turned a deaf ear to every suggestion I ever made, out of frustration or weariness, that perhaps I didn’t really have to finish graduate school after all. That I might abandon the pursuit of this degree was never an option for her, and she made it her business to see that it was never truly an option for me.

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Dr. Andy Jackson took me under his protective wing on the first day I set foot in the Department of Psychology, and he never let me forget that he believed I would succeed.
Dr. Bill Overman is both an excellent academician and a gentleman of honor. His encouragement of intellectual curiosity should be de rigueur for every teacher at any level; his kindness, warmth, and understanding are a model for humanity.

I am deeply indebted to all of the members of my thesis committee for their gifts of precious time and incomparable expertise. Dr. Julian Keith’s love of learning and passion for new ideas is contagious and has long energized and excited me; his insistence upon good science made me a better researcher. Dr. Nora Noel made perfect suggestions for the study procedure before the first word was written, and then she delivered methodological saving graces at prospectus time. Her input in both instances raised the level of scholarship in my study; her teaching has contributed to a higher level of professionalism in my practice of psychology.

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DEDICATION

If you treat an individual as he is, he will stay as he is; but if you treat him as if he were what he ought to be and could be, he will become what he ought to be and could be.

—Johann Wolfgang von Goethe

This thesis is dedicated to Rich Ogle, with the deepest gratitude and utmost respect.

He has been my teacher, my adviser, my mentor, my encourager, my counselor, my mirror, and my friend. I am the beneficiary of his infinite capacity to both believe Goethe’s words and to genuinely live his life in service of that belief.

That this is so stands as incontrovertible evidence that the universe, in its truly ineffable way and according to a schedule beyond our ken, does ultimately balance the yin and yang of each human being’s life. My own is now far richer than ever I would have imagined, and I am humbled by the gift.

Thank you, Rich—one more time.
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In This Moment:
Does Mindful Walking Increase Mindfulness Skills and Psychological Well-Being in Older Adults?

The exhortation of human beings to exist in the here and now, to completely perceive and apprehend the current moment, has a long tradition with myriad roots. Buddhist philosophers, the ancient Desert Fathers and Desert Mothers, the followers of Jesus, and the Roman slave-philosopher Epictetus are among the early proponents of the practice of mindfulness, although “mindfulness” was not always the term they employed to describe living with awareness in the present moment. Throughout the 20th century, mindfulness techniques appeared in the person-centered therapy of Carl Rogers, the Gestalt therapy of Fritz Perls, and the Transcendental Meditation movement, although again, the term “mindfulness” was not necessarily attached to those techniques. In the past several decades, and increasingly so since the beginning of the twenty-first century, contemporary Western clinical psychologists have taken up the mindfulness banner, this time eponymously, heralding the myriad benefits to be gained through a mindful existence. The general premise is that human beings need not live at the mercy of the incessant thoughts swirling through their minds or with the often troublesome, uncomfortable and/or maladaptive emotions and behaviors that arise from those thoughts. Rather, it is possible to elect to simply notice and move forward from negatively-valenced thoughts instead of ruminating on these to one’s mental, physical, spiritual, intrapersonal, and interpersonal detriment. The simple idea is this: the here and now is all that one truly possesses, as the past has gone and the future is yet to come. The ability to wholly occupy one’s here and now, however, can and will affect one’s future; thus it is to one’s mental, physical, and spiritual benefit to choose a healthy here and now. The development of mindfulness skills is considered to be a way to accomplish that.
As contemporary Western psychologists have begun to incorporate mindfulness techniques into therapy, many questions have arisen around what admittedly seems a rather nebulous construct. Mindfulness sounds good and desirable, but what exactly is it? Do you have it? How can you tell? If you don’t have it, how can you get it? And how will you know when you have got it? And further, how much of it do you have? Is there a way to get some more? What can mindfulness do for you? And finally, the acid test, how can you really tell that it is mindfulness that is doing you some good?

Mindfulness and Buddhism

As most contemporary conceptualizations of mindfulness do credit Buddhist philosophy as their foundation, it is therefore important, if mindfulness is to be deeply understood, to take more than a cursory look at these Buddhist roots. Buddhism, essentially the outgrowth of the existential crisis and resulting peregrinations of one Siddhartha Gautama (ca. 563 B.C.–ca. 488 B.C.; deV. Bailey, 1940) has been variously viewed, at a minimum, as a science, as a philosophy, and as a quasi-religion. There are a number of different sects, or schools, in Buddhism; the sect most closely identified with mindfulness is Zen, which, like all Buddhist sects, is founded upon the “four noble truths” (McIntosh, 1997). These truths are:

1) Human existence is filled with a great deal of suffering.

2) This suffering is caused not by the external world, but rather by the individual’s own mind and his or her attachment to anything that the individual believes he or she must have in order to be happy (e.g., material objects, people, relationships, beliefs, sensory pleasures, emotions, goals, ideas of self).

3) Although it is impossible to avoid all unpleasant experiences, suffering is not inevitable.

4) Freedom from suffering can be accomplished by giving up one’s attachments. Struggling
to give up an attachment serves only to strengthen the attachment; giving up an attachment is possible only after gaining insight into the fact that the attachment itself causes suffering.

It is from this last truth that mindfulness practice arises. Mindfulness can be construed as paying attention at all times to one’s thoughts, external stimuli, and behavior, or as being wholly aware of the uniqueness of each moment of one’s life. Practicing this “in each moment” attention and awareness gives rise to the understanding that the present moment is all that one truly possesses, making it possible to release attachments. Giving up attachment is often a difficult concept to grasp, as it does not suggest, as the words “giving up” seem to imply, a passive approach to life, but rather an active and engaged involvement with life as it actually is, rather than as it was or as one hopes it might be. To facilitate understanding, “giving up” might be better replaced with “releasing.” To understand the idea of non-attachment is to understand some of the paradox of human existence. It is intuitive to imagine that having a fulfilled attachment, or desire, would lead to happiness, but two aspects of human behavior generally conspire to thwart the achievement of that happiness. Most human beings who do satisfy a long-held desire merely replace the old desire with a new desire toward which they then must strive, missing the potential happiness of having attained the first desire, or attachment, amid the new struggle for attainment of the new desire. In addition, because human beings resist the knowledge that any object of desire will exist only temporarily, as indeed will the human being himself or herself, a great deal of energy is expended to maintain the object of desire. This is an ultimately futile struggle, as inevitably all the objects of desire will disappear: loved ones die, relationships end, material objects fade or corrode, emotions and thoughts are transient by definition. The thought processes around attempts to attain, maintain, and retain attachments tend to be ruminative—repetitive, intrusive, and usually unpleasant. Such thought processes prevent an individual from
experiencing the present moment and the happiness that is available only in that moment. Further, thoughts are frequently distortions of reality, although people nonetheless tend to view their thoughts as accurate representations of reality, which naturally leads to unhappiness when those thoughts are unpleasant. Mindfulness practice as embodied in Zen Buddhism advocates neither distracting oneself from nor suppressing the unpleasant thought processes, as both distraction and suppression serve only to delay the return of the distressing thoughts. Rather, mindfulness advocates a stance of nonjudgmental awareness of a thought as only a thought, not necessarily a representation of reality; such non-evaluative attention to thoughts diminishes their strength and allows them to disappear (McIntosh, 1997).

Lest the notion take root that mindfulness can only be understood from a Buddhist perspective—thereby plowing a field ripe for the sowing of seeds of dismissal that might suggest that mindfulness is “not scientific enough,”—it is worthwhile to view the Four Noble Truths as they would be cast from the psychological science approach. That suffering is ubiquitous in human existence, the essence of the First Noble Truth, is a tenet also held in psychology. The psychological literature offers useful ways to interpret the idea of suffering; examples are “pervasive unsatisfactoriness” (Epstein, 1995) and “pain plus nonacceptance” (Linehan, 1993). The Second Noble Truth holds, in Buddhism, that this suffering arises from internal events rather than from external ones. Psychological science reframes this through the lens of pathology, attributing suffering to psychological inflexibility, that is, a rigid and maladaptive pattern of behavioral responding to internal events (i.e., thoughts and feelings) that has been reinforced through verbally-entrenched stimulus-response learning. Whereas Buddhism’s Third Noble Truth simply states that suffering is not inevitable, psychological science instructs us in the methods of ensuring that suffering is not inevitable—by learning to respond to objective
assessments of reality (from outside the private internal events that are thoughts and feelings) rather than from subjective assessments of reality, which occur when human beings respond from inside these internal events. Finally, the Fourth Noble Truth states that releasing attachments results in liberation from suffering. Psychology explains this “release” as the breaking of the aforementioned rigid stimulus-response patterns and the resultant decrease in maladaptive behavioral and emotional responding.

Defining mindfulness

Beyond the simple explanation of present-moment awareness, what, precisely, is mindfulness? A number of researchers, including Dimidjian and Linehan (2003), Bishop et al. (2004), and Brown and Ryan (2004), have lamented the lack of a clear operational definition and have called for clarification of the construct as necessary for research on both its component parts and its efficacy. Dimidjian and Linehan point out that this definitional deficit has led some individuals to confuse or equate mindfulness with meditation (which is instead a technique one may use to develop mindfulness; Epstein, 1995), or acceptance therapies, relaxation techniques, cognitive defusion, interoceptive exposure, values clarification (Hayes & Wilson, 2003), or other interventions. Hayes and Shenk (2004) sound a proper cautionary note regarding the danger of the frequent linking of mindfulness to meditation, and they advocate the disentanglement of the two. They rightly point out that if mindfulness is considered to be a functional psychological process, as many researchers do (although mindfulness is also considered by others to be a state), then any technique that produces mindfulness is a mindfulness technique. Meditation is one such technique, but as it is only one, it holds no unique claim on the production of mindfulness.

For an intelligent treatment of the similarities and differences between mindfulness and other interventions, see Hayes and Wilson (2003). Briefly, the common thread binding the
interventions is an experiential reframe from content-driven behavior, with thoughts and feelings comprising the content, to context-driven behavior. The reframe is accomplished by undermining “the domination of literal language” in evaluating thoughts and feelings as if these internal events are objective reality, developing an understanding of the actual subjective nature of thoughts and feelings, accepting these internal events simply as they are, and choosing adaptive behaviors regardless of their perceived negative or positive valence.

Clearly, the need exists for a widely accepted operational definition of mindfulness. Just as clearly, by way perhaps of even further muddying of the operational definition waters, arriving at such a single definition is at best problematic and at worst, potentially impossible, at least in the near term. Brown and Ryan (2004) succinctly capture the challenge of developing such a definition when they say, in perhaps terrifically accurate understatement, “…mindfulness is a deceptively simple concept that is difficult to characterize accurately” (p. 242).

Bishop et al. (2004), in reporting a series of meetings that were held in hopes of developing an operational definition that might enjoy field-wide acceptance, refer to mindfulness as “a form of mental training to reduce cognitive vulnerability to reactive modes of mind that might otherwise heighten stress and emotional distress or that may otherwise perpetuate psychopathology” (p. 231) and as “a kind of nonelaborative, nonjudgmental, present-centered awareness in which each thought, feeling, or sensation that arises in the attentional field is acknowledged and accepted as it is” (p. 232). Hayes and Shenk (2004) point out that this definition relies on a cognitive view of mindfulness as a psychological process that is seen as a mental mechanism understood apart from the contextual events upon which it operates. Such a view is in opposition to a behavioral understanding of psychological processes as the interaction of the whole human, in and with a context composed of both historical and situational elements.
Hayes and Shenk suggest that it is counterproductive to limit a definition of mindfulness to one philosophy of science, a stance that happily opens wide a door of invitation to understand mindfulness from a variety of viewpoints, although it moves us no closer to that elusive field-wide operational definition.

In a spirit of constructive rather than destructive criticism, Brown and Ryan (2004) suggest improving the Bishop et al. (2004) definition by clearly defining both attention and awareness and including both external and internal stimuli as objects of awareness and attention. As well, Brown and Ryan point out an apparent inherent conflict in the Bishop et al. conceptualization of mindfulness that includes both attention to a single focal event or stimulus and curious, albeit nonjudgmental, awareness of whatever stimuli present to an individual’s consciousness. Brown and Ryan suggest that resolution of this conflict is easily achieved with explication of the bifurcated nature of meditation techniques often used to increase mindfulness skills. One technique is concentration meditation (Samatha, or “meditative quiescence”), which produces states of calm, peace, and tranquility. Samatha is sometimes used as a precursor to the second technique of awareness/insight meditation (Vipassana, also spelled Vipasyana, or “contemplative insight”), designed to help individuals actively engage in present-moment experience.

Despite Hayes and Shenk’s criticism of the Bishop et al. (2004) proposal, they do consider that definition an advance, for the purposes of psychological science, over Kabat-Zinn’s (1982, 1990, 1994, 2000, 2003) conceptualization of mindfulness as the nonjudgmental or accepting focusing of one’s attention on the present moment; being genuinely, authentically, and only in the here and now; as opposed to ruminating on past events or future potentialities or behaving in an “automatic pilot” fashion with little or no awareness of one’s actions. Within Zen Buddhism, “being mindful means paying close attention to everything. It means letting nothing occur
without one’s conscious awareness of it” (McIntosh, 1997, p. 48). The general definition of mindfulness is the state of focusing one’s attention on immediate experience in an accepting and/or nonjudgmental way, that is, to simply notice and acknowledge internal and external stimuli without assessing either the positive or negative aspects of the stimuli (Kabat-Zinn, 1994; Linehan, 1993b; Marlatt & Kristeller, 1999).

Langer, Blank, and Chanowitz (1978; Langer, Chanowitz, & Blank, 1985) offered one of the earliest conceptualizations of not only mindfulness, but mindlessness as well, in both cases focusing on the presumed cognitive processes underlying present-moment awareness:

When mindful, the individual was presumed to be actively drawing distinctions, making meaning, or creating categories. When mindless, the individual was said to rely on distinctions already drawn. Mindless behavior is rigidly (i.e., single-mindedly) dictated by the past…. (Individuals engaged in mindless activity) are taking the environment at its past word rather than seeking to understand what its current word means (Langer, Chanowitz, & Blank, 1985, pp. 605-606).

Langer (1989) further describes mindfulness as “a state of alertness and lively awareness” during which people see new possibilities and actively create their environment, as opposed to the more frequent state of “mindlessness,” which is a “state of reduced attention” during which people rely on habitual thought patterns that are typically rigid and passive.

Langer and Moldoveanu (2000), acknowledging the difficulty of capturing the essence and process of mindfulness, offer this elaboration:

Mindfulness is not an easy concept to define but can best be understood as the process of drawing novel distinctions. It does not matter whether what is noticed is important or trivial, as long as it is new to the viewer. Actively drawing these distinctions keeps us
situated in the present. It also makes us more aware of the context and perspective of our actions than if we rely upon distinctions and categories drawn in the past. Under this latter situation, rules and routines are more likely to govern our behavior, irrespective of the current circumstances, and this can be construed as mindless behavior. The process of drawing novel distinctions can lead to a number of diverse consequences, including (1) a greater sensitivity to one’s environment, (2) more openness to new information, (3) the creation of new categories for structuring perception, and (4) enhanced awareness of multiple perspectives in problem solving. The subjective “feel” of mindfulness is that of a heightened state of involvement and wakefulness or being in the present (p. 2).

It is probably worth considering the possibility that understanding mindfulness as the process of drawing novel distinctions is a very good way to view the construct, although not necessarily the best. Failing to draw novel distinctions and operating through rule-governed behavior can indeed be construed as mindlessness; however, one could certainly argue that when one consciously chooses rule-governed behavior because it best suits the current context, for example, using heuristics for efficiency, then the conscious choice of rule-governed behavior would certainly be more mindful than mindless.

A considerably earlier definition of mindfulness seems to effectively capture its essence. Epstein (1991) citing Thera Nyanaponika (1962), speaks of mindfulness as “bare attention,” which is “the clear and single-minded awareness of what actually happens to us and in us at the successive moments of perception.” Epstein elaborates on the importance of differentiating immediate experience from interpretation of that experience: “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).
Clearly, there are numerous extant definitions of mindfulness. A distillation of these various definitions would seem to indicate that there is, at a minimum, agreement that mindfulness is a particular mode of consciousness of the present moment, with an awareness of that present-moment consciousness, and a non-evaluative perception of both internal and external stimuli, where such stimuli might be clearly and dispassionately observed and/or described and actively accepted as they are, no more and no less.

However, to further complicate efforts to arrive at a broadly-accepted definition of mindfulness, Hayes and Wilson (2003) note that researchers have yet to even reach a consensus on what category of thing mindfulness actually is; it has been treated as a specific technique, a general method or collection of techniques, a psychological process in the service of production of an outcome, or as an outcome itself. For the purposes of psychological science, Hayes and Shenk (2004) may rightly anticipate that no single definition will ever gain wide acceptance:

Mindfulness is a pre-scientific concept, and it is unlikely that any one definition will allow it to enter into scientific discourse unambiguously….Perhaps in the long run it will be less important to define mindfulness per se than it will be to learn how to alter the many psychological processes that seem to be related and to determine their role in positive clinical change (p. 253).

A potentially useful approach to understanding mindfulness comes from two individuals of this researcher’s acquaintance, one a clinical and academic psychologist, the other a Methodist minister. Rich Ogle, the psychologist, asserts that a healthy life stance requires one to “tolerate ambiguity” and often, to further “embrace ambiguity” (personal communication, 2006). Fred Roberts, the minister, suggests that understanding and dealing with life events requires a view that most events (and people) exist in a framework of “both/and” rather than an artificial
separation into “either/or” (personal communication, 2006). Applying these approaches to understanding mindfulness has much intuitive appeal: Mindfulness can be understood as both one technique and a collection of techniques, as both a psychological process and an outcome of a process. Embracing the ambiguity of the existence of mindfulness as all these things, as well as a construct that can be examined from various psychological approaches—cognitive, behavioral, developmental, neurophysiological—may be not only the wisest course but also a fundamental and important step in the integration of understanding human behavior across different psychological “camps.” Perhaps the difficulty of distilling mindfulness into a single concept within a single domain forwards a tolerance of ambiguity that favors a spirit of collaboration over one of turf defense and insistence on possession of the single “true” interpretation.

Is mindfulness really a new therapeutic intervention?

As noted above, Hayes and Shenk (2004) have reminded us that mindfulness is a pre-scientific concept, yet there is a certain sense that mindfulness is a relatively recent entry into the armamentarium of contemporary clinical psychologists. In truth, however, not all Western therapies that use mindfulness skills are quite so new after all; it’s just that not all of them employ the term “mindfulness.” Fritz Perls, for instance, used consciousness raising techniques to help clients exist in the “here and now,” where they could escape from their maya, a fantasy life created in place of an authentic existence. Perls said that we all needed to “lose our minds and come to our senses,” (Prochaska & Norcross, 2007, p. 175) and that this loss of mind represented a change in consciousness from future-oriented thinking to present-oriented sensory awareness; in other words, experiencing with all the senses the reality of the world and ourselves rather than our often erroneous theoretical conceptions of how things ought to be. Perls called this perception of immediate reality satori, or waking up (Prochaska & Norcross, 2007).
Carl Rogers did not use the term “mindfulness,” but his description of “the fully functioning person” portrays an individual who is observing, accepting without judgment, and acting with awareness—all components of what is now referred to as mindfulness. In Rogers’ words, the fully functioning person

finds himself experiencing these feelings fully, completely, in the relationship, so that for the moment he is his fear, or his anger, or his tenderness, or his strength. And as he lives these widely varied feelings, in all their degrees of intensity, he discovers that he has experienced himself; that he is all these feelings…In the person who is open to his experience…every stimulus, whether originating within the organism or the environment, would be freely relayed through the nervous system without being distorted by a defensive mechanism. (Regardless of the nature of the stimulus), the person would be “living it,” would have it completely available to awareness (Rogers, 1963, p. 18).

Rogers again captures the essence of mindfulness when he says that, for the fully functioning person,

each moment would be new. The complex configuration of inner and outer stimuli which exists in this moment has never existed before in just this fashion….the self and personality would emerge from experience, rather than experience being translated or twisted to fit a pre-conceived self-structure. It means that one becomes a participant in and an observer of the ongoing process of organismic experience, rather than being in control of it….Such living in the moment, then, means an absence of rigidity, of tight organization, of the imposition of structure on experience (Rogers, 1963, p. 20).

In addition, Rogers, without using the term, advocated that the therapist also be mindful; his famous unconditional positive regard is nothing more or less than accepting without
judgment, which is one of the components of mindfulness. Rogers advocated that a therapist “let himself go in understanding this client; that no inner barriers keep him from sensing what it feels like to be the client at each moment of the relationship” (Rogers, 1963, p. 18).

Elements of mindfulness can, in fact, be seen in most therapies that arose from the humanistic movement, often referred to as psychology’s Third Force (the first and second forces having been psychodynamism and behaviorism). Rollo May wrote about the existential angst of the choice of human beings between anxiety and freedom, Viktor Frankl wrote that human beings could accept almost any “how” of living if they only had a meaningful “why.” Albert Ellis recognized that emotions arose from beliefs, evaluations, and interpretations of reality that were not always true. (Not to confuse the issue, but rather to more completely acknowledge the above-referenced “numbered naming” of schools of therapy, therapies that today incorporate mindfulness elements are considered to be the “third wave” of behavior therapy, with Skinnerian behaviorism considered the first wave and cognitive-behavioral approaches considered the second wave [Eifert & Forsyth, 2005]).

That the idea of mindfulness has been with us much longer than we have been “mindful” of the term can be seen by a look into history at the thoughts of the Roman slave-philosopher Epictetus (A.D.55-A.D. 135), who captured the essence of mindfulness in his writings:

What really frightens and dismays us is not external events themselves, but the way in which we think about them. It is not things that disturb us, but our interpretation of their significance.

Accept events as they actually happen.

Practice saying to everything that appears unpleasant: “You are just an appearance and by no means what you appear to be.” (Lebell, 1995, p. 7, p. 15, p. 5).
What is the evidence for the efficacy of mindfulness practice?

Mindfulness practices crept onto the Western psychological community’s radar several decades ago. By the dawn of the 21st century, as more and more serious psychologists began to pay serious mind to mindfulness, mindfulness techniques and ideology gave rise to the development of a veritable alphabet soup of therapies. Jon Kabat-Zinn, Ph.D., a molecular biologist who is the founder and former director of both the Stress Reduction Clinic and the Center for Mindfulness in Medicine, Health Care, and Society at the University of Massachusetts Medical Center, deserves much credit for bringing the concept of mindfulness to both the popular and professional consciousness. Kabat-Zinn, who is also Professor of Medicine Emeritus in the Division of Preventive and Behavioral Medicine at the University of Massachusetts Medical School, introduced his Mindfulness-Based Stress Reduction (MBSR) techniques more than twenty-five years ago, in 1979, as a treatment for managing chronic pain. Later, Weil and Kabat-Zinn (1997) reported success in using MBSR to cure psoriasis patients for whom antibiotics had offered only impermanent relief. More recently, Bishop and colleagues (2004) have used MBSR to treat clients with emotional and behavioral disorders.

Marsha Linehan has used mindfulness techniques to improve negative affect tolerance in her Dialectical Behavior Therapy (DBT; Linehan, 1993a; Linehan, 1993b), resulting in the reduction of self-mutilation and suicidal behavior in clients diagnosed with Borderline Personality Disorder. Hayes, Strosahl, and Wilson (1999) followed with acceptance and commitment therapy (ACT), a three-pronged therapeutic technique including mindfulness, acceptance, and value-based living (Hayes & Smith, 2005). Segal, Williams, and Teasdale (2002) incorporated mindfulness into their Mindfulness-Based Cognitive Therapy (MBCT), with studies showing that combining mindfulness work with cognitive therapy can reduce relapse
rates in clients subject to recurrent major depression. Teasdale and Segal (2003), however, sound a cautionary note aimed at preventing mindfulness from being viewed as a simple and inexpensive general purpose therapy that can be successfully applied to all psychological ills; they report that although MBCT was effective in reducing relapse rates by half in patients who had experienced three or more episodes of depression, MBCT did not reduce the risk of relapse in patients who had experienced only two episodes of depression.

Kohlenberg & Tsai (1991) have used their Functional Analytic Psychotherapy (FAP) in the treatment of depression and trauma, as well as in clinical supervision relationships, and Jacobson, Christensen, Prince, Cordova, & Eldridge (2000), found their Integrated Behavioral Couples Therapy more efficacious in increasing marital satisfaction than traditional couples therapy. Mindfulness work has also been used in the treatment of Generalized Anxiety Disorder (Roemer & Orsillo, 2003; Wells, 1999, 2002); Post-Traumatic Stress Disorder (Roemer & Orsillo, 2003; Wolfsdorf & Zlotnick, 2001); and eating disorders (Kristeller & Hallett, 1999; Telch, Agras, & Linehan, 2001). Most recently, Mindfulness-Based Relapse Prevention (MBRP; Witkiewitz, Marlatt, & Walker, 2005) has been incorporated into cognitive-behavioral interventions for substance use disorders. The premise is that mindfulness training in observation and nonjudgmental acceptance of pleasant and unpleasant thoughts, feelings, and sensations offers individuals a new way to process cues that lead to substance use, with this new processing resulting in non-using responses. It should be noted that although MBCT itself is relatively new, its development grew from earlier research into the efficacy of meditation in reducing alcohol consumption (Marlatt & Marques, 1977; Marlatt, Pagano, Rose, & Marques, 1984).

Although extensive discussion of mindfulness as it pertains to other disciplines is beyond the scope of this paper, it is worth noting that mindfulness skills are the subject of research not
only within clinical psychology, but in social psychology as well, with applications in the areas of worker satisfaction and productivity, education, decision-making, communication processes, political theory, and prejudice and stereotyping (Langer & Moldoveanu, 2000).

*How can mindfulness be learned?*

Various approaches have been used to teach mindfulness skills, with most approaches including general instructions to focus attention on ordinary activities while observing that attention will wander; noting, in a non-evaluative manner, where attention has wandered; and then redirecting attention to the initial activity (Baer et al., 2004). Perhaps the most often used and well-documented focus of attention is on breathing while sitting still (Kabat-Zinn, 1990). Some researchers have also taught mindfulness skills through attention to other ordinary activities, such as eating and walking. In addition, there are techniques in which individuals are encouraged to observe visual and auditory environmental stimuli (Baer et al., 2004) without either evaluation or attempts to change the stimuli. Both this line of inquiry and others that utilize mindful walking inform the current study, in which participants will walk upon a beach after having been requested to focus on the rhythmic nature of their walking and to note the multiple stimuli in the oceanside environment—auditory, visual, olfactory, and perhaps tactile—but without evaluative thoughts. This is an attempt to move mindfulness away from a formal instruction environment and to weave the practice of mindfulness into everyday life.

*How does mindfulness work?*

How mindfulness produces effects is a question that researchers hope to answer by deconstructing mindfulness and discerning its active ingredients. Hayes and Wilson (2003) highlight the importance of this work with their historical look at the proliferation of other, often similar, therapeutic techniques:
Without scientifically understood processes and principles, data on technologies gather into an ever-expanding pile with no means for simplification….It is only a small advance to test the impact of technologies that are thousands of years old. A more significant advance requires that we understand them, scientifically speaking (p. 161).

Kabat-Zinn (1982) and Linehan (1993a, 1993b) posit that mindfulness may work in the same manner as traditional exposure therapy, in that individuals who can observe aversive thoughts and feelings without evaluation of those thoughts and feelings may decrease their reactivity to aversive stimuli, which may lead to a decrease in maladaptive escape and avoidance behavior. Similarly, Bishop et al. (2004, p.232), suggests that mindfulness works by creating “a ‘space’ between one’s perception and response,” that allows for reflective rather than reflexive responding to stimuli. Teasdale (1999) uses the term “metacognitive insight” to describe the development of new perspectives on internal experience; Segal et al. (2002) calls this same shift of perspective and perception “decentering.” Embodied in the presumption of changing perspective is the idea that individuals develop an understanding that “thoughts are just thoughts, not facts” and therefore are not realities that demand the performance of previous habitual behaviors that failed to produce positive outcomes. A similar perspective posits that mindfulness increases an individual’s self-observation skills, which observation is presumed to include more finely attuned recognition of sensations, thoughts, and emotions; this tighter awareness will lead to an increase in ability to replace maladaptive responses to those sensations, thoughts, and emotions with adaptive responses (Baer et al., 2004).

It is possible that the physiological substrate responsible for the effects of mindfulness practice involves the action of the relatively recently identified brain neurotransmitter nitric oxide and its effect on other neurotransmitters, namely, norepinephrine, dopamine, and the
endorphins. Herbert Benson, M.D., the Director Emeritus of the Benson-Henry Institute for Mind Body Medicine and the Mind/Body Medical Institute and Associate Professor of Medicine at Harvard Medical School, has promoted the relaxation response and the break-out principle, which are, if not mindfulness by other names, at least tightly related constructs (Benson & Proctor, 2003). Benson’s studies suggest that entrance into the relaxed condition, or mindful state, promotes the release of nitric oxide. This release inhibits the action of norepinephrine, the neurotransmitter largely responsible for activation of the sympathetic nervous system, which gives rise to increased heart and respiration rates and many of the physiological manifestations of anxiety. If relaxation/mindfulness causes nitric oxide release, which inhibits norepinephrine, and therefore sympathetic nervous system responding, then we have at least part of the physiological explanation for the calming and centering effects of mindfulness practice. Further, Benson and Proctor report, brain imaging studies support the idea that nitric oxide release also promotes dopaminergic action, resulting in the feelings of well-being that individuals experience in reward situations. More support for the role of dopaminergic action comes from Kjaer et al. (2002), who found increased dopamine release during meditation, with an accompanying decrease in desire for action. Benson and Proctor report neurophysiological data which suggests that relaxation states also result in the release of endorphins, the human body’s endogenous opiates, which are known to lessen subjective experiences of physical pain. This would provide, again at least in part, the physiological explanation of the results of mindfulness studies, notably those of Kabat-Zinn (1990), that have shown mindfulness practice to be efficacious in relieving the suffering of individuals with chronic pain conditions.

Lazar et al. (2000), using functional magnetic resonance imaging (fMRI) with meditating individuals, identified the neural structures activated during meditation: dorsolateral prefrontal
and parietal cortices, hippocampi, temporal lobes, anterior cingulate gyrus, striatum, and precentral and postcentral gyri. As these brain areas are involved in attention and autonomic nervous system functioning, these studies lend support for increased attention and decreased physiological activation as important mechanisms in the effects of mindfulness practice.

*How can mindfulness be measured?*

When a “new” therapeutic technique blooms into popular usage, instruments designed to measure its efficacy and deconstruct its components cannot be far behind, and rightfully so. If psychologists proclaim that developing and practicing mindfulness skills offers mental and physical benefits to clients, then it behooves these psychologists to be able to measure the actual acquisition of these beneficial skills. Therapists may indeed teach their clients mindfulness skills and may indeed observe improvement in their clients’ symptoms, but absent a tool for measuring whether or not mindfulness skills were actually acquired by the client, the question is rather begged as to whether it was indeed the acquisition of mindfulness skills that produced the beneficial change (Baer et al., 2004; Dimidjian & Linehan, 2003). Additionally, development of measurement tools for mindfulness skills provides a means to identify precisely, or at least somewhat more precisely, what the skills actually are, and further, to determine which skills are most or least beneficial, both generally and specifically to given problems, and therefore where the primary focus of mindfulness training should be. Teasdale and Segal (2003) agree that deconstructing mindfulness is an important next step, in that certain components of mindfulness may be more beneficial and/or appropriate than others in treating different disorders, and that identification of these components and their specific efficacies will enable therapists to better match treatment to client. As examples, Teasdale and Segal suggest that attention skills that help clients stop ruminative thought processes may be the most helpful component in treating
individuals with depression (Teasdale et al., 1995), while acceptance without judgment skills may be the most important component of mindfulness training in the treatment of anxiety-related disorders, because as anxiety-prone individuals learn to “be with” their anxious feelings, these individuals engage in decreased amounts of avoidance behavior (Hayes et al., 1996).

However, if defining mindfulness has presented a challenge, then measuring it presents an even taller peak to tame. We are, essentially, seeking to quantify a state of mind that has been described as “doing nothing,” albeit working very hard at doing nothing (Kabat-Zinn, 1990). Nevertheless, intrepid psychometricians have given us the Freiburg Mindfulness Inventory (FMI; Buchheld, Grossman, & Walach, 2001); the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003); and the Toronto Mindfulness Scale (TMS; Bishop et al., 2003). The FMI, with 30 items, is designed to be used with individuals who are experienced in meditation; it measures nonjudgmental observation of the present moment and openness to negatively-valenced experience. The MAAS, with 15 items, measures an individual’s attention to and awareness of the present moment in everyday life. The TMS, administered immediately following a period of meditation, is comprised of 10 items designed to measure the individual’s attainment of a mindful state.

The newest comer upon the scene is the Kentucky Inventory of Mindfulness Skills (KIMS), developed in 2003 by Ruth Baer and Gregory Smith of the University of Kentucky, along with Kristin Allen, of the Comprehensive Care Center of Lexington, Kentucky. The KIMS differs from the three above-mentioned instruments in its multi-dimensional approach to the assessment of mindfulness, with 39 items that produce four scale scores quantifying the mindfulness skills designated as observe, describe, act with awareness, and accept without judgment. The KIMS appears to be, currently, the most broadly applicable and useful assessment tool for measuring
mindfulness skills, meeting both psychometric standards of good validity and reliability and clinical utility. Internal consistency for the four KIMS scales in the first sample tested were .91, .84, .83, and .87, respectively, and, in the second sample, .85, .86, .76, and .87, respectively. Test-retest correlations for the four scales were .65, .81, .86, and .83, respectively (Baer, Smith, & Allen, 2004). An instrument that is both psychometrically strong and clinically useful has the effect of unifying what are often two at least semi-opposing camps: academic psychologists, prone to focus on research utility, and clinical psychologists, who are often, and understandably, more interested in clinical relevance. (Acknowledgement must be made here that psychologists are not always neatly classified one way or the other; many psychologists are both academics and clinicians.)

The four-factor structure of the KIMS further illuminates the construct of mindfulness as consisting of skills in observing, describing, acting with awareness, and accepting without judgment, at least in part answering the research community’s call for deconstructing mindfulness into its component parts so as to better identify its active ingredients (Roemer & Orsillo, 2003). Observe items tap the individual’s capacity to observe, notice, or attend to both internal stimuli (cognitions, emotions, bodily sensations) and external stimuli (sights, sounds, smells). Describe items measure the individual’s ability to briefly and simply describe or label stimuli, ideally in a non-judgmental or non-analytic fashion. Act with awareness items measure the individual’s capacity for full engagement in a current activity; that is, becoming immersed in one thing at a time with one’s whole attention. Accept without judgment items tap the ability to recognize and acknowledge current experience without either qualitative evaluation of the experience or engagement in behaviors that would modify the experience. Rather than suggesting passivity, this skill suggests more non-critical reflectivity (Baer et al., 2004).
Bishop et al. (2004) posit that such exculpation of the component parts of mindfulness, as well as elucidation of the psychological processes that underlie these skills, is necessary to properly investigate the mechanisms of action of mindfulness and to allow for further development of the most appropriate instruments to thoroughly investigate those mechanisms.

Using the KIMS and the NEO-Five Factor Inventory (NEO-FFI, Costa & McCrae, 1992), Baer et al. (2004) found statistically significant positive correlations between openness and the mindfulness skill *observe*, between agreeableness and the mindfulness skill *act with awareness*, between conscientiousness and the mindfulness skills *describe* and *act with awareness*, and between the mindfulness skill *describe* and extraversion, and statistically significant negative correlations between the mindfulness skills *describe, act with awareness*, and *accept without judgment* and neuroticism. A statistically significant positive correlation existed between the mindfulness skill *describe* and life satisfaction, assessed by the Satisfaction With Life Scale (SWLS; Pavot & Diener, 1993). Statistically significant negative correlations existed between experiential avoidance, assessed by the Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004), and the mindfulness skills *describe, act with awareness*, and *accept without judgment*, and between those mindfulness skills and physical and psychological symptoms, assessed by the Brief Symptom Inventory (BSI; Derogatis, 1992).

With the exception of 26 clients diagnosed with Borderline Personality Disorder (BPD), the Baer et al. (2004) research sample consisted of 535 college students (in three groups of 205, 215, and 115); the Kentucky researchers note their primarily college student sample as a possible limitation of their research. Baer et al. suggest that results from their BPD sample indicate that the KIMS may have utility in clinical populations and thus call for further research in clinical samples; as well, they suggest that further research be conducted with other groups. As
mindfulness skills are purported to have positive effects on a wide range of human functioning, and not only on such dysfunctions as those that may result in clinical diagnoses, further research in non-clinical populations and with participants beyond college age can serve to further elucidate both the utility of the KIMS and the effect of developing mindfulness skills. One purpose of the current research is to examine the effect of brief mindfulness training on KIMS scores in a non-clinical population of older adults.

**Purposes of the current study**

As a partial replication of Baer et al. (2004), one purpose of this study is to assess the relation of mindfulness skills to personality factors, experiential avoidance, satisfaction with life, and psychological and physical symptoms. These relations will be assessed by comparing KIMS scores to scores on the NEO-FFI (Costa & McCrae, 1992; 1997), the AAQ (Hayes et al., 2004), and the SWLS (Pavot & Diener, 1993); all of these are assessment tools used by Baer et al. Psychological and physical symptoms will be measured in the current study with the Symptom Checklist (SCL-90; Derogatis, 1977; Derogatis et al. 1973); those symptoms were measured by Baer et al. with the BSI (Derogatis, 1992), which is a short form of the SCL-90, having 53 items as opposed to the 90 items on the SCL-90. In the current study, symptoms and mindfulness skills will be assessed both prior to and following a mindfulness intervention, with the expectation that the intervention will produce an increase in mindfulness skills, and that such increase will also result in decreased symptomatology. These relations were examined by Baer et al. primarily in a college-age population; the current study follows future research recommendations by Baer et al. by examining these relations in a different population, that is, older adults. Additionally, in the current study, these relations will be examined both prior to and following an intervention, as opposed to Baer et al.’s examination under static conditions.
The current study is also designed to assess how mindfulness skills may be related to empathy and to spiritual/religious practices and beliefs. Empathic responding has been shown to be correlated with attentional skills (Posner & Rothbart, 2007), which are one component of mindfulness skills. Assessment of this relation is intended to expand the knowledge base regarding the “active ingredients” of mindfulness practice and the potential methods for increasing mindfulness skills, as previous research (Posner & Rothbart, 2007) has demonstrated that attentional skills are amenable to training.

Assessing the relation of mindfulness skills to spiritual/religious practices and beliefs is exploratory in nature. The rationale for this study component lies in the confluence of the spiritual tradition foundations of mindfulness work and recent research questions around the role of addressing client spirituality in therapy (Dimidjian & Linehan, 2003; Miller, 1999). Dimidjian and Linehan raised thoughtful questions regarding what may have been either gained and/or lost with the separation of mindfulness from its spiritual roots; indeed, Linehan questions whether the clinical practice of mindfulness may be “watered down” when clinicians remove spiritual references.

From a clinical standpoint, this study is designed to determine if a brief, non-traditional intervention comprised of brief mindfulness instruction and an ordinary, everyday activity—six 20-min beach walks within a 30-day period—can result in an increase in mindfulness skills. As opposed to many mindfulness interventions, in which individuals are requested to focus on breathing and note thoughts (internal stimuli) nonjudgmentally, participants in the experimental group of this study will be requested to first focus on the rhythmic nature of their walking and to note multiple external stimuli in their environment—auditory, visual, olfactory, and perhaps tactile—but to refrain from evaluative thoughts regarding those stimuli.
The rationale for employing the simple activity of walking as an intervention is multifaceted. Linehan (1994) notes that some individuals are unable to practice mindfulness in the amounts of time requested in meditation and that other clients may find traditional mindfulness techniques too “esoteric or foreign” (Dimidjian & Linehan, 2003). As the epitome of quotidian activity, walking as a successful intervention could certainly solve the “esoteric or foreign” problem. Baer (2003) notes that although individuals may derive benefits from mindfulness work as long as they are engaged in a formal program, practice frequency declines after the program ends. Walking is an activity in which most people engage daily; if clients are instructed in ways to work on mindfulness skills while doing so, then the practice could easily be interwoven into daily life rather than being “a thing apart” from normal life. Additionally, Roemer and Orsillo (2003) note that therapists frequently recommend or prescribe exercise as a treatment element for a number of disorders, notably depression; it is not much of a stretch to advocate the inclusion of mindfulness work when walking is the exercise component of treatment. The success of such an easily accessible intervention could have important implications for the delivery of mindfulness interventions, relative to efficient utilization of both temporal and financial resources, as well as to improvement of client adherence to mindfulness practice and retention of therapeutic gains.

In addition, Baer et al. suggest that using the KIMS with various mindfulness techniques should “yield interesting information about the effects of mindfulness training,” and the current study has been designed to yield just that.

Hypotheses

Hypothesis 1: Following the intervention (six 20-min mindfulness walks during a one-month period), participants in the experimental group will report more mindfulness skills as compared with both their pre-intervention reports of mindfulness skills and the control group
participants’ post-intervention reports of mindfulness skills. Scores on the four KIMS scales will constitute measurement of mindfulness skills.

Hypothesis 2: Following the intervention, participants in the experimental group will report fewer symptoms of psychopathology as compared with both their pre-intervention reports of psychopathological symptoms and the control group participants’ post-intervention reports of psychopathological symptoms. Psychopathology symptoms will be measured with the SCL-90 global severity index and ten symptom scales.

Hypothesis 3: Pursuant to extension of the Baer et al. (2004) study, following the intervention, participants in the experimental group will report greater empathic responding as compared with both their pre-intervention reports of empathic responding and the control group participants’ post-intervention reports of empathic responding. The four scales of the IRI will be used to measure empathic responding. Further, it is hypothesized that individuals with greater mindfulness skills (across both groups, experimental and control) will report greater empathy, as measured by scores on the IRI.

Hypothesis 4: Relevant to the stated purpose of replicating earlier research on the relation between mindfulness and various personality characteristics, life satisfaction, and experiential avoidance, individuals with greater mindfulness skills (across both groups, experimental and control) will report greater agreeableness, openness, conscientiousness, extraversion, and life satisfaction than will individuals with fewer mindfulness skills, and individuals with greater mindfulness skills will report less neuroticism and experiential avoidance than will individuals with fewer mindfulness skills. Constructs will be measured with NEO-FFI, SWLS, and AAQ.

Hypothesis 5: Pursuant to the stated purpose of expanding earlier research on the relation between mindfulness and other elements of individual experience, it is hypothesized that
individuals with greater mindfulness skills (across both groups, experimental and control) will report more involvement with spiritual/religious practices and beliefs, as measured by the RPB.

Methods

Participants

Study participants were 57 individuals (experimental group = 30; control group = 27) who are residents of various communities in southeastern North Carolina, ranging in age from 39 to 83 (mean = 62.16, median = 62, mode = 56). Forty-three participants were female; 14 were male; all were Caucasian. Marital status breakdown was as follows: single (4), separated (1), divorced (11), widowed (3), married (38). Thirty-one participants were retired; 12 worked full-time; 10 worked part-time; 1 was self-employed; 3 did not respond to the employment query. Twenty-five reported chronic physical conditions: hypertension, elevated cholesterol, arthritis, diabetes, asthma, osteoarthritis, interstitial cystitis, heart murmur, chronic back pain, atrial fibrillation, allergic bronchitis, anemia. Twenty-nine participants reported taking medication for physical conditions. Eight participants reported taking medication for psychological disorders, with two reporting participation in therapy, and six reporting a current psychiatric diagnosis: anxiety (2), depression (2), bipolar (1), unspecified (1). Religious/spiritual identification was as follows: atheist (1), agnostic (1), unsure (3), spiritual (18), religious (33). One participant created a new answer for this query, reporting that “I believe we are God.”

Participants were recruited via flyers posted at senior centers, churches, public libraries, the community fish market, the movie rental store, and several other shops; a number of participants asked to join the study when they learned of it from those already participating. (See Appendix Q for flyer.) As individuals responded to recruitment efforts, they were asked to meet at a selected time at the Oak Island Senior Center or Ocean View United Methodist Church.
Measures

The following measures were used in this study:

1) Demographics form: designed to gather information about participants’ age, gender, marital status, employment status, ethnicity, physical conditions (e.g., hypertension, diabetes, arthritis, heart disease), current medications for both physical and psychological problems, current participation in counseling or psychotherapy, current diagnosis of psychological problems (e.g., depression, anxiety disorders, bipolar disorder).

2) Mindfulness Practices/History Questionnaire: queries about participants’ prior experience with mindfulness practices, including tai chi/qui gong, Hatha yoga, mindfulness meditation/Vipassana, transcendental meditation, devotional practices, other practices.

3) Religious Practices and Beliefs: a three-part questionnaire tapping religious/spiritual identification, frequency of six religious/spiritual practices within the past year, and lifetime engagement with six religious/spiritual practices.

4) NEO-Five Factor Inventory (NEO-FFI, Costa & McCrae, 1992): 60-item inventory with a 5-point Likert scale design that measures the constructs of the five-factor model of personality: extraversion, conscientiousness, neuroticism, agreeableness, and openness. Extraversion scores reflect sociability, activity, and tendency to experience positive emotions. Individuals with high conscientiousness scores tend to be scrupulous, well-organized, and diligent, while low scorers tend to be disorganized and lackadaisical. Neuroticism scores reflect one’s tendency to experience psychological distress. Agreeableness scores measure interpersonal behavior; high scores reflect trust, sympathy, and cooperation; low scores reflect cynicism and antagonism. Openness scores reflect the presence or absence of imagination, creativity, sensitivity to art and beauty, intellectual curiosity, behavioral flexibility, and emotional complexity.
5) Kentucky Inventory of Mindfulness Skills (KIMS; Baer et al., 2004): a 39-item self-report measure that assesses an individual’s levels of observation, description, acting with awareness, and accepting without judgment. *Observe* items tap the individual’s capacity to observe, notice, or attend to both internal stimuli (cognitions, emotions, bodily sensations) and external stimuli (sights, sounds, smells). *Describe* items measure the individual’s ability to briefly and simply describe or label stimuli, ideally in a non-judgmental or non-analytic fashion. *Act with awareness* items measure capacity for full engagement in a current activity; that is, becoming immersed in one thing at a time with one’s whole attention. *Accept without judgment* items measure the ability to recognize and acknowledge current experience without either qualitative evaluation of the experience or engaging in behaviors to modify the experience.

6) Symptom Checklist 90 (SCL-90; Derogatis, Lipman, & Covi, 1973; Derogatis & Cleary, 1977): a 90-item self-report that queries, with a 5-point Likert response scale, frequency of occurrence of various psychological symptoms. Scale scores quantify nine symptom constructs: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism; a tenth scale score quantifies additional symptoms not included in the other nine scales. The Global Severity Index score indicates overall symptomatology severity.

7) Interpersonal Reactivity Index (IRI; Davis, 1980; Davis, 1983): a 28-item self-report inventory, scored on a 5-point Likert scale to produce four subscale scores: empathetic concern (EC; the tendency to feel warmth, compassion, and concern for others), perspective-taking (PT; the tendency to adopt another person’s psychological perspective), personal distress (PD; feelings of anxiety, distress, and unease in tense or crisis situations), and fantasy (FS; the tendency to imagine oneself in the place of characters in books, movies, and plays). Internal
reliabilities for subscales range from .71 to .77; test-retest reliabilities range from .62 to .71 (Davis, 1980; Davis, 1983).

8) Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004): 9-item self-report that assesses an individual’s beliefs about his or her relationship to thoughts and feelings related to experiential avoidance; 7-point Likert scale scoring, anchors “never true” and “always true”.

9) Satisfaction With Life Scale (SWLS; Pavot & Diener, 1993): a 5-item questionnaire, scored on a 7-point Likert scale, with “strongly disagree” and “strongly agree” anchors, designed to assess an individual’s life satisfaction.

10) Marlowe-Crowne Social Desirability Scale (MCSDS; Crowne & Marlowe, 1964): a 33-item self-report questionnaire that measures response bias.

11) Manipulation Check: eight questions; four asking participants to rate compliance with experimental instructions on a 1 to 10 scale; four asking participants to write what they gained or lost through participation, what they considered to be the best and worst aspects of study participation, and whether they would participate again in a study, as well as why or why not.

Participant screening, group assignment, and initial assessment

From late September 2008 through December 2008, small groups of potential participants met the lead researcher at various locations at mutually agreed upon times for the purposes of hearing a brief overview of the study, completing a health screening questionnaire, signing informed consent documents, and completing pre-intervention measures. Potential participants were first screened regarding their physical ability to walk for 20 min twice weekly via the Physical Activity Readiness Questionnaire (PAR-Q), recommended by Dr. Terry Kinney of the UNCW Department of Health and Applied Human Sciences as that department’s standard physical activity screening measure. The PAR-Q was developed originally by the British
Columbia Ministry of Health and was revised in 2002 by an Expert Advisory Committee of the Canadian Society for Exercise Physiology. No individuals who volunteered to participate were excluded from the study for health or any other reasons.

The lead researcher briefly explained that the study was designed to investigate different thinking styles and the interaction of those styles with certain activities. She explained that the study would use two groups of participants, with each group having slightly different experiences, and that upon the study’s conclusion, provision would be made for any interested participants to engage in the experience given to the group of which that participant was not a member. She further explained the study would be a double-blind study, and that this meant that neither she nor any of the participants would know to which group any participant was assigned. She asked that the members of each group help to preserve the integrity of the study by not sharing their exact experience with any other participants during the course of the study.

Following an explanation of the principles of and necessity for informed consent, participants were asked to read and sign an Informed Consent form. The lead researcher explained that all information would remain confidential and would exist in a data base with only participant numbers and code names, and that the lead researcher would be the only person with access to the number and code name matches, which information would be used only to ensure that each participant’s pre- and post-intervention assessments were matched for data analysis.

Participants were then randomly assigned to either the experimental or control group with the following procedure, which also created the double-blind condition of this study. Neither participants nor the lead researcher was aware of the group, experimental or control, to which any participant was assigned.
Prior to participant recruitment, experimental group instructions were placed inside 30 plain white envelopes, and a round green sticker was affixed to the back flap of the envelope. Control group instructions were placed inside 30 plain white envelopes, with a round orange sticker affixed to the back flap of these envelopes. The envelopes were shuffled and placed in a basket; the basket was shaken, both initially and prior to each meeting with participants, to further shuffle the envelopes. Participants chose their envelopes from the basket, after being instructed to keep the color of their sticker and the contents of their instructions secret from all other participants as well as the lead researcher and research assistants. Participants wrote the color of their sticker on the back of their demographics questionnaire, so that their data could be identified with the appropriate group, either experimental or control, at the time of post-intervention data entry into SPSS.

So that the record of their walks could be entered into the data file that accompanied their participant number, participants were asked to create a code name, which consisted of two digits indicating the number of children they have, the word that is the name of the county of their birth, and two digits indicating the number of siblings they have. On a sign-up sheet that had printed participant numbers listed down the left-hand side, participants wrote their code name beside the number that corresponded to the number on their demographics questionnaire. This code name list was used at every walk, with each participant required to put a check mark in a box to indicate that he or she had been present for the walk.

In this study, written instructions were used so as to render the lead investigator blind as to group assignment of the participants in the interest of avoiding experimenter effects. Please see Appendix O for the complete text of instructions to the experimental group and Appendix P for the complete text of instructions to the control group. The written instructions for the
The experimental group were adapted from commonly used mindfulness exercises (MBCT; Kabat-Zinn, 1990; ACT; Eifert & Forsyth, 2005; Hayes, Follette, & Linehan, 2004). Instructions for the control group were modeled after these for style only, not for content.

Participants then completed a demographic questionnaire, a mindfulness practices questionnaire, the RPB, the NEO-FFI, the KIMS, the SCL-90, the IRI, the AAQ, and the SWLS. Following questionnaire completion, participants chose the times and dates they intended to complete their beach walks and agreed to meet the lead researcher at the 9th Place East beach access at those times. The participants were then dismissed for the day. (The complete text of oral instructions provided to participants by the lead researcher can be found in Appendix N.)

*Beach walking intervention*

This study was initiated on September 23, 2008, with the first participants given pre-intervention measures on that date; the study was concluded on January 18, 2009, with the final participants completing post-intervention measures on that date. Beach walking groups varied in size from one to as many as 12, with new participants joining and old ones leaving on a rolling basis during the course of the study. Most walks occurred during sunny weather with moderate temperatures. Two walks were completed in very light rain. One walk was cancelled due to strong winds; three walks were cancelled due to heavy rain. Walks were held at various times, including 7 a.m., 9 a.m., 10 a.m., 11 a.m., 2:30 p.m., 4 p.m., 5 p.m., and 6 p.m.. The majority of walks occurred during weekdays, although some make-up walks to replace those cancelled due to inclement weather were held on Saturdays and Sundays.

*Post-intervention assessment*

Immediately after each participant completed his or her sixth walk, that participant was given a packet of post-intervention measures, including the KIMS, the SCL-90, the IRI, the
AAQ, the SWLS, the MCSDS, and the manipulation check. Participants were asked to complete these measures within 24 hours, if possible; provisions were made for participants to return the completed packets to the lead researcher. All participants were thanked, after each walk and after completion of the post-intervention packet, for their willingness to participate in the study and for sharing their time in order to participate. They were invited to leave contact information, such as email or mailing addresses, if they would like to be informed of the results of the study upon its completion. A majority of participants requested that they be informed of the study results.

Results

Data Analysis

Data analysis was accomplished through use of the Statistical Package for the Social Sciences (SPSS) 14.0 computer program. The lead researcher entered into an SPSS data file the participant identification numbers, group designation (experimental or control), demographics information, and all data collected through pre- and post-intervention questionnaires and assessments. Missing data in pre-intervention measures was calculated as the arithmetic mean of the given responses for the individual item that contained the empty cell; this was an across-groups mean, as the assumption is that both groups are identical at pre-intervention. Missing data in post-intervention measures was calculated within groups, experimental and control, as the arithmetic mean of the given responses for the individual item that contained the empty cell, as it was expected that the two groups would differ at the time post-intervention measures were administered. The problem of missing data appeared to be attributable either to participants’ merely overlooking and thereby unintentionally skipping an item or items or to intentional omissions for reasons known only to the participant. In one case only, a participant omitted the entire reverse side of a measure.
In order to test Hypotheses 1 through 3, a 2 x 2 mixed-model analysis of variance (ANOVA) procedure was used, where pre-intervention and post-intervention scores were the within-subjects factors and group assignment (experimental or control), was the between-subjects factor. Specifically, for Hypothesis 1, the within-subjects factors were the four KIMS scales scores; for Hypothesis 2, the within-subjects factors were the Global Severity Index (GSI) and the ten symptom scale scores from the SCL-90; and for Hypothesis 3, each of the four scale scores from the IRI was a separate within-subjects factor. In analyses for these three hypotheses, a significant group by within-subjects factor would indicate that the hypothesis was supported. Also, to test the second part of Hypothesis 3, Pearson’s correlations were conducted between the four post-intervention scale scores from the KIMS and the four IRI scale scores.

In order to test Hypothesis 4, Pearson’s correlations were conducted between the four post-intervention scale scores from the KIMS, and the five NEO-FFI scale scores, the AAQ score, and the SWLS score. In order to test Hypothesis 5, Pearson’s correlations were conducted between the four post-intervention scale scores from the KIMS and the RPB scores indicating religious/spiritual experience in the past year. An alpha level of .05 was used for all statistical analyses. Effect sizes were represented by partial eta squared.

**Hypothesis 1**

The prediction of Hypothesis 1 was that the post-intervention mindfulness skills (represented by scores on the four KIMS scales) of experimental group participants would be greater than their own pre-intervention mindfulness skills and greater than the control group participants’ post-intervention mindfulness skills. This hypothesis was not supported; none of the interaction tests for pre- and post KIMS scale scores for group were significant.
There was no statistically significant difference in the four mindfulness skills (observe, describe, act with awareness, accept without judgment) reported by experimental group participants, post-intervention, as compared with either their own pre-intervention reported mindfulness skills or with the control group participants’ post-intervention reported mindfulness skills. There were, however, statistically significant within-subjects effects for two of the mindfulness skills, observe \( F(1, 55) = 4.02, p = .05 \), and acceptance without judgment \( F(1, 55) = 9.80, p = .003 \). Relative to observe, pre-intervention mean = 42.67, post-intervention mean = 43.98, and effect size, represented by partial eta squared, = .068. Relative to acceptance without judgment, pre-intervention mean = 32.64, post-intervention mean = 34.74, and effect size, represented by partial eta squared, = .151.

<table>
<thead>
<tr>
<th>KIMS Scale Name</th>
<th>Group designation</th>
<th>Pre-intervention means</th>
<th>Post-intervention means</th>
<th>F statistic</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observe</td>
<td>Experimental</td>
<td>43.37</td>
<td>44.53</td>
<td>0.06</td>
<td>0.81</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>41.90</td>
<td>43.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Describe</td>
<td>Experimental</td>
<td>29.17</td>
<td>30.01</td>
<td>0.04</td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>29.41</td>
<td>30.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Act with awareness</td>
<td>Experimental</td>
<td>32.30</td>
<td>32.43</td>
<td>0.26</td>
<td>0.61</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>32.44</td>
<td>32.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accept without judgment</td>
<td>Experimental</td>
<td>33.00</td>
<td>34.05</td>
<td>2.60</td>
<td>0.11</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>32.23</td>
<td>35.52</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Pre- and post-intervention KIMS scale scores for both experimental and control groups.
Hypothesis 2

The prediction of Hypothesis 2 was that, following the intervention, experimental group participants would report significantly fewer symptoms of psychopathology compared with both their own pre-intervention reports of psychopathology symptoms and with the control group participants’ post-intervention reports of psychopathology symptoms. Scores on the SCL-90 Global Severity Index (GSI) scale and its 10 symptom scales comprised the measures that determined confirmation or disconfirmation of this hypothesis; in only one of the symptom scales was there a significant interaction; therefore, Hypothesis 2 was substantially disconfirmed (noting the exception for the phobic anxiety scale). Simple effects tests were calculated to explain this single significant interaction. Paired sample \( t \)-tests were calculated within each condition within each group; there was a statistically significant pre-intervention/post-intervention difference for phobic anxiety \( [t (29) = 2.55, p = .016] \), with the experimental group showing a decrease in phobic anxiety as a result of the six-walk intervention (pre-intervention mean = .11, post-intervention mean = .04) and with the control group showing an increase in reported phobic anxiety as a result of the six-walk intervention (pre-intervention mean = .05, post-intervention mean = .09).

Otherwise, on the overall GSI scale and the remaining nine SCL-90 symptom scales of depression, anxiety, somaticism, interpersonal sensitivity, obsessive-compulsive, hostility, paranoid ideation, psychotism, and additional symptom items, there were no statistically significant differences in the experimental group participants’ post-intervention reported symptoms of psychopathology as compared with either their own pre-intervention reports of psychopathological symptoms or with the control group participants’ post-intervention reports of psychopathological symptoms.
<table>
<thead>
<tr>
<th>SCL-90 scale name</th>
<th>Group</th>
<th>Pre-intervention means</th>
<th>Post-intervention means</th>
<th>$F$ statistic</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Severity Index</td>
<td>Exp.</td>
<td>4.12</td>
<td>3.64</td>
<td>1.70</td>
<td>.198</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>3.28</td>
<td>3.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somaticism</td>
<td>Exp.</td>
<td>.45</td>
<td>.47</td>
<td>.64</td>
<td>.426</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>.38</td>
<td>.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obsessive compulsive</td>
<td>Exp.</td>
<td>.72</td>
<td>.66</td>
<td>.39</td>
<td>.534</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>.58</td>
<td>.58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpersonal sensitivity</td>
<td>Exp.</td>
<td>.43</td>
<td>.40</td>
<td>.01</td>
<td>.914</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>.40</td>
<td>.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>Exp.</td>
<td>.58</td>
<td>.41</td>
<td>1.54</td>
<td>.220</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>.35</td>
<td>.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>Exp.</td>
<td>.42</td>
<td>.30</td>
<td>1.05</td>
<td>.311</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>.20</td>
<td>.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hostility</td>
<td>Exp.</td>
<td>.21</td>
<td>.21</td>
<td>1.02</td>
<td>.318</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>.24</td>
<td>.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phobic anxiety</td>
<td>Exp.</td>
<td>.11</td>
<td>.04</td>
<td>6.03</td>
<td>.017</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>.05</td>
<td>.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paranoid ideation</td>
<td>Exp.</td>
<td>.28</td>
<td>.35</td>
<td>.01</td>
<td>.905</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>.33</td>
<td>.40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychoticism</td>
<td>Exp.</td>
<td>.19</td>
<td>.13</td>
<td>3.88</td>
<td>.054</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>.16</td>
<td>.22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional Symptoms</td>
<td>Exp.</td>
<td>.72</td>
<td>.68</td>
<td>1.22</td>
<td>.274</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>.59</td>
<td>.68</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Pre-intervention and post-intervention SCL mean scores for experimental and control groups.
Hypothesis 3

Hypothesis 3 contained two predictions. The first was that experimental group participants’ post-intervention reported empathic responding (represented by IRI scale scores) would be greater than their pre-intervention reported empathic responding and greater than control group participants’ reported post-intervention empathic responding. As there was no statistically significant difference in the four IRI scale scores of experimental group participants, post-intervention, as compared with either their own pre-intervention IRI scale score or with control group participants’ post-intervention IRI scale scores, the first part of this hypothesis was not supported. However, while none of the interaction tests for pre- and post-intervention IRI scale scores for group were significant, there was a statistically significant within-subjects effect for the personal distress scale \([F (1, 55) = 4.57, p = .037]\), with pre-intervention mean = 8.79; post-intervention mean = 7.93; and effect size, represented by partial eta squared, = .08.

<table>
<thead>
<tr>
<th>IRI Scales (Components of empathy)</th>
<th>Group</th>
<th>Pre-intervention means</th>
<th>Post-intervention means</th>
<th>(F) statistic</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perspective taking</td>
<td>Experimental</td>
<td>19.13</td>
<td>18.73</td>
<td>1.06</td>
<td>.307</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>17.48</td>
<td>18.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empathic concern</td>
<td>Experimental</td>
<td>21.93</td>
<td>22.03</td>
<td>1.58</td>
<td>.214</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>21.33</td>
<td>22.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fantasy</td>
<td>Experimental</td>
<td>14.15</td>
<td>13.74</td>
<td>.61</td>
<td>.438</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>12.96</td>
<td>13.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal distress</td>
<td>Experimental</td>
<td>9.23</td>
<td>8.40</td>
<td>.00</td>
<td>.950</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>8.30</td>
<td>7.41</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Pre-intervention and post-intervention mean IRI mean scores for experimental and control groups.
The second prediction was that, across both groups, experimental and control, participants who reported greater mindfulness skills would also report greater empathic responding (as measured by scores on the IRI scales). This prediction was partially supported, in that analyses revealed a statistically significant positive correlation (.32, \( p < .05 \)) between the mindfulness skill *describe* and *perspective-taking*; a statistically significant negative correlation (-.48, \( p < .01 \)) between the mindfulness skill *describe* and *personal distress*; and a statistically significant negative correlation (-.49, \( p < .01 \)) between the mindfulness skill *act with awareness* and *personal distress*. No significant correlations were found between the mindfulness skills *observe* and *accept without judgment* and any of the IRI constructs.

<table>
<thead>
<tr>
<th>KIMS scales</th>
<th>IRI: perspective taking</th>
<th>IRI: empathic concern</th>
<th>IRI: fantasy</th>
<th>IRI: personal distress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observe</td>
<td>.17</td>
<td>.19</td>
<td>.23</td>
<td>-.14</td>
</tr>
<tr>
<td>Describe</td>
<td>.32*</td>
<td>.02</td>
<td>.01</td>
<td>-.48**</td>
</tr>
<tr>
<td>Act with awareness</td>
<td>.12</td>
<td>-.12</td>
<td>-.09</td>
<td>-.49**</td>
</tr>
<tr>
<td>Accept without judgment</td>
<td>.07</td>
<td>-.03</td>
<td>-.06</td>
<td>-.15</td>
</tr>
</tbody>
</table>

Table 4. Correlations between KIMS scale scores and IRI scale scores, across groups, post-intervention. (* \( p < .05 \), ** \( p < .01 \))

**Hypothesis 4**

Pursuant to the purpose of partially replicating Baer et al. (2004), the prediction of Hypothesis 4 was that all participants (both experimental and control groups) who reported greater mindfulness skills would also report more agreeableness, openness, conscientiousness, and extraversion (measured by NEO-FFI scales A, O, C, and E), more life satisfaction (indicated by SWLS score), less experiential avoidance (indicated by AAQ score), and less neuroticism (measured by NEO-FFI scale N). The majority of the predicted relations of this hypothesis were confirmed, with the finding of a statistically significant relation in the predicted direction...
between at least one of the four mindfulness skills and life satisfaction, experiential avoidance, and four of the five examined personality characteristics. However, the prediction regarding the relation of mindfulness skills to the personality characteristic agreeableness was not confirmed.

The mindfulness skill observe was positively correlated with both openness (.33, p < .05) and extraversion (.32, p < .05). The mindfulness skill describe was positively correlated with openness (.41, p < .01), conscientiousness (.36, p < .01), extraversion (.27, p < .05) and negatively correlated with neuroticism (-.42, p < .01). The mindfulness skill act with awareness was positively correlated with conscientiousness (.51, p < .01) and negatively correlated with neuroticism (-.53, p < .01). Satisfaction with life was positively correlated with three of the four mindfulness skills: describe (.37, p < .01), act with awareness (.33, p < .05), and accept without judgment (.33, p < .05). An inverse relation emerged between the same three mindfulness skills and experiential avoidance: describe (-.40, p < .01), act with awareness (-.39, p < .01), and accept without judgment (-.53, p < .01). No significant correlation was revealed between either life satisfaction or experiential avoidance and the mindfulness skill observe.

<table>
<thead>
<tr>
<th>Correlations between KIMS and NEO, SWLS, AAQ</th>
<th>KIMS: observe</th>
<th>KIMS: describe</th>
<th>KIMS: act with awareness</th>
<th>KIMS: accept without judgment</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEO-FFI: Agreeableness</td>
<td>-.03</td>
<td>-.13</td>
<td>.11</td>
<td>.14</td>
</tr>
<tr>
<td>NEO-FFI: Openness</td>
<td>.33*</td>
<td>.41**</td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td>EO-FFI: Conscientious</td>
<td>.17</td>
<td>.36**</td>
<td>.51**</td>
<td>.00</td>
</tr>
<tr>
<td>NEO-FFI: Extraversion</td>
<td>.32*</td>
<td>.27*</td>
<td>.21</td>
<td>-.12</td>
</tr>
<tr>
<td>SWLS: Life satisfaction</td>
<td>.12</td>
<td>.37**</td>
<td>.33*</td>
<td>.33*</td>
</tr>
<tr>
<td>NEO-FFI: Neuroticism</td>
<td>-.05</td>
<td>-.42**</td>
<td>-.53**</td>
<td>-.16</td>
</tr>
<tr>
<td>AAQ: Avoidance</td>
<td>.07</td>
<td>-.40**</td>
<td>-.39**</td>
<td>-.53**</td>
</tr>
</tbody>
</table>

Table 5. Correlations between post-intervention KIMS scale scores and NEO-FFI scale scores, SWLS scores, and AAQ scores, across groups. (*p < .05 and ** p < .01)
Hypothesis 5

Pursuant to the stated purpose of extending earlier research (Baer et al., 2004) on the relations between mindfulness and other individual characteristics, the prediction of Hypothesis 5 was that, across both groups, experimental and control, participants who reported greater mindfulness skills would also report greater involvement with spiritual/religious beliefs and practices (as measured by the past-year report portion of the RPB). There was no statistically significant correlation between reports of religious/spiritual practices and beliefs during the past year and any of the four KIMS mindfulness skills.

Discussion

Two of the several stated purposes of this study, namely to expand the findings of Baer et al. (2004) into a different age cohort and to extend those findings by examining the relation between mindfulness skills and empathy and between mindfulness skills and religious/spiritual beliefs and practices, relations that were not examined by Baer et al., were successfully met. Correlations both similar to and different from those of Baer et al. emerged between mindfulness skills and personality traits, satisfaction with life, and experiential avoidance. Some correlations, although not as many as predicted, were observed between mindfulness skills and empathy, suggesting the necessity of potentially enlightening revisitation to the ideology underpinning those predictions. No correlations were observed between mindfulness skills and religious/spiritual beliefs and practices. The prediction that a brief intervention of mindfulness skills instruction plus six 20-min beach walks might be efficacious in increasing mindfulness skills was not supported; however, a few interesting within-subjects effects did emerge, and narrative comments from participants suggest that the idea that mindfulness instructions and beach walks, with some modification, might truly increase mindfulness skills and decrease
symptomatology, may not be entirely without merit. Despite the lack of statistically significant findings regarding the intervention in this study, addressing the methodological concerns that emerged during the course of the study could lead to a redesigned intervention perhaps capable of producing the results sought here.

Mindfulness intervention

Analyses revealed no difference in the four mindfulness skills (observe, describe, act with awareness, accept without judgment) reported by experimental group participants, post-intervention, as compared with either their own pre-intervention reported mindfulness skills or the control group participants’ post-intervention reported mindfulness skills. Analyses did reveal, however, a statistically significant within-subjects effect for two of the mindfulness skills. In other words, all of the participants, both those in the experimental group and those in the control group, reported increases in the mindfulness skills of acceptance without judgment and observe post-intervention as compared with the levels of these skills they reported pre-intervention. The most parsimonious explanation for this result is that simply walking silently on the beach for 20 min provided participants with enough regular quiet time to both observe their external and internal environments and accept those observations in a more non-judgmental manner. A second explanation for this result is that the instructions to both groups were not sufficiently differentiated and were instead so similar that the two groups, in effect, were actually only one group. If this is so, then it is perhaps the case that the instructions did, in conjunction with the walking, produce increases in the skills of acceptance without judgment and observe, and that these increases were seen across both groups because there was actually no meaningful difference in instructions to the two groups. This is particularly apparent relative to the portions of the instructions that contained requests for participants to note thoughts, feelings, other bodily
sensations, sounds, sights, and smells (See Appendices O and P). Both experimental and control
group participants were instructed to note these things; the difference in instructions for the two
groups was in how the participants were to process what they observed. Hindsight suggests that,
as both groups were asked to carefully observe internal and external environments, then it should
not be surprising that both groups would report post-intervention increases in the observe skill.

The overarching explanation for the absence of a differential increase in mindfulness skills
may be found in both the participants themselves and the study design. It is possible that the
participants, across groups, already possessed such high degrees of mindfulness skills that the
intervention utilized in this study lacked the strength to push their skill level higher to any degree
that would be detectable by the measures used in this study. As to study design, an intervention
consisting of brief written instructions and six 20-min walks certainly falls into the category of
mild rather than intensive intervention. An initial idea to ask participants to engage in 10 or 12
walks was abandoned for fear of participant attrition. A proposal to deliver more complete
mindfulness instructions verbally and face-to-face, rather than in written form, was discarded
because of the impossibility of blinding the lead researcher to group assignment.

In addition, the written instructions did not ask participants to try to engage in the mindful
processing of information in between their beach walks, during the course of their daily lives. A
real-life therapeutic intervention aimed at helping individuals increase mindfulness skills would
certainly ask this; this omission, viewed again with the perfect hindsight of the lead researcher, is
a glaring one. A study redesign that included more walks, more intensive mindfulness
instructions delivered in person, and instructions to utilize those skills in daily life might produce
different results. Another redesign possibility would be a series of studies that systematically
manipulated each of those variables, while holding the others constant; such a series would allow
for identification of the critical variable(s). It should be noted that such a redesign would require a larger staff than that used in the current study so that in-person instructions could be delivered and the double-blind method could still be used.

The prediction that the intervention would produce decreases in reported psychopathology symptoms in experimental group participants, as compared with control group participants, was not supported. Statistical analyses revealed a significant interaction for one of the 10 SCL-90 symptom scale scores (phobic anxiety) and no statistically significant differences in GSI scores or any of the other symptom scale scores. As a result of the six-walk intervention, experimental group participants reported a decrease in phobic anxiety, while control group participants reported an increase in phobic anxiety. The phobic anxiety scale consists of seven items designed to tap the “agoraphobic” syndrome: feeling afraid in open spaces or in streets; feeling afraid to go out of one’s house alone; feeling afraid to travel on buses, subways or trains; having to avoid certain things, places, or activities because they are frightening; feeling uneasy in crowds such as shopping or at movies; feeling nervous when one is left alone; and feeling afraid one will faint in public (Derogatis & Cleary, 1977). Given the suggestion above that instructions for the two groups were very likely not sufficiently differentiated, it seems, at best, counterintuitive, and at worst, an exercise in double-talk, to strongly support a contention that something in those instructions could have caused a difference in phobic anxiety in the two groups. That said, however, it is conceivable that while the instructions may not have been sufficiently differentiated to result in increases in mindfulness skills, particularly in light of the suggestion that the majority of the participants already possessed high degrees of mindfulness skills prior to commencement of this study, the instructions may have contained enough difference around the suggestion of emotional rumination to have effected changes on this dimension.
Otherwise, on the SCL-90 GSI or the symptom scales of depression, anxiety, somaticism, interpersonal sensitivity, obsessive-compulsive, hostility, paranoid ideation, psychoticism, and additional symptom items, there were no differences in experimental group participants’ post-intervention reported symptoms of psychopathology as compared with either their pre-intervention reports of psychopathological symptoms or control group participants’ post-intervention reports of psychopathological symptoms.

The first prediction of the bifurcated Hypothesis 3, which posited that the intervention would result in greater reporting of empathic responding by experimental group participants as compared to both their pre-intervention reports and control group participants’ post-intervention reports, was not confirmed. However, all participants reported a decrease in personal distress, which measures feelings of anxiety, distress, and unease in tense or crisis situations (Davis, 1983). One might argue that participants gained some sense of relaxation merely from the silent walks. The fact that phobic anxiety decreased in the experimental group and increased in the control group may appear to contradict this interpretation; however, it is important to note that while the SCL-90 phobic anxiety scale and the IRI personal distress scale both tap manifestations of anxiety, the SCL-90 scale measures agoraphobic responding (distress experienced with regard to oneself) while the IRI scale measures emotional responding in regard to the distress of others.

The second prediction of Hypothesis 3, that, across both groups, experimental and control, individuals reporting greater mindfulness skills would report greater empathic responding, as measured by scores on the four IRI scales, was partially supported. Analyses revealed a statistically significant positive correlation between the mindfulness skill describe and the perspective-taking scale of the IRI, a statistically significant negative correlation between the mindfulness skill describe and the personal distress scale of the IRI, and a statistically significant
negative correlation between the mindfulness skill *act with awareness* and the personal distress scale of the IRI. No significant correlations were found between the mindfulness skills *observe* and *accept without judgment* and any of the IRI scale scores.

*Extension of Baer et al.*

Hypothesis 3 was developed with the express intent of extending Baer et al. (2004) by examining the relation of mindfulness skills to constructs not examined in that study and was based on research that has shown empathic responding to be correlated with attentional skills (Posner & Rothbart, 2007). As attentional skills are one component of mindfulness skills, it seemed reasonable to expect that individuals who demonstrated greater mindfulness skills would also report greater empathic responding. Attention would seem a necessary prerequisite to empathic responding; one could hardly respond empathically to an individual to whom one had not attended in the first place. It was hoped that demonstration of a relation between empathic responding and mindfulness skills might illuminate the “active ingredients” of mindfulness practice and point to potential methods for increasing mindfulness skills, as previous research (Posner & Rothbart, 2007) has demonstrated that attentional skills are amenable to training.

While the findings of this study did not provide as much illumination of the relation between mindfulness skills and empathic responding as hoped, results did reveal a positive correlation between perspective taking and the mindfulness skill *describe* and negative correlations between personal distress and the mindfulness skills *describe* and *act with awareness*. No relations emerged between the mindfulness skills *observe* and *accept without judgment* and any of the four components of empathy tapped by the IRI scales.

The positive relation between *describe* and perspective-taking suggests that individuals who attend to stimuli well enough to offer thorough descriptions of that stimuli will also be able
to take another individual’s perspective on such stimuli, thereby supporting the contention that increasing attentional skills (presumed to be prerequisite for describing stimuli) can lead to increases in mindfulness skills. That both *describe* and *act with awareness* were negatively related to personal distress suggests that possessing these mindfulness skills may help an individual maintain “a cool head” in times of crisis, thereby enabling that individual to assess situations and act in ways that may attenuate the crisis. (Note: It must be remembered that the personal distress scale taps one’s tendency to experience anxiety, distress, or unease regarding the crisis situations of other individuals, not those involving oneself.)

The current study was also designed to extend the findings of Baer et al. (2004) relative to the relation of mindfulness skills to the five major dimensions of personality, life satisfaction, and experiential avoidance in college-aged adults into a different age cohort, namely, older adults. Among the participants in the current study, the pattern of relations between mindfulness skills and the above-mentioned characteristics to a large extent mapped onto the pattern of relations reported by Baer et al. in a college-age population, thereby answering to some degree the call of those researchers for studies to expand mindfulness research into older populations. Interestingly, however, while results of the current study do reveal some relational patterns that mirror those seen in Baer et al., there are some novel relations as well.

In both age cohorts, the pattern of relation between conscientiousness and the four mindfulness skills measured by the KIMS was virtually identical. Positive correlations existed between conscientiousness and both *describe* and *act with awareness*; no correlation existed between conscientiousness and either *observe* or *accept without judgment*. These results would tend to buttress the construct validity claims of the *act with awareness* KIMS scale, in that conscientiousness would be part and parcel of that skill. That *describe* and conscientiousness are
related seems almost intuitive; one might argue that the ability to be conscientious would imply having sufficiently attended to an event to be able describe it, although a shortcoming in that view is that while conscientiousness certainly would require attending to details, conscientiousness does not in and of itself contain the ability to articulate those details to which one has attended. This appears to be an opportunity to deconstruct both conscientiousness and the describe skill; both are perhaps composed of some shared and some dissimilar components.

With both college-aged adults and older adults, a positive relation existed between the personality trait of openness and the mindfulness skill observe, with no relation existing in either group between openness and either act with awareness or accept without judgment. However, with older adults, there was a positive relation between openness and the mindfulness skill describe; no such relation existed in the college group.

For older adults, the relation between the personality trait of extraversion and the four mindfulness skills mirrors that found with the personality trait of openness. One might argue this to be an intuitive finding, given a certain hand-in-glove connection between openness and extraversion. In older adults, extraversion is positively related to observe and describe, whereas results from the college group study showed a relation between extraversion and describe only. With both groups, no relation was observed between extraversion and either act with awareness or accept without judgment. Only in Baer et al.’s (2004) college group does there appear to be any relation between agreeableness and any of the mindfulness skills; agreeableness is positively correlated with act with awareness; no relation exists in this group between agreeableness and observe, describe, or accept without judgment. With older adults, no relation exists between agreeableness and any of the four mindfulness skills. It could be argued that no relation should be expected between mindfulness skills and agreeableness; that is, there is nothing inherent in
the construct of mindfulness that assumes that a mindful individual will also be an agreeable one; in fact, if being agreeable includes a tendency to easily concur with the thoughts or plans of other individuals, the possession of very much agreeableness might suggest the existence of very little mindfulness.

Relations between mindfulness skills and neuroticism in both college-aged adults and older adults are more similar than different, with negative correlations existing in both groups between neuroticism and *describe* and *act with awareness*. With the college-aged group, there is also a negative correlation between neuroticism and *accept without judgment*. With neither group is there any relation between neuroticism and *observe*. These results are generally as expected; if neuroticism can be viewed as “the individual’s tendency to experience psychological distress” (Costa & McCrae, 1992) and the desired result of mindfulness practice is the decrease of psychological distress, then one would wish for either no or negative correlations between neuroticism and mindfulness skills.

Interestingly, no significant correlations existed between the mindfulness skill *accept without judgment* and any of the measured personality characteristics. As non-judgmental acceptance seems to be a core component of mindfulness, this result is, on its face, both surprising and counterintuitive, and somewhat contradictory to the findings regarding satisfaction with life and the skill *accept without judgment*. Perhaps it is the case that the skill itself exists, but that it is simply not substantially related to particular dimensions of personality.

In the current study, a different pattern of correlation exists between satisfaction with life and mindfulness skills than that seen in Baer et al. With college-aged participants, satisfaction with life was positively correlated only with the mindfulness skill *describe*. With older adults, satisfaction with life was significantly positively correlated with three of the four mindfulness
skills: describe, act with awareness, and accept without judgment. One interpretation of this difference rests upon observation of the types of social connectivity engaged in by the two groups. College-aged adults, in general, engage more frequently than do older adults in digitally-enabled communications via computer (email, instant messaging, social utility websites) and via mobile telephones (actual phone conversations, voice mail, texting, image sharing, etc.), and they tend to use these communication modalities to share information with one another about nearly every aspect of their lives. Older adults, in general, appear to experience a gradual decrease in the amount of information they feel compelled to share with their entire social circle. Thus, it may be that a great deal of the life satisfaction that college-aged adults feel is related to their ability to be intensely connected with their peers and to stay up-to-date on the events of those in their social circles. This fits nicely with research that holds that healthy social support systems are highly positively correlated with psychological well-being. For older adults, life satisfaction will, of necessity, depend to some degree on their ability to engage in acceptance, as the passage of years almost inevitably brings with it the death of loved ones, physical challenges if not outright infirmities and disabilities, and numerous other changes that are apt to involve some degree of loss (Ranzijn & Luszcz, 1999). If older adults do not develop some skills in acceptance and instead bemoan such changes and engage in rumination and mourning over these losses, ratings of life satisfaction are apt to be quite low. The absence of a correlation between life satisfaction and acceptance in college-aged adults makes perfect sense when one considers that one of the hallmarks of youth is righteous indignation at perceived and/or actual wrongs and a willingness to change the world; older adults are likely to have become a bit more battle-worn, more likely to choose one or two fights, and to approach situations or events that would not have been their first choice with considerably more equanimity.
An inverse relation emerged in older adults between the same three mindfulness skills and experiential avoidance: this construct is negatively correlated with *describe*, *act with awareness*, and *accept without judgment*. This pattern mirrors the results of Baer et al. (2004); college-aged participants also reported negative correlations between experiential avoidance and *describe*, *act with awareness*, and *accept without judgment*. No significant correlation was revealed between either life satisfaction or experiential avoidance and the mindfulness skill *observe* in either the older adults in this study or in the college students in Baer et al. Apparently, and seemingly intuitively, being skilled at observing what occurs in both one’s internal experience and one’s external environment has no bearing on one’s satisfaction; it makes sense that one could be very good at observing events, cognitions, and emotions that both satisfy and do not satisfy. The lack of relation between observing and experiential avoidance seems less intuitive; one might argue that the very act of observing situations that could evoke negative emotions or thoughts should, or at least could, result in behaviors aimed at avoiding those situations.

Again, in an effort to extend the findings of Baer et al. (2004), the final hypothesis of the current study was that across both experimental and control groups, all participants who reported greater mindfulness skills would also report greater endorsement of spiritual/religious beliefs and practices (as measured by the past-year report portion of the RPB). That no relation emerged between mindfulness skills and religious/spiritual practices and beliefs should perhaps best not be taken as necessarily indicative that no such relation exists but rather that a more finely-grained instrument is needed to discover such a relationship, if it in fact exists. This is not to suggest any overall failing on the part of the instrument used, the RPB, but rather that an instrument with different queries might have been a better choice, given the demographics of the participants in the current study.
The same “look for a better instrument” conclusion applies to the use of the MPHQ. Although no predictions were made as to the relation of mindfulness skills to mindfulness practices, a statistical analysis was conducted to see if such a relation did, in fact, exist. It is intuitive to imagine that such a relation would be revealed; it did not, however, emerge. That it did not, in the current study, is very likely due to a certain homogeneity of the participants relative to the experiences probed by the MPHQ. For example, of the 57 participants in this study, those who either failed to endorse an item in any fashion or who reported experience of less than 6 months with the activities queried in this measure were as follows: tai qui (54), Hatha yoga (46), mindfulness meditation/Vipassana (53), mindfulness meditation/Samatha (54), transcendental meditation (52), devotional practices (20). Anecdotal evidence suggests that future use of the MPHQ could be enhanced by making slight changes: a number of participants asked questions regarding the meaning of certain words in the MPHQ, including “Hatha,” “Vipassana,” and “Samatha,” and many participants expressed confusion at the answer choices given. To answer “1” indicated experience of 6 months or less; participants expressed the desire for the choice of “0” to indicate “never,” despite the fact that “6 months or less” would include “never.” However, there is a substantial difference between “never” and “6 months.” Our research can only be as good as the measurement instruments we use; it is to our benefit to continue to refine measures so as to actually tap what it is we are seeking to tap.

Limitations of this study

Despite the failure of the current study to demonstrate that brief written instructions in mindfulness and a beach walking intervention could increase mindfulness skills, it is conceivable that such an increase might be gained by altering the study in a number of ways. First, the instructions to the experimental group and the control group very likely did not differ enough to
have even seemed like different instructions to the participants, leaving the study essentially an exercise with one group rather than two. The instructions to the control group should have been rewritten to remove any mention of consideration of thoughts, feelings, emotions, or any particular processing of external stimuli.

Another possible explanation for the results of this study is the age of the participants. Consideration of scores on the SWLS indicates that both groups of participants are highly satisfied with their lives and would change very little about them. A score of 35 on this measure is the highest possible score, indicating the greatest satisfaction with life. Post-intervention means were 27.28 for the experimental group and 27.91 for the control group. This would be a remarkable finding in a group of very young adults; it appears that in this age group, perhaps a certain degree of mindfulness and acceptance has developed merely due to years of living and experiencing a number of positive and negative events. One could argue that the mellowness that seems to have arrived with age has made mindfulness instruction redundant for this group.

Every psychology student learns that history may impact an experiment; it is entirely possible that history did indeed impact this one. This study took place in the fall and early winter of 2008, during the time immediately before and after one of the most arguably momentous and historically important Presidential elections in United States. A number of participants wrote notes in the margins of the self-report measures to explain that they were experiencing certain feelings or symptoms due to politics or arguments. One is left to wonder how the intense and highly-charged political atmosphere of this time period impacted this study’s intent to measure and increase mindfulness skills.

Despite the fact that analyses revealed no changes in the study participants’ mindfulness skills, reports from the participants, both written on the manipulation check and delivered
verbally to the lead researcher, indicate that the study did indeed have an impact on its participants. One experimental group participant reported that the best thing about participation was “learning to make my mind just be aware of that present moment.” Another said, “I realized that I spend more time and energy on thoughts of the future and the past rather than on the present, and I replay thoughts, recycle them,” and another reported “a newly strengthened habit of letting go of ‘stuff.’.” Other comments from experimental group participants included these:

“I have gained calmness, insight, rhythm, appreciation of surroundings. I have lost tension.”

“The experience and my instructions for the walks came at a perfect time for me. I have learned how to settle down and just ‘be.’ I’ve realized that my extreme appreciation isn’t necessary 24/7.”

“I became more aware of living in the moment by concentrating on what the instructions said.”

“I tended to be aware of the moment—the sights, the sounds, the thoughts and how they can intrude. How good it felt to be more aware; it was relaxing.”

Tending to support the suggestion that group instructions were not sufficiently differentiated are the following comments from participants from the control group:

“With the silent walking, I tended to become much more aware and attuned to the environment around me.”

“I gained, to some degree, a cognitive insight as to how my emotions affected my perception of sensory stimuli and my ability to perform a set of tasks according to directions given me.”
“I believe I enhanced my overall awareness.” This participant also commented that he tried to “understand exactly what awareness is” and that he thought “about the difference between awareness and being observant.”

A number of participants expressed pleasure that the study had “jump-started” them on walking programs that had long been on their “to-do” lists, as having committed to participate in the study was just what they needed to commence exercising. Others reported that meeting a group of people with whom to share their walks, despite the fact that the walks were done in silence, was a great incentive to walk. A number of participants reported that one of the best things about study participation was having made new friends, which strikes a poignant chord when seen in light of the frequency of endorsement of the SCL items that deal with loneliness. In the pre-intervention SCL-90 assessment, of the 57 participants, endorsements of “a little bit” or greater were given by 22 participants to Item 29, Feeling lonely; by 11 participants to Item 77, Feeling lonely even when you are with people, and by 10 participants to Item 88, Never feeling close to another person. Post-intervention endorsements to these items were given by 18, 11, and 6 participants, respectively. Many participants reported positive feelings from simply being a part of something; others reported a sense of accomplishment from having committed to doing a project and seeing it through to completion. Still others expressed satisfaction from having helped the student researcher accomplish a goal, and 14 participants reported that they were glad to have helped contribute to the advancement of knowledge.

Implications for future research

Disconfirmation of some of the hypotheses of the current study should properly be viewed as instructive; that is, a revisititation should be made to at least the following: 1) the design of this study, 2) the intervention administered, and 3) the assessment instruments utilized.
It is entirely possible that mindfulness skills already existed to such a degree in the sample used in this study that it was unrealistic to imagine that an intervention as brief as six 20-min walks within a one-month period could produce a detectable increase in those skills. Across both experimental and control groups, the pre-intervention means for the four mindfulness skills measured by the KIMS scales were close to the highest possible scores on those scales: 60 for observe, 40 for describe, 50 for act with awareness, and 45 for accept without judgment. Pre-intervention group means for observe, describe, act with awareness, and accept without judgment, respectively, were 43.37 (experimental), 41.90 (control), 29.17 (experimental), 29.41 (control), 32.30 (experimental), 32.44 (control), 33.00 (experimental), 32.23 (control). Different results might have been seen in a less psychologically sophisticated sample with participants who reported a lesser degree of mindfulness skills at the outset.

It is also possible that this intervention could result in increases in mindfulness skills if it were modified in either one, or a combination of, the following ways:

1) Extend the duration of the study, requiring mindfulness walks twice a week for six, eight, or twelve weeks. While psychodynamic interventions termed “brief therapies” can literally be as brief as one session, a general range of duration is from 12 to 40 sessions (Prochaska & Norcross, 2007); therefore, precedent exists for expecting therapeutic change after 12 or 16 or 24 sessions. (Before emphasizing too greatly the actual number of sessions, it should be noted that Prochaska and Norcross also wisely observe that “(e)ffective brief therapy depends far less on the hours you put in than on what you put into those hours” (p. 501).

2) The instructions given to the experimental group should include, in addition to the mindfulness skills instructions themselves, specific directions that participants should try
to implement these new mindfulness thinking methods during their everyday lives in all situations.

3) Rather than written instructions, both groups should be provided oral instructions. These instructions should be delivered at length at the outset of the study, with briefer “booster shot” instructions delivered prior to each walk. It is possible that mindfulness skills can not be taught indirectly. Although it was not intended, indirect instruction is essentially what occurred with the written instructions method used in this study. It is quite possible that direct instruction that includes a rationale for developing and using mindfulness skills is required for any meaningful skill development.

Despite the existence of these limitations, the findings of the current study did answer the call of prior research for examination of mindfulness skills in a new age cohort, namely that of older adults, as opposed to previous research conducted with a college-aged group. Findings of the current study indicated both similar and different patterns of relations between mindfulness skills and personality dimensions in the older adults as compared with the college-aged young adults, thus expanding the literature in this area. The relations found between some mindfulness skills and some measured components of empathy suggests exciting possibilities for future research around these constructs and their relations with attentional skills. It is likely that components of both empathy and the four mindfulness skills measured by the KIMS can be further deconstructed and even more clearly defined, and that investigation of both attentional skills and the processes by which human beings “pay attention” may offer very interesting research directions. That no relation was found, in this study, between mindfulness skills and religious/spiritual beliefs and practices suggests not that such a relation is non-existent but rather that future research should examine these potential relations with different methodology, perhaps
utilizing more heterogeneous samples and more specific and differently formatted measurement instruments. As well, findings from the current study should not be taken as irrefutable evidence that brief mindfulness instruction coupled with a silent walking intervention can not increase mindfulness skills but rather that refinement of the instructions and lengthening the walking intervention may well achieve the results sought in the current study.
References


Appendix A

Demographic Information

Participant # _______________

1. Gender __________

2. Age __________

3. Date of birth __________

4. Marital status: (please circle one) Single Separated Divorced Widowed Married

5. Employment status: (please circle one) Full-time Part-time Retired

6. Race: (please check one) Caucasian African American Native American Asian Hispanic Bi-racial/Multi-racial Other

7. Do you suffer from any chronic physical conditions (such as hypertension, diabetes, arthritis, heart disease, or others)? ___Yes ___No

If yes, what condition(s)? ________________________________________________________

8. Are you currently taking any medication for either physical or psychological problems? ___Yes ___No

If yes, what medication(s)? _______________________________________________________

______________________________________________________________________________

9. Are you currently participating in any form of counseling or therapy? ___Yes ___No

10. Do you currently have a diagnosis of any psychological problems (such as depression, anxiety disorders, bipolar disorder)? ___Yes ___No

If yes, what condition(s)? ________________________________________________________
Appendix B

**Mindfulness Practices History Questionnaire**

Below is a list of categories representing a variety of mindfulness practices that you may or may not have experience with in your life. Using the 1 through 5 scale below, please circle the number that best represents the amount of time you have ever spent with these practices.

1 = less than 6 months  
2 = 7 months to 2 years, 11 months  
3 = 3 years to 5 years, 11 months  
4 = 6 years to 10 years, 11 months  
5 = 11 years or more

<table>
<thead>
<tr>
<th>Practice</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tai chi/qui gong</td>
<td></td>
<td></td>
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<tr>
<td>Hatha yoga</td>
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<tr>
<td>Mindfulness meditation/Vipassana</td>
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<tr>
<td>Mindfulness meditation/Samatha</td>
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<tr>
<td>Transcendental meditation</td>
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<tr>
<td>Devotional practices (list, if any)</td>
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</tbody>
</table>

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| Devotional practices (list, if any)         |    |    |    |    |    |

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| Other practices (list, if any)              |    |    |    |    |    |

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| Other practices (list, if any)              |    |    |    |    |    |

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| Other practices (list, if any)              |    |    |    |    |    |
Appendix C

**Religious Practices and Beliefs (RPB 21)**

1. Which of the following categories best describes you today? (Check one)

   (1) _____ Atheist     I do not believe in God.

   (2) _____ Agnostic    I believe we can't really know about the existence of God.

   (3) _____ Unsure      I don't know what to believe about God.

   (4) _____ Spiritual   I believe in God, but I'm not religious.

   (5) _____ Religious   I believe in God and practice a religion.

   If you practice a particular religion, what is your religious denomination?
   My religious denomination is: ___________________________________

2. During the past year, how often have you done each of the following things?
   (Circle the number of your answer for each line.)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Rarely</th>
<th>Once a month</th>
<th>Twice a month</th>
<th>Once a week</th>
<th>Twice a week</th>
<th>Almost daily</th>
<th>Once a day or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>I thought about God</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>I prayed</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>I meditated</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>I attended religious services</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>I read or studied holy writings</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>I had direct experiences of God</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
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<tr>
<td>3. Have you ever in your life done the following things?</td>
<td>Never</td>
<td>Yes, in the past but not now</td>
<td>Yes, and I continue to do so</td>
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<tr>
<td>Have you ever believed in God?</td>
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<td>3</td>
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<tr>
<td>Have you ever prayed?</td>
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<td>3</td>
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<tr>
<td>Have you ever meditated?</td>
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<tr>
<td>Have you ever attended religious services regularly?</td>
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<td></td>
<td></td>
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<tr>
<td>Have you ever read holy writings regularly?</td>
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<tr>
<td>Have you ever had direct experiences of God?</td>
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Appendix D

NEO-FFI

This questionnaire contains 60 statements. Read each statement carefully. For each statement, circle the response that best represents your opinion.

Circle SD if you strongly disagree or the statement is definitely false.

Circle D if you disagree or the statement is mostly false.

Circle N if you are neutral on the statement, you cannot decide, or the statement is about equally true or false.

Circle A if you agree or the statement is mostly true.

Circle SA if you strongly agree or the statement is definitely true.

1. I am not a worrier.         SD D N A SA

2. I like to have a lot of people around me.  SD D N A SA

3. I don’t like to waste my time daydreaming.  SD D N A SA

4. I try to be courteous to everyone I meet.  SD D N A SA

5. I keep my belongings clean and neat.  SD D N A SA

6. I often feel inferior to others.  SD D N A SA

7. I laugh easily.  SD D N A SA

8. Once I find the right way to do something, I stick to it.  SD D N A SA

9. I often get into arguments with my family and co-workers.  SD D N A SA

10. I’m pretty good about pacing myself so as to get things done on time.  SD D N A SA

11. When I’m under a great deal of stress, sometimes I feel like I’m going to pieces.  SD D N A SA

12. I don’t consider myself especially “light-hearted.”  SD D N A SA

13. I am intrigued by the patterns I find in art and nature.  SD D N A SA
14. Some people think I’m selfish and egotistical.  
15. I am not a very methodical person.  
16. I rarely feel lonely or blue.  
17. I really enjoy talking to people.  
18. I believe letting students hear controversial speakers can only confuse and mislead them.  
19. I would rather cooperate with others than compete with them.  
20. I try to perform all the tasks assigned to me conscientiously.  
21. I often feel tense and jittery.  
22. I like to be where the action is.  
23. Poetry has little or no effect on me.  
24. I tend to be cynical and skeptical of others’ intentions.  
25. I have a clear set of goals and work toward them in an orderly fashion.  
26. Sometimes I feel completely worthless.  
27. I usually prefer to do things alone.  
28. I often try new and foreign foods.  
29. I believe that most people will take advantage of you if you let them.  
30. I waste a lot of time before settling down to work.  
31. I rarely feel fearful or anxious.  
32. I often feel as if I’m bursting with energy.  
33. I seldom notice the moods or feelings that different environments produce.
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</thead>
<tbody>
<tr>
<td>34. Most people I know like me.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>35. I work hard to accomplish my goals.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>36. I often get angry at the way people treat me.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>37. I am a cheerful, high-spirited person.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>38. I believe we should look to our religious authorities for decisions on moral issues.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>39. Some people think of me as cold and calculating.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>40. When I make a commitment, I can always be counted on to follow through.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>41. Too often, when things go wrong, I get discouraged and feel like giving up.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>42. I am not a cheerful optimist.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>43. Sometimes when I am reading poetry or looking at a work of art, I feel a chill or wave of excitement.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>44. I’m hard-head and tough-minded in my attitudes.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>45. Sometimes I’m not as dependable or reliable as I should be.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>46. I am seldom sad or depressed.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>47. My life is fast-paced.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>48. I have little interest in speculating on the nature of the universe or the human condition.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>49. I generally try to be thoughtful and considerate.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>50. I am a productive person who always gets the job done.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>51. I often feel helpless and want someone else to solve my problems.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>52. I am a very active person.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
</tbody>
</table>
53. I have a lot of intellectual curiosity.  
54. If I don’t like people, I let them know it.  
55. I never seem to be able to get organized.  
56. At times, I have been so ashamed I just wanted to hide.  
57. I would rather go my own way than be a leader of others.  
58. I often enjoy playing with theories or abstract ideas.  
59. If necessary, I am willing to manipulate people to get what I want.  
60. I strive for excellence in everything I do.
Appendix E

Kentucky Inventory of Mindfulness Skills

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

1 = never or vary rarely true
2 = rarely true
3 = sometimes true
4 = often true
5 = very often or always true

1. I notice changes in my body, such as whether my breathing slows down or speeds up.       1      2      3      4      5
2. I’m good at finding the words to describe my feelings.   1      2      3      4      5
3. When I do things, my mind wanders off and I’m easily distracted. 1      2      3      4      5
4. I criticize myself for having irrational or inappropriate emotions.  1      2      3      4      5
5. I pay attention to whether my muscles are tense or relaxed.  1      2      3      4      5
6. I can easily put my beliefs, opinions, and expectations into words. 1      2      3      4      5
7. When I’m doing something, I’m only focused on what I’m doing, nothing else.        1      2      3      4      5
8. I tend to evaluate whether my perceptions are right or wrong.  1      2      3      4      5
9. When I’m walking, I deliberately notice the sensations of my body moving.       1      2      3      4      5
10. I’m good at thinking of words to express my perceptions, such as how things taste, smell, or sound. 1      2      3      4      5
11. I drive on “automatic pilot” without paying attention to what I’m doing.           1      2      3      4      5
12. I tell myself that I shouldn’t be feeling the way I’m feeling.  1      2      3      4      5
13. When I take a shower or bath, I stay alert to the sensations of water on my body. 1      2      3      4      5
14. It’s hard for me to find the words to describe what I’m thinking. 1      2      3      4      5
15. When I’m reading, I focus all my attention on what I’m reading. 1 2 3 4 5
16. I believe some of my thoughts are abnormal or bad and I shouldn’t think that way. 1 2 3 4 5
17. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions. 1 2 3 4 5
18. I have trouble thinking of the right words to express how I feel about things. 1 2 3 4 5
19. When I do things, I get totally wrapped up in them and don’t think about anything else. 1 2 3 4 5
20. I make judgments about whether my thoughts are good or bad. 1 2 3 4 5
21. I pay attention to sensations, such as the wind in my hair or the sun on my face. 1 2 3 4 5
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. 1 2 3 4 5
23. I don’t pay attention to what I’m doing because I’m daydreaming, worrying, or otherwise distracted. 1 2 3 4 5
24. I tend to make judgments about how worthwhile or worthless my experiences are. 1 2 3 4 5
25. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing. 1 2 3 4 5
26. Even when I’m feeling terribly upset, I can find a way to put it into words. 1 2 3 4 5
27. When I’m doing chores, such as cleaning or laundry, I tend to daydream or think of other things. 1 2 3 4 5
28. I tell myself that I shouldn’t be thinking the way I’m thinking. 1 2 3 4 5
29. I notice the smells and aromas of things. 1 2 3 4 5
30. I intentionally stay aware of my feelings. 1 2 3 4 5
31. I tend to do several things at once rather than focusing on one thing at a time. 1 2 3 4 5
32. I think some of my emotions are bad or inappropriate and I shouldn’t feel them.  

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

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

35. When I’m working on something, part of my mind is occupied with other topics, such as what I’ll be doing later, or things I’d rather be doing. 

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

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

38. I get completely absorbed in what I’m doing, so that all my attention is focused on it. 

39. I notice when my moods begin to change.
Appendix F

**Symptom Checklist-90**

Below is a list of problems people sometimes have. Please read each one carefully, and circle that number that best describes HOW MUCH THIS PROBLEM HAS DISTRESSED OR BOTHERED YOU DURING THE PAST SEVEN DAYS INCLUDING TODAY. Please do not skip any items.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>A little bit</td>
<td>Moderately</td>
<td>Quite a bit</td>
<td>Extremely</td>
</tr>
<tr>
<td>1.</td>
<td>Headaches.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>2.</td>
<td>Nervousness or shakiness inside.</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<tr>
<td>3.</td>
<td>Repeated unpleasant thoughts that won’t leave your mind.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>4.</td>
<td>Faintness or dizziness.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5.</td>
<td>Loss of sexual interest or pleasure.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>6.</td>
<td>Feeling critical of others.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>7.</td>
<td>The idea that someone else can control your thoughts.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>8.</td>
<td>Feeling others are to blame for most of your troubles.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>9.</td>
<td>Trouble remembering things.</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<td>10.</td>
<td>Worried about sloppiness or carelessness.</td>
<td>0</td>
<td>1</td>
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<td>11.</td>
<td>Feeling easily annoyed or irritated.</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<td>12.</td>
<td>Pains in the heart or chest.</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<td>13.</td>
<td>Feeling afraid in open spaces or on the streets.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>14.</td>
<td>Feeling low in energy or slowed down.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>15.</td>
<td>Thoughts of ending your life.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>16.</td>
<td>Hearing voices that other people do not hear.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17.</td>
<td>Trembling.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>18.</td>
<td>Feeling that most people cannot be trusted.</td>
<td>0</td>
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<tr>
<td>19. Poor appetite.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>20. Crying easily.</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<tr>
<td>21. Feeling shy or uneasy with the opposite sex.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>22. Feelings of being trapped or caught.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>23. Suddenly scared for no reason.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>24. Temper outburst that you could not control.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>25. Feeling afraid to go out of your house alone.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>26. Blaming yourself for things.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>27. Pains in lower back.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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</tr>
<tr>
<td>28. Feeling blocked in getting things done.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>29. Feeling lonely.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>30. Feeling blue.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>31. Worrying too much about things.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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</tr>
<tr>
<td>32. Feeling no interest in things.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>33. Feeling fearful.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>34. Your feelings being easily hurt.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>35. Other people being aware of your private thoughts.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>36. Feeling that others do not understand you or are unsympathetic.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>37. Feeling that other people are unfriendly or dislike you.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>38. Having to do things very slowly to insure correctness.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>39. Heart pounding or racing.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>40. Nausea or upset stomach.</td>
<td>0</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>41. Feeling inferior to others.</td>
<td>0</td>
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<tr>
<td>42. Soreness of your muscles.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>43. Feeling that you are watched or talked about by others.</td>
<td>0 1 2 3 4</td>
<td></td>
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<tr>
<td>44. Trouble falling asleep.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>45. Having to check and double-check what you do.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>46. Difficulty making decisions.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>47. Feeling afraid to travel on buses, subways, or trains.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>48. Trouble getting your breath.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>49. Hot or cold spells.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>50. Having to avoid certain things, places, or activities because they frighten you.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>51. Your mind going blank.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>52. Numbness or tingling in parts of your body.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>53. A lump in your throat.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>54. Feeling hopeless about the future.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>55. Trouble concentrating.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>56. Feeling weak in parts of your body.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>57. Feeling tense or keyed up.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>58. Heavy feelings in your arms or legs.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>59. Thoughts of death or dying.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>60. Overeating.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>61. Feeling uneasy when people are watching or talking about you.</td>
<td>0 1 2 3 4</td>
<td></td>
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<tr>
<td>62. Having thoughts that are not your own.</td>
<td>0 1 2 3 4</td>
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<tr>
<td>63. Having urges to beat, injure, or harm someone.</td>
<td>0 1 2 3 4</td>
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</tbody>
</table>
64. Awakening in the early morning. 
65. Having to repeat the same action such as touching, counting, or washing.
66. Sleep that is restless or disturbed.
67. Having urges to break or smash things.
68. Having ideas or beliefs that others do not share.
69. Feeling very self-conscious with others.
70. Feeling uneasy in crowds, such as shopping or at a movie.
71. Feeling everything is an effort.
72. Spells of terror or panic.
73. Feeling uncomfortable about eating or drinking in public.
74. Getting into frequent arguments.
75. Feeling nervous when you are left alone.
76. Others not giving you proper credit for your achievements.
77. Feeling lonely even when you are with people.
78. Feeling so restless you couldn’t sit still.
79. Feelings of worthlessness.
80. The feeling that something bad is going to happen to you.
81. Shouting or throwing things.
82. Feeling afraid that you will faint in public.
83. Feeling that people will take advantage of you if you let them.
84. Having thoughts about sex that bother you a lot.
85. Feeling you should be punished for your sins.
86. Thoughts and images of a frightening nature.
87. The idea that something serious is wrong with your body. 0 1 2 3 4
88. Never feeling close to another person. 0 1 2 3 4
89. Feelings of guilt. 0 1 2 3 4
90. The idea that something is wrong with your mind. 0 1 2 3 4
Appendix G

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 in the blank provided next to the item number. READ EACH ITEM CAREFULLY BEFORE RESPONDING. Answer as honestly as you can.

ANSWER SCALE

<table>
<thead>
<tr>
<th>A</th>
<th>Does not describe me well</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>Describes me very well</th>
</tr>
</thead>
</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.

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

The Acceptance and Action Questionnaire

Below you will find a list of statements. Please rate the truth of each statement as it applies to you. Use the following scale to make your choice, and place the number that corresponds to your choice on the blank preceding the statement.

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<th></th>
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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<tbody>
<tr>
<td></td>
<td>Never true</td>
<td>Very rarely true</td>
<td>Seldom true</td>
<td>Sometimes true</td>
<td>Frequently true</td>
<td>Almost always true</td>
<td>Always true</td>
</tr>
</tbody>
</table>

_____ 1. I am able to take action on a problem even if I am uncertain what is the right thing to do.

_____ 2. I often catch myself daydreaming about things I've done and what I would do differently next time.

_____ 3. When I feel depressed or anxious, I am unable to take care of my responsibilities.

_____ 4. I rarely worry about getting my anxieties, worries, and feelings under control.

_____ 5. I'm not afraid of my feelings.

_____ 6. When I evaluate something negatively, I usually recognize that this is just a reaction, not an objective fact.

_____ 7. When I compare myself to other people, it seems that most of them are handling their lives better than I do.

_____ 8. Anxiety is bad.

_____ 9. If I could magically remove all the painful experiences I've had in my life, I would do so.
Appendix I

**Satisfaction With Life Scale**

Below are five statements with which you may agree or disagree. Using the 1 through 7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

The 7-point scale is as follows:

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<tr>
<th>1</th>
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<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Slightly disagree</td>
<td>Neither agree nor disagree</td>
<td>Slightly agree</td>
<td>Agree</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

_____ 1. In most ways my life is close to my ideal.

_____ 2. The conditions of my life are excellent.

_____ 3. I am satisfied with my life.

_____ 4. So far I have gotten the important things I want in life.

_____ 5. If I could live my life over, I would change almost nothing.
Appendix J

Marlowe-Crowne Social Desirability Scale

Listed below are a number of statements concerning personal attitudes and traits. Read each item and describe whether the statement is true or false as it pertains to you.

1. Before voting, I thoroughly investigate the qualifications of all the candidates.     T  F
2. I never hesitate to go out of my way to help someone in trouble.                     T  F
3. It is sometimes hard for me to go on with my work if I am not encouraged.         T  F
4. I have never intensely disliked someone.                                          T  F
5. On occasion, I have had doubts about my ability to succeed in life.                T  F
6. I sometimes feel resentful when I don’t get my way.                               T  F
7. I am always careful about my manner of dress.                                     T  F
8. My table manners at home are as good as when I eat out in a restaurant.           T  F
9. If I could get into a movie without paying and be sure I was not seen, I would probably do it. T  F
10. On a few occasions, I have given up doing something because I thought too little of my ability. T  F
11. I like to gossip at times.                                                        T  F
12. There have been times when I felt like rebelling against people in authority, even though I knew they were right. T  F
13. No matter who I'm talking to, I’m always a good listener.                        T  F
14. I can remember “playing sick” to get out of something.                           T  F
15. There have been occasions when I took advantage of someone.                     T  F
16. I’m always willing to admit it when I make a mistake.                            T  F
17. I always try to practice what I preach.                                          T  F
18. I don’t find it particularly difficult to get along with loud-mouthed, obnoxious people. T  F
19. I sometimes try to get even, rather than forgive and forget. T F
20. When I don’t know something, I don’t at all mind admitting it. T F
21. I am always courteous, even to people who are disagreeable. T F
22. At times, I have really insisted on having things my own way. T F
23. There have been occasions when I felt like smashing things. T F
24. I would never think of letting someone else be punished for my wrongdoings. T F
25. I never resent being asked to return a favor. T F
26. I have never been irked when people expressed ideas very different from my own. T F
27. I never make a long trip without checking the safety of my car. T F
28. There have been times when I was quite jealous of the good fortune of others. T F
29. I have almost never felt the urge to tell someone off. T F
30. I am sometimes irritated by people who ask favors of me. T F
31. I have never felt that I was punished without cause. T F
32. I sometimes think when people have a misfortune, they only got what they deserved. T F
33. I have never deliberately said something that hurt someone’s feelings. T F
Appendix K

How successful were you, during your beach walks, in following the instructions in your envelope?

1 2 3 4 5 6 7 8 9 10
not at all successful very successful

How hard was it to be silent while walking on the beach with other people?

1 2 3 4 5 6 7 8 9 10
not at all difficult very difficult

During your walks, how much time did you spend thinking about things that weren't related to your immediate experience of the walk?

0 minutes 5 minutes 10 minutes 15 minutes 20 minutes

During your walks, how much time did you spend time experiencing emotions that were not related to your immediate experience of the walk?

0 minutes 5 minutes 10 minutes 15 minutes 20 minutes

What, if anything, do you believe that you have gained or lost as a result of participating in the 6 beach walks?

______________________________________________________________________________
______________________________________________________________________________

What was the worst thing about participating in this study?

______________________________________________________________________________
______________________________________________________________________________

What was the best thing about participating in this study?

______________________________________________________________________________
______________________________________________________________________________

Would you participate in studies again? Why or why not?

______________________________________________________________________________
______________________________________________________________________________
Appendix L

PAR-Q & YOU

(A Questionnaire for People Aged 15 to 69)

Regular physical activity is fun and healthy, and increasingly more people are starting to become more active every day. Being more active is very safe for most people; however, some people should check with their doctor before they start becoming much more physically active.

If you are planning to become much more physically active than you are now, start by answering the seven questions in the box below. If you are between the ages of 15 and 69, the PAR-Q will tell you if you should check with your doctor before you start. If you are over 69 years of age, and you are not used to being very active, check with your doctor.

Common sense is your best guide when you answer these questions. Please read the questions carefully and answer each one honestly: check YES or NO.

YES NO
☐ ☐ 1. Has your doctor ever said that you have a heart condition and that you should only do physical activity recommended by a doctor?
☐ ☐ 2. Do you feel pain in your chest when you do physical activity?
☐ ☐ 3. In the past month, have you had chest pain when you were not doing physical activity?
☐ ☐ 4. Do you lose your balance because of dizziness or do you ever lose consciousness?
☐ ☐ 5. Do you have a bone or joint problem (for example, back, knee or hip) that could be made worse by a change in your physical activity?
☐ ☐ 6. Is your doctor currently prescribing drugs (for example, water pills) for your blood pressure or heart condition?
☐ ☐ 7. Do you know of any other reason why you should not do physical activity?

YES to one or more questions

Talk with your doctor by phone or in person BEFORE you start becoming much more physically active or BEFORE you have a fitness appraisal. Tell your doctor about the PAR-Q and which questions you answered YES.

• You may be able to do any activity you want — as long as you start slowly and build up gradually. Or, you may need to restrict your activities to those which are safe for you. Talk with your doctor about the kinds of activities you wish to participate in and follow his/her advice.

• Find out which community programs are safe and helpful for you.

NO to all questions

If you answered NO honestly to all PAR-Q questions, you can be reasonably sure that you can:

• start becoming much more physically active — begin slowly and build up gradually. This is the safest and easiest way to go.
• take part in a fitness appraisal — this is an excellent way to determine your basic fitness so that you can plan the best way for you to live actively. It is also highly recommended that you have your blood pressure evaluated. If your reading is over 164/94, talk with your doctor before you start becoming much more physically active.

Please note: If your health changes so that you then answer YES to any of the above questions, tell your fitness or health professional. Ask whether you should change your physical activity plan.

Informed Use of the PAR-Q: The Canadian Society for Exercise/Physiology, Health Canada, and their agents assume no liability for persons who undertake physical activity and if in doubt after completing this questionnaire, consult your doctor prior to physical activity.

No changes permitted. You are encouraged to photocopy the PAR-Q but only if you use the entire form.

NOTE: If the PAR-Q is being given to a person before he or she participates in a physical activity program or a fitness appraisal, this section may be used for legal or administrative purposes.

I have read, understood, and completed this questionnaire. Any questions I had were answered to my full satisfaction.

NAME ____________________________ ____________________________

SIGNATURE OF PATIENT ____________________________ DATE __________________

SIGNATURE OF PATIENT ____________________________ (for participants under the age of majority)

WITNESS ____________________________ ____________________________

Note: This physical activity clearance is valid for a maximum of 12 months from the date it is completed and becomes invalid if your condition changes so that you would answer YES to any of the seven questions.

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Appendix M

Consent to Participate in a Research Study

Variations in Thinking Styles

What Is The Research About?
You are being invited to take part in a research study about how different thinking styles affect people. If you take part in this study, you will be one of about 60 people to do so.

Who Is Doing The Study?
The person in charge of this study is Dr. Richard Ogle of the University of North Carolina Wilmington. UNCW graduate student Lynn Ingram will be gathering and analyzing the information for the study. Other researchers may assist at different times during the study.

What Is The Purpose Of This Study?
By doing this study we hope to learn more about how different thinking styles influence people’s emotions, behavior, and physical and psychological wellbeing.

Where Is The Study Going To Take Place And How Long Will It Last?
The research procedures will be conducted at the Oak Island Senior Center and/or Ocean View United Methodist Church and on the beaches of Oak Island. You will need to come to the Oak Island Senior Center and/or Ocean View United Methodist Church twice during the study, for about 45 minutes each time, and to the 9th Place East beach access six times during the study, for a 20-minute beach walk each time. The total amount of time you will be asked to volunteer for this study is about four and a half hours over the next five weeks.

What Will I Be Asked To Do?
You will be asked to fill out questionnaires on the first day of the study and on the last day of the study. Many of these will ask you to rate how well a statement or description applies to you, from “not at all” to “a great deal.” Other questionnaires will ask you to answer questions about yourself: age, gender, race, health conditions, and religious and spiritual practices. In between the two times you fill out questionnaires, you will be asked to walk silently on the beach with a group for 20 minutes twice a week for three weeks.

The people who participate in this study will be divided into two groups, with about 30 people in each group. There is no way to tell which group you will be in, because participants will be randomly assigned to one group or the other. This is like tossing a coin to determine who will be in which group. Group assignment is done this way to try to make sure both groups are similar overall, and that neither group has all of participants with one particular characteristic.

Are There Reasons Why I Should Not Take Part In This Study?
In order to participate in this study, you need to be physically capable of walking on the beach for 20 minutes twice a week. Depending on the weather during the days of the beach walks, you may want to use sunscreen to protect your skin.
What Are The Possible Risks And Discomforts?
To the best of our knowledge, the things you will be doing have no more risk of harm than you would experience in everyday life.

None of the questions or statements on any of the questionnaires were designed to be upsetting or stressful, although you may find some of them to be of a personal nature that may or may not feel uncomfortable to you. Please remember that your answers will be confidential, and that no one will know how you personally answered the questions. If any of the questions, or any other situation that arises during this study, causes you to feel upset or stressed, please let us know, so that we can tell you about some people who may be able to help you with these feelings.

Will I Benefit From Taking Part In This Study?
You will not get any personal benefit from taking part in this study.

Do I Have To Take Part In This Study?
If you decide to take part in the study, it should be because you really want to volunteer. There will be no penalty and you will not lose any benefits or rights you would normally have if you choose not to volunteer. You will not be treated differently by anyone if you choose not to participate in the study. You can stop at any time during the study and still keep the benefits and rights you had before volunteering.

What Will It Cost Me To Participate?
There are no costs associated with taking part in this study.

Will I Receive Any Payment Or Reward For Taking Part In This Study?
You will not receive any payment or reward for taking part in this study.

Who Will See The Information I Give?
Your information will be combined with information from other people taking part in the study. When we write up the study to share it with other researchers, we will write about the combined information. You will not be identified in any published or presented materials.

We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information or what that information is.

In order to match the questionnaires you complete at the beginning of the study with those you complete at the end of the study, there will be a master list that matches the identification number of your questionnaire sets with a code name that you select and which will be known only to you.

Only the lead student researcher, Lynn Ingram, will have access to this master list. The master list will be used to ensure that your two questionnaire sets can be matched and that the number of walks in which you participated can be logged in under your participant number for the purposes of data analysis.
In addition, the informed consent documents that you sign will not be numbered and will be stored separately from your questionnaire sets. This way, your informed consent documents cannot be used to identify your questionnaire sets.

However, there are some circumstances in which we may have to show your information to other people. We may be required to show information that identifies you to people who need to be sure that we have done the research correctly, such as the UNCW Institutional Review Board.

**Can My Taking Part In The Study End Early?**

If you decide to take part in the study you still have the right to decide at any time that you no longer want to continue. There will be no penalty and no loss of benefits or rights if you stop participating in the study. You will not be treated differently by anyone if you decide to stop participating in the study.

**What If I Have Questions?**

Before you decide whether or not to participate in the study, please ask any questions that come to mind now. Later, if you have questions about the study, you can contact the investigator, Dr. Richard Ogle, at 910-962-3370. If you have any questions about your rights as a research participant, contact Dr. Candace Gauthier, Chair of the UNCW Institutional Review Board, at 910-962-3558.

**What Else Do I Need To Know?**

I am required by federal law to provide you with a copy of this informed consent form. You may request a copy of the project summary or final report. If you wish, you may attend a formal presentation of the study results when the study is concluded.

**Research Participant Statement and Signature**

I understand that my participation in this research study is entirely voluntary. I may refuse to participate without penalty or loss of benefits. I may also stop participating at any time without penalty or loss of benefits. I have received a copy of this consent form to take home with me.

__________________________                    ________________
Signature of person consenting to take part in the study                     Date

__________________________
Printed name of person consenting to take part in the study

__________________________                    ________________
Name of person providing information to the participant                     Date
Appendix N

**Lead researcher’s script for pre-intervention session with participants**

Thank you so much for volunteering to participate in this study, which is designed to look at different thinking styles. You may feel that I’m not giving you much information about the study today, and that’s true. The reason for that is that there will be two different groups of people in this study, with each group having a slightly different experience than the other one. For the study to work properly, two things need to happen: first, the people in the different groups need to not know exactly what the people in the other group are doing, and second, I won’t even know which group you’re in. So, for you to help me to preserve the integrity of the study, I need to ask each of you not to talk to other study participants about your experience until the study is completed. At the conclusion of the study, I will be happy to explain the study and its results in detail, or in as much detail as you’d actually like to hear.

This study has three parts. The first and last parts are the same for everybody, and those parts involve answering questions on different questionnaires, ten at the beginning and six at the end. It’s the middle part that will be different for each group. I’ll be giving each of you an envelope today that includes instructions for your middle part. These instructions tell you what I want you to try do with your mind while we are walking, and the instructions are different for each of the two groups.

Now, if this still sounds like something in which you’d like to participate, I need you to complete a brief questionnaire that asks some general health questions. This is to insure that you are physically able to take part in six 20-minute beach walks over the next month. Please sign and date this form. Then, hold on to it, because I’ll ask you in minute to attach it to a second form.
(Pass out the PAR-Q here and allow time for participants to complete it. Check PAR-Q responses; dismiss and thank anyone who is physically unable to participate in the study.)

Now, I will need you all to read and sign an informed consent document. Informed consent is required of all participants in studies so that there is a record that this is something that you’re doing willingly, without any pressure of any kind. Although we hope that you’ll continue in the study until its conclusion, you are free to drop out at any time for any reason, and if anything should occur that you find troublesome, there’s a number on the informed consent document telling who you should contact with your concerns.

The informed consent document also lets you know that any and all information you provide during this study, such as the answers you give on the questionnaires, is completely confidential. Your questionnaire packet will only be identified by a number. I will have a master sheet with that number and a code name that you’ll select. This is so that we can match the questionnaires you do at the beginning with the ones that you do at the end. In addition, we will use that code name on sign up sheets at the beginning of each walk so that we will have a record of how many walks you actually complete.

What questions do you have?

(Pause to allow for questions and answer any that are raised.)

Great. Now I’m going to give you two copies of the informed consent document. Please read it and ask any questions you may have. If you have no questions, please sign and date one copy, and keep the second copy for your records. Then, as the stapler comes around, please staple your health questionnaire to the back of the signed copy, and then pass the documents back to me.

(Collect Consent Forms and health questionnaires.)
Now, I’m going to send around a basket that contains envelopes with instructions inside. Please choose one and turn it face up so that no one can see the colored dot on the back. The color of that dot will determine which group you are in, and remember, that needs to be kept a secret. Do not open these envelopes now. You will open and read them after we leave today, and then I’d like you to re-read them just prior to each beach walk we take together.

If you have questions about the instructions in these envelopes, you will need to email or call my mentor, Rich Ogle. You will find his email address, ogler@uncw.edu, on the front of the informed consent document you’re keeping. His telephone number is listed within the document. You can’t ask me questions about the instructions in your envelope, because that would let me know which group you’re in, but you can ask me questions about anything else.

Now, I’m going to give you your questionnaire packets. Please do not write on the large envelopes; I will be taking these back up from you, and please do not begin filling out the forms until I ask you to.

Please take out the first page inside the packet, the sheet entitled Demographics. On the back of this sheet, the blank side, please write the color of the dot on your sealed envelope, green or orange. Now, looking again at the front of this sheet, you will see your participant number. I’m going to send around a manila envelope that contains a sign-up sheet. On the left-hand side of the sign-up sheet, please find the number of your questionnaire packet, which is your participant number, in red. Beside this printed number, please enter your code name, which you will choose this way: enter the two digits that indicate how many children you have (such as 00 or 02), then the county where you were born, then the two digits that indicate how many siblings you have (such as 00 or 03). For instance, my code name would be 00chesterfield01, because I have no children, I was born in Chesterfield County, and I had one sibling. I’m also sending around a
sheet of paper that I’d like you to use to provide me with your telephone number and email address.

Okay, now let’s talk about what times you’d like to do your walks. We have Monday, Wednesday, Friday walks scheduled at 7 a.m., 10 a.m., 4:30 p.m., and 6 p.m., and Tuesday/Thursday walks at 9 a.m. If none of these times suit you, we can schedule another one. We meet for all walks at the 9th Place East beach access, which is nine blocks east of Middleton Street, just inside the dune line. Please remember to re-read your instructions just prior to each walk, and please be on time, as some participants have schedules that require them to be very timely with the walks. Once we are all gathered, I will set my timer to 0 and will walk out about 10 minutes or less, then turn around and return to the 9th Place access. If 20 minutes have not yet elapsed, I will walk slightly past the access and then return to use up the 20 minutes. In other words, keep walking as long as I am walking. You may walk at any pace you choose, fast or slow or in between. Just remember to apply the instructions in your envelope during your walk and to remain silent.

Now, please fill out your Demographics form and all of the questionnaires inside your big envelope. Feel free to ask any questions that you may have. When you have finished, please put the Demographics sheet and all of the questionnaires back into the big envelope. Do not seal it, but please do close the clasp.

Don’t forget to take both your sealed envelope with your instructions inside and your copy of the informed consent document home with you.
Appendix O

*Instructions for experimental group*

Thank you for volunteering to participate in this study. Your instructions are very important.

Please remember not to discuss your instructions with any of the other participants until after the conclusion of the study.

You will take six 20-minute beach walks with me during the next month. Please meet me at the 9th Place East beach access at the time and dates written on the outside of the envelope that contained these instructions. As soon as our group has assembled at the beach access, we will take a walk together for 20 minutes. Please be on time.

Please re-read these instructions before each of the six walks we take together.

While we are walking, please do not talk to any of the other walkers or to me. It’s possible that you may encounter someone you know while we are walking. If you do and you feel that you need to do more than simply wave to acknowledge them, please tell them that you are participating in an experiment during which you are supposed to remain silent and tell them that you will talk to them later.

While you are walking, try to pay attention to what you’re experiencing in each moment as that moment happens, without thoughts of the past or the future, or of how any experience you’re having in that moment connects with your past or with your future.

This may be a different way of experiencing the moments of your life. To try to help you stay in each moment as it happens, please try to do two things:

First, notice the actual process of your walking, the steps that you take, the natural rhythm your body creates as you move down the beach, putting one foot in front of the other. Don’t concentrate so hard on your walking that you stare at your feet. Just notice and feel the rhythm
that your walking makes, in the same way that you would feel the back and forth rhythm if you were sitting in a rocking chair. Try to lightly hold the rhythm of walking.

Second, notice the thoughts, feelings, and other sensations that you have. Try not to evaluate them as good or bad, happy or sad; try to notice each thought, feeling, or sensation without making a judgment about it. Just notice them as they come and go. Don’t fixate on them; hold them lightly.

This is a different way of noticing thoughts, feelings, and sensations than what we do most of the time. Usually, we get caught up in the thoughts that come into our minds, planning something we’re going to do, worrying about something, being excited about something that’s going to happen. Many times, those thoughts cause us to experience emotions related to whatever we’re thinking about, even if nothing particularly emotional is happening at the moment.

We also think things about the things we think; we make judgments about our thoughts. Are they good, or bad, or worrisome, or calming, or troublesome? Do they take us down thinking paths about what we should do that we’re not doing, or what we shouldn’t do that we are doing?

While you are walking, try to notice your thoughts, feelings, and other sensations as they appear, note that they did appear, say to yourself, “Hello, thought (or feeling, or sensation). I see you there,” and then let that thought, feeling, or sensation pass away, and return your attention to the rhythm of your walking. Of course, another thought, feeling, or sensation will sooner or later arrive to take the place of the one you just let go, so just do the same with it. Just greet it with, “Hello, I notice you,” and let it drift away.

For instance, if you remember being impatient with a store clerk, try to think, “I’m having the thought about a store clerk” rather than “That made me so angry I wanted to complain to the manager.”
When different thoughts, feelings, or sensations arise, you’ll notice that your attention moves away from your walking. Once you have noted that the thought, feeling, or sensation showed up, gently move your attention back to your walking.

While you’re walking, I also want you to notice what’s around you—that you’re walking on the sand or in the surf; that you can hear the ocean, the wind, the seagulls, or maybe other sounds; that you can feel the sun or the breeze on your skin. Notice that you can see the sky, the sand, the water, shells, each other. Notice all these things, but don’t make judgments about them. Don’t evaluate them in either a positive or negative way. For instance, if you notice the sky, try to notice it this way: “The sky is blue” (just a description) instead of “The sky is beautiful” (an evaluation of a visual event that is positive). If you hear seagulls squawking, try to think, “The seagulls have voices and they’re using them” (just an observation) instead of “Those seagulls sure are making annoying noises” (an evaluation of a sound as negative).

Try to be aware of each moment that you experience, to be present entirely for the moment that you are living right now.
Appendix P

Instructions for control group

Thank you for volunteering to participate in this study. Your instructions are very important.

Please remember not to discuss your instructions with any of the other participants until after the conclusion of the study.

You will take six 20-minute beach walks with me during the next month. Please meet me at the 9th Place East beach access written on the outside of the envelope that contained these instructions. As soon as our group has assembled at the beach access, we will take a walk together for 20 minutes. Please be on time.

Please re-read these instructions before each of the six walks we take together.

While we are walking, please do not talk to any of the other walkers or to me. It’s possible that you may encounter someone you know while we are walking. If you do and you feel that you need to do more than simply wave to acknowledge them, please tell them that you are participating in an experiment during which you are supposed to remain silent and tell them that you will talk to them later.

While you are walking, pay attention to your thoughts, feelings, and other sensations. Notice the emotional reactions you have to these experiences, and pay attention to whether these emotional reactions are positive or negative. Notice what other thoughts follow your emotional reactions.

While you’re walking, also take note of your environment—the sand, the surf, any sounds that you hear (the ocean, the wind, the seagulls, or other sounds); any bodily sensations that you have, such as the sun or the breeze on your skin, aches and pains or discomfort of any kind, muscle tightness or looseness, hunger or thirst, tiredness or feelings of being energized. Notice what emotional reactions, positive or negative, you have to each sensation, and then notice what other thoughts follow these emotional reactions.
Want to participate in a UNCW research group?

Walk on the beach with me 6 times, 20 minutes each time
(2 times a week for 3 weeks, or 3 times a week for 2 weeks; morning, afternoon, and evening walks are available)

Contact Lynn Ingram for more information

email: li0322@uncw.edu
telephone: 910-201-4051

This research is approved by the UNCW Institutional Review Board.
BIOGRAPHICAL SKETCH

Lynn Ingram was born in Cheraw, South Carolina, and was educated in the public schools of that town. She graduated from Cheraw High School in 1973, having served as editor of the award-winning high school newspaper, *The Spokesman*, and having earned membership in the National Honor Society and the Quill and Scroll Society. She earned a Bachelor of Science degree in elementary education from Winthrop College (now University) in 1975, cum laude with general honors, and later pursued graduate studies at the University of South Carolina to earn certification as a special education teacher.

She has worked as a teacher in primary and secondary schools and remedial institutions in South Carolina and Georgia; as a legal secretary; as proprietor of a gourmet food and wine and gift basket business; and as a newspaper editor, during which time she was recognized by the South Carolina Press Association with a first place award in column writing. She has worked for more than two dozen years as a freelance writer and is the author of two books; her collection of non-fiction essays, *Necessary Things*, was published in 2007, and her book of poetry, *the edge of light*, is scheduled for publication in 2010.

She has traveled extensively, throughout Brazil, to many of the Caribbean islands, to Central America, to the Abaco islands of the Bahamas chain, to the Society Islands of French Polynesia, to London, to the south of France, and to Monaco. She has accumulated more than 100 hours of flying time in light aircraft and expects eventually to earn her private pilot’s license.

She returned to the pursuit of higher education at the University of North Carolina Wilmington in 2004, earning a Bachelor of Arts degree in psychology, cum laude, in July 2005, and then entering graduate school at the same institution in August 2005. This thesis is in partial fulfillment of the degree of Master of Arts in Clinical Psychology that she will receive on May 8,
2010. Following conferment of the academic degree, she will sit for exams for licensure as a Licensed Psychological Associate and a Licensed Clinical Addictions Specialist. She hopes to have the honor and privilege of using her education, her licensure, and her life experience to help create abiding hope and belief in a bright future and the reality of a valued life in those whose lives intersect with hers.