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Effectiveness of Mindfulness-Based Stress Reduction Bibliotherapy

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by

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Abstract

Stress is part of human daily life and although some stress is beneficial for improved performance, excessive or prolonged periods of stress have been linked to negative health and psychological outcomes. Mindfulness-Based Stress Reduction (MBSR) program in its traditional group workshop format has been used for the past 30 years. MBSR has been shown to be effective in reducing perceived stress as well as symptoms of physiological and psychological conditions including cancer, chronic pain, fibromyalgia, complications associated with pregnancy and childbirth, chronic medical disease, anxiety disorders, mood disorders, and improve overall health and quality of life. Similar to other treatments, MBSR has a number of obstacles to accessibility of treatment such as stigma, geographical and financial barriers. MBSR workbook can address all of these limitations and, hence, enhance dissemination of potentially effective treatment. However, similar to other self-help interventions, even those based on the empirically-based treatments, the MBSR bibliotherapy does not yet have empirical evidence to support its effectiveness. The current study examined feasibility and effectiveness of the MBSR bibliotherapy through a randomized control trial with bibliotherapy and non-treatment control groups. The results showed that participants were able and willing to follow the workbook over a period of 10 weeks with the participants who completed weekly follow-up assessments an average of 76.5 percent reported reading at least 50 percent of the book and an average of 58.6 percent reported completing at least 50 percent of the writing exercises from the workbook. Furthermore the MBSR bibliotherapy showed to be effective in reducing symptoms of psychopathology and improving quality of life. Overall, findings were consistent with the effects of the MBSR program in its traditional in-person group workshop reported in the literature. These findings provide scientific support for the use MBSR bibliotherapy as an

adjunct, self-guided, or a stepped-care intervention, which creates opportunities for wider utilization while addressing geographical, financial and stigma barriers.

Dedication

To my family and friends who relentlessly and unconditionally supported me through this journey.

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The authors report no conflict of interest.

Table of Contents

Page

List of Tables

Page

List of Figures

Page

List of Appendices

Page

Chapter 1

Introduction

Prevalence and Impact of Mental Health Problems

Mental health problems are widespread. The survey of the prevalence and severity of mental health problems conducted by the World Health Organization in 17 countries estimates a lifetime prevalence of mental health problems between 12.0 to 47.4 percent, with the higher prevalence in the United States (The WHO World Mental Health Survey Consortium, 2004). The United States National Comorbidity Replication Survey (NCS-R) estimates that 32 percent (about 77 million) of the US population meet diagnostic criteria for at least one psychological disorder in any particular year and 50 percent meet diagnostic criteria for at least one psychological disorder during their lifetimes (*National Comorbidity Replication Survey*, 2007; Wang et al., 2005). Furthermore, many psychological disorder symptoms are on a continuum and symptoms that do not rise to meet DSM diagnostic criteria (sub-clinical symptoms) still have substantial negative impact. Individuals with subclinical symptoms might not be motivated to pursue treatment, and, hence, likely would not seek treatment, which might lead to their symptoms progressing to become more chronic or severe (Lovell & Richards, 2000; Reeves & Stace, 2005a). Research also shows that as many as 90 percent of mental health problems are managed in primary care (Goldberg & Huxley, 1992). There are also high rates of comorbidity not only between certain mental health disorders (e.g., anxiety, depression, and substance abuse/dependence, etc.), but also between mental health and acute and chronic medical conditions (e.g., diabetes, cancer, AIDS, physical injury, heart conditions, brain injuries, infections, immune diseases, migraines/headaches, flu, colds, organ failure, breathing difficulties, etc.) (Kessler, Ormel, Demler, and Stang, 2003).

The Role of Stress in Physical and Mental Health

Stress is a common and necessary part of human life. In recent surveys, the majority of Americans reported feeling moderate to high levels of stress with a large gap between the level of stress they experience and what they perceive to be healthy (*Stress in America Findings*, 2010). A survey by the American Institute of Health named stress "America's #1 health problem" with estimated 77 percent of Americans regularly experiencing physical symptoms of stress with irritability (45 percent), fatigue (41 percent), and lack of energy or motivation (38 percent) being the most frequently reported symptoms (The American Insitute of Health; *Stress in America Findings*, 2010).

A small amount of stress has been shown to be related to improved performance (Yerkes & Dodson, 1908). However, high levels or extended periods of experiencing stress have been shown to have negative impact on both physical and mental health in otherwise healthy adults (McEwen & Stellar, 1993; Sapolsky, 2004; Schneiderman, Ironson, & Siegel, 2005). There has been shown to be a strong link between the nervous and immune systems with a number of changes occurring in the nervous, cardiovascular, endocrine, and immune systems after a person evaluates event as stressful (Ader & Cohen, 1982; Schneiderman et al., 2005). Physiological and psychological stressors inhibit production of new antibodies in response to infection. They also suppress production and the circulation time of lymphocyte white blood cells, which attack infectious agents invading the body (Sapolsky, 2004). Moreover, glucocorticoids and other stress hormones suppress immunity by killing lymphocyte white cells (Sapolsky, 2004). For the first thirty minutes after encountering either a physiological or psychological stressor, parts of the immunity are enhanced. However, after about one-hour, sustained glucocorticoid and sympathetic activation start suppressing immunity. Sustained stress, which leads to chronic

suppression of immunity, affects body's ability to fight infections. In this case continued stress disrupts a range of immune functions and leads to the immune system going into immunosuppressing phase (McEwen & Stellar, 1993; Sapolsky, 2004). Although stress is an unavoidable part of everyday human life, under certain circumstances it might lead to disease. The negative impact of stress on physiological and psychological health has been first observed and documented by Hans Selye (Selye, 1956). High levels or prolonged period of experiencing stress have been linked to coronary heart disease, death, insulin resistance syndrome (a risk factor for diabetes mellitus), and exacerbation of migraine pain (Levor, Cohen, Naliboff, McArthur, & Heuser, 1986; Matthews, Owens, Allen, & Stoney, 1992; Peter, Siegrist, Hallqvist, Reuterwall, & Theorell, 2002; Räikkönen, Keltikangas-Järvinen, Adlercreutz, & Hautanen, 1996; Smith & Ruiz, 2002a, 2002b). Therefore, learning to recognize and learning effective ways of coping with stressors might prevent disregulation and possibly from getting sick.

Given that stress appears to play an important role in the onset and development of symptoms of psychological disorders, it is important to look at the biological mechanisms linking them together. Allostasis, which is a mechanism through which body maintains stability (homeostasis) during times of change, is an important part of understanding this process. During allostatis cardiovascular system changes while the body is in active and resting states by allowing us to respond to physical states and to cope with situational stressors. The appraisal of the event as stressful is critical in determining the person's response (McEwen, 1998). When a stressful event is encountered, our body responds by activating and subsequently shutting down allostatic response after the threat has passed. The most common allostatic responses involve sympathetic nervous system and hypothalamic-pituitary-adrenal (HPA) functioning and are typically observed during baseline, reactivity, and recovery stages. One of the proposed links

between stress and one of the most commonly diagnosed mental health disorders, major depressive disorder, is abnormalities in hypothalamic-pituitary-adrenal (HPA) functioning (Burke, Davis, Otte, & Mohr, 2005; Drevets, Price, & Furey, 2008; Gold, Drevets, & Charney, 2002; Gold, Goodwin, & Chrousos, 1988a, 1988b). The HPA system allows human organism to adjust to the changes in the environment. Experiencing a stressful event activates the central nervous system leading to a cascade of changes such as release of corticotropin releasing hormone (CRH) from the hypothalamus, adrenal corticotrophic hormone (ACTH) from the anterior pituitary, and cortisol from the adrenal cortex (McEwen, 1998). More specifically in terms of cortisol, the higher levels of this hormone significantly increase in response to stressors and inhibit the HPA system by the mechanism of negative feedback in the hippocampus (Jacobson & Sapolsky, 1991; Sapolsky, Krey, & Mcewen, 1986). After the danger has passed, the system gets inactivated and cortisol and catecholamine secretions return to baseline levels. However, if the inactivation is impaired, then individual continues to get exposed to stress hormones leading to overexposure. In fact, studies have found that cortisol is not being suppressed in individuals with major depressive disorder (Drevets, Price, & Furey, 2008; Gold, Goodwin, Chrousos, 1988a, 1988b; Gold, Drevets, & Charney, 2002). A meta-analysis by Burke and colleagues examined patterns of cortisol responses to stressors in depressed and non-depressed individuals during two response stages of stress reactivity and stress recovery and found that depressed and non-depressed individuals responded differently. More specifically, individuals who met diagnostic criteria for major depressive disorder had blunted stress reactivity and impaired stress recovery resulting in higher unadjusted levels of cortisol compared to non-depressed individuals (Burke et al., 2005).

Another important biological mechanism linking stress to psychological disorders is secretion of human glucocorticoid (GC) hydrocortisone. GC is secreted in response to stress and is important in surviving stress. However, prolonged exposure to GC has been shown to result in shrinkage of the volume of the hippocampal brain region (Sheline, Wang, Gado, Csernansky, & Vannier, 1996). One study showed hippocampus to have significantly smaller volume in individuals with history of depression, although these individuals have not experienced depressive symptoms for months and some for decades. Similar patterns of hippocampal atrophy have been found in Vietnam veterans with Posttraumatic Stress Disorder (PTSD) (Gurvits et al., 1996). Therefore, experience of chronic stress negatively affects hippocampal brain region and results in compromised cognitive functioning (Sapolsky, 1996). Moreover, the shrinkage of hippocampus also results in compromised response to stress as there is a high concentration of cortisol receptors that are important in the regulation of hypothalamic-pituitary-adrenocortical (HPA) axis stress reactivity (Jacobson & Sapolsky, 1991).

Over the years the definition of what stress is and its potential impact has evolved. Lazarus suggested viewing stress as a transaction between a person and the environment and that stress is primarily a *subjective* phenomenon (Lazarus, 1990). Animal models have shown that the extent to which an animal is given an opportunity to respond effectively to a stressor affects the degree to which a physiological regulatory mechanism is dysregulated (Overmier & Seligman, 1967; Seligman & Maier, 1967). Studies show the same relationship for humans. There are idiosyncratic differences in how we see and handle things. The level of stress people experience depends on how they think about and how they handle situations (McEwen, 1998). Therefore, ability to cope with stressors is important. Kabat-Zinn (1990) noted we have control of how much and how we experience stress, and, hence, whether it will lead to disease, by being

mindful of our response choices in stressful situations and how various responses might affect those situations.

It is estimated that 75 to 90 percent of visits to the primary care doctors are due to stress related problems (The American Insitute of Health). However, only 17 percent of people report receiving information necessary to manage stress from their healthcare provider (*Stress in America Findings*, 2010). Stressful life events oftentimes precede onset of the symptoms of anxiety and depression (Faravelli & Pallanti, 1989; Paykel, 2001). Prevailing high rates of comorbidity between occurrence of health problems and symptoms of anxiety and depression can be explained by viewing health problems as stressful events. Furthermore, stress has been conceptualized as an important part in the development of emotional disorders (Barlow, 2002). More specifically, Triple Vulnerability or Diathesis-Stress theory provides a model of development of anxiety disorders (Barlow, 2002). The model breaks down vulnerabilities into generalized biological, generalized psychological and specific psychological vulnerabilities which predispose individuals to develop emotional disorders. These vulnerabilities get activated when an individual comes into contact with a stressor. Therefore, stress, which is a familiar, expected, and necessary part of daily life, is also a risk factor for a set of psychological and physiological problems.

A recent survey reported the most commonly used ways of managing stress were listening to music, exercising, spending time with friends or family, reading, or watching television (*Stress in America Findings*, 2010). About seven percent of respondents reported engaging in meditation or yoga to manage stress. Although people acknowledged the importance of managing stress, the majority reported a large gap between how important they thought it was and what behaviors they actually engaged in. The most commonly reported

reasons for *not* managing stress were lack of time or being too busy (*Stress in America Findings*, 2010). Benson and Proctor (2003) use the research on the relaxation-response to define techniques which could elicit the Breakout Principle which they define as "a powerful mind-body impulse that *severs prior mental patterns* and – even in times of great stress or emotional trauma – opens an inner door to a host of personal benefits, including greater mental activity, enhanced creativity, increased job productivity, maximal athletic performance, and spiritual development " (pp. 4-5). They talk about relaxation response being an intentional learned act and ways of triggering the breakout response with one of the main ways of accomplishing it being through meditation. fMRI study of meditation in Sikh's showed that during meditation most sections of the brain became drastically less active while the brain activity in brain regions associated with attention, space-time concepts, and "executive control" functions became extremely active (Lazar et al., 2000).

Some of the costs of stress and mental health problems include loss of productivity, absenteeism, loss of earnings, increased health-care utilization, costs of psychiatric and psychological treatment, increased accidents, impaired family and social functioning, decreased quality of life, decreased overall health or worsening of physical symptoms, incarceration, homelessness, and early mortality. Stress has also shown to result in reduced amount and quality of sleep. In college students sleep deprivation rates are double those in the general adult population with half of the college students reporting being sleep deprived (Hershner & Chervin, 2014). Moreover, about 50 percent of the college students report daytime sleepiness and more than a quarter report not getting adequate amount of sleep (Hershner & Chervin, 2014). Daytime sleepiness and lack of sufficient sleep could negatively impact academic and job performance, increase disease susceptibility, as well as increase emotional reactivity.

Failing to treat mental health symptoms which appear in conjunction with physiological symptoms has been shown to result in poorer symptom outcomes and higher medical care costs (Russell, 2010).

Gap between Supply and Demand

With stress negatively impacting physical and mental health, the gap between those who need services and those who receive them remains high with less than half of the adults with diagnosable mental health symptoms receiving mental health treatment (Kazdin & Blase, 2011; Russell, 2010; Wang et al., 2005). A survey by World Health Organization estimated that 44 to 70 percent of individual who need mental health treatment do not receive it (World Health Organization, 2003). Although there is a dose-response relationship between severity of mental health symptoms and probability of receiving treatment, with individuals with more severe symptoms being more likely to seek and receive treatment, mental health interventions and empirically supported treatments are not accessible to everyone (Kazdin & Blase, 2011; Lovell & Richards, 2000; Newman, 2000; The WHO World Mental Health Survey Consortium, 2004; Wang et al., 2005). A number of perceived barriers such as cost, stigma about the mental health diagnosis and treatment, geographical location, transportation, non-traditional work schedules, childcare, shortage of mental health providers, lack of public awareness about mental health and about effective treatments, thinking the problem will get better by itself, and wanting to solve the problem on their own, to name just a few, get in the way of accessing appropriate care (Garfiled, 2011; Kazdin & Blase, 2011; Kessler et al., 2001; Sareen et al., 2007; Wahl, 2012; World Health Organization, 2003).

Using the data from the National Comorbidity Survey Kessler and colleagues estimated that out of 6.2 percent of those who met study's criteria for the serious mental illness (SIM)

during the previous 12 months, only 40 percent received reliable mental health treatment (Kessler et al., 2001). SIM was defined as "any DSM disorder excluding V codes, substance use disorders, and developmental disorders that led to substantial interference" with "one or more major life activities" during the previous 12 months. The same study found that the most common reasons for not seeking treatment or dropping out of treatment were due to wanting to solve the problem on their own (72.1 percent) and believing that problem would get better on its own (60.6 percent). Other reasons for not seeking treatment were situational barriers (52 percent), financial barriers (46 percent), and perceived lack of effectiveness of therapy (45 percent). Younger age was significantly associated with not receiving continuous treatment and dropping out of treatment. Perception of not needing help accounted for 83.4 percent of those who did not seek treatment.

Another commonly identified barrier to accessing mental health services is cost of treatment. One survey reported that out of the surveyed individuals who felt like they needed mental health services but did not seek it, 45 percent identified cost as a barrier (Garfiled, 2011). Another study found that lack of finances was commonly identified as a barrier, and it was done more frequently by low-income individuals (Sareen et al., 2007). Lack of consistent insurance coverage for the mental health problems contributes to the problem of access to mental health care, especially for those with limited incomes (Saxena, Thornicroft, Knapp, & Whiteford, 2007). Mental health policies and implementation plans can help make access to mental health care services easier.

Stigma and negative attitudes about mental health care are other barriers to accessing mental health care (Sareen et al., 2007; Wahl, 2012). People who have received a mental illness diagnosis report experiencing social rejection and feeling like they are being devalued as a result

of others finding out about their psychological disorder diagnosis (Wahl, 2012). Psychological disorder diagnosis or being in therapy commonly elicits unfavorable thoughts, feelings, attitudes, and assumptions about the individual. One study examined effects that reconceptualization of psychological disorders as having neurobiological causes has had on the public view and found that although people were more likely to attribute symptoms of mental health disorders to neurobiological causes, their perception of danger of being around people with these diagnoses did not change (Pescosolido et al., 2010). Although viewing these diagnoses from a neurobiological perspective did increase likelihood of seeking treatment, it did not significantly reduce stigma associated with it. Danger of being around individuals with psychological diagnosis is a common concern. One third of the respondents in that survey indicated that they expected people with depression to act violently (Pescosolido et al., 2010). In general, attitudinal barriers (e.g., "I believe the problem will improve on its own") are more frequently endorsed as barriers to accessing psychological treatment than structural barriers (e.g., "It will be too difficult to get an appointment) (Sareen et al., 2007). Lack of public awareness about mental health problems is a related issue that can prevent people from being able to identify the problems, and, subsequently, seek appropriate treatment (Saxena et al., 2007). Moreover, not understanding mental health problems can also lead to lack of seeking appropriate care.

Another problem with access to mental health services is uneven availability of mental health services based on the geographic location. More specifically, there is a much higher concentration of psychologists, psychiatrists, and other mental health professionals in the populated urban areas and cities with major universities (Health Resources and Services Administration, 2010). Furthermore, there are not enough trained mental health professionals to reach majority of those in need of treatment (Kazdin & Blase, 2011; The Bureau of Labor

Statistics). Ethnic disparities widen this gap even more. For example, African Americans and Hispanic Americans are less likely to have access to mental health services than European Americans (Kazdin & Blase, 2011). Moreover, not being able to be seen by someone from similar culture or from similar ethic background might get in the away of or reduce willingness to access mental health services. The fact that there are few of the mental health professionals currently in the field that reflect the cultural and ethnic characteristics of those in need of mental health services inflate this concern (Kazdin & Blase, 2011). In summary, reducing the barriers can ease access to mental health care, and, hence, reduce burden of mental health.

Model of Treatment Development

In order to bridge the gap between the need and available resources and reduce the high burden of mental health Kazdin and Blaise (2011) call upon the mental health professionals to re-think traditional mental health service delivery. They encourage the use of alternative mental health delivery models such as using technologies (e.g., internet, smart phones), media (e.g., radio, television), and self-help treatments (e.g., bibliotherapy, self-help groups) (Kazdin & Blase, 2011). Authors also point out that prevention plays an important part in reducing burden of mental health. Chorpita and colleagues (2011) encourage psychologists to rethink how the mental health interventions are delivered. Authors note that over the years numerous effective interventions have been developed, and now, instead of primarily focusing on perfecting existing interventions, although it is still important, the focus should be shifted to re-organizing the existing knowledge to alternative treatment formats (Chorpita et al., 2011). Kessler and Glasgow (2011) advocate a shift in science away from the prevailing mechanistic and reductionist view towards a contextualist perspective (Kessler & Glasgow, 2011). More specifically, they urge to move away from the randomized controlled trials towards research that is more applicable to

real-life conditions/real-world settings. They note that this research would primarily focus on genuine pragmatic trials that would be feasible, cost effective, and generalizable.

Similarly, Lovell and Richards (2000) propose that due to the problems with the traditional therapy delivery methods alternative therapy delivery methods should be used, with bibliotherapy being the first step in the multiple access point and level of entry (MAPLE) for mental healthcare (Lovell & Richards, 2000). Compared to traditional mental health service delivery, bibliotherapy improves accessibility to service, and, as such, allows a broader reach of the intervention. More specifically, it eliminates such barriers as stigma, intimidation with therapy process, cost, work schedules, transportation, and childcare (Dubin & Fink, 1992; Hinshaw & Cicchetti, 2000).

History of Bibliotherapy

In 1969 during his Presidential Address to the American Psychological Association George Miller urged psychologists to "help people help themselves" as way of making psychological treatment available to the larger population and reducing burden of mental health (Rosen et al., 2003). He directed researchers and psychologists to develop self-help therapies. This was the point when many leading psychologists became involved in writing self-help books. With the technological advances the format of bibliotherapy has also changed. In the 1970's bibliotherapy started with development of self-help books and later on in the 1980's it took form of audiocassettes and videotapes. In the 1990's self-help computer programs started getting developed. In 2000's with proliferation of internet, focus had turned to self-help treatments delivered via the internet. Furthermore, through the years difficulties addressed by self-help books became more specific (e.g., parenting, sleeping, toilet training, etc.), and this, in

combination with various delivery modalities, developed into a big self-help industry (Rosen et al., 2003).

Bibliotherapy Effectiveness

Gould and Clum (1993) included 40 self-help studies into their meta-analysis. Studies of various self-help treatments (e.g., books, video and audio tapes, manuals, and combination of several types of self-help approaches) with minimal contact with the mental health professionals were included in the analysis. Authors defined "minimal contact" as weekly to monthly contact in order to assess the progress or provide clarification, instructions, or encouragement. Additional inclusion criteria were presence of a control group and random assignment. Effect sizes were calculated across the dependent measures in each study. In each study the average effect sizes were calculated across the dependent measures post-treatment and at follow-up.

In order to establish internal validity, Gould and Clum examined differences between the studies in terms of the amount of contact, type of the control condition, type of dependent measures used, format of self-help materials, and duration of the treatment. In regards to internal validity, this study found that the mean effect size was higher for the studies in which only self-help compared to self-help with minimal contact was used. Findings also showed that there were significant differences in the effect size for self-help treatments of various duration. In regards to the self-help treatment effectiveness, authors found an overall treatment effect size of 0.76 immediately after treatment and 0.53 at follow-up, which suggests that self-help treatments were effective and that treatment gains were maintained over a period of time post-intervention. Fear-reduction interventions had treatment effect size of 1.11. A t-test results did not indicate significant differences between outcomes for diagnosable and skill-oriented problems ($t(33) = 0.95$, $p = 0.92$). There was, however, a significant difference between both of the

abovementioned groups and habit disturbance ($t(50) = 3.45$, $p = 0.001$). No significant differences in outcomes were found between treatments that were purely self-help versus those with minimal therapist contact or those self-help treatments that included therapist assistance. Furthermore, better treatment outcomes were found for those participants who had higher compliance to the treatment. Authors identified two compliance issues. First was reading, listening, or watching self-help materials. The second compliance issue was applying the protocol from the materials. From the 40 studies included in this meta-analysis, 25 mentioned measuring compliance in terms of the use of self-help materials. However, only eleven studies reported analyzable data. The findings showed that the mean effect size was three times higher for the studies that reported 75 to 100 percent compliance compared to those that reported compliance lower than 75 percent. Because only five studies included information on applying the self-help materials, meaningful comparisons were not able to be conducted. Overall, these findings support the use of self-help therapy.

Scogin and colleagues conducted another meta-analysis of 40 studies of self-help treatments and intentionally included only published research (Scogin, Bynum, Stephens, & Calhoon, 1990). This was a purposeful decision with intention of having a certain degree of confidence in the reported findings that came with acknowledgement that reported findings would introduce some degree of bias against finding nonsignificant effects. The only exclusion criterion was absence of a control condition. In order to be able to evaluate effectiveness of bibliotherapy along different parameters authors grouped the studies into categories based on type of presenting problem, type of setting, treatment approach, type of control condition, and treatment quality. More specifically, target problems were grouped into five general categories: habit control, depression and anxiety, phobias, skill training and study skills, and other

difficulties. In terms of type of settings the studies were further classified into either clinical or analogue. Clinical studies were those that targeted presenting problems that would be typically seen in the clinical settings. Analogue studies were those that examined the effects on undergraduate college students volunteering to be research participants. Another grouping of studies based on the treatment approach was based on the amount of contact with mental health professional. The four treatment categories were completely self-administered, self-administered with minimal contact, and therapist-administered plus self-administered treatments. Four types of control conditions were no treatment or delayed treatment, self-monitoring, therapist-administered treatment, and therapist-administered plus self-administered treatment. The study's quality was rated on a three-point scale from 1 (*poor*) to 3 (*excellent*). Because most of the studies included in the analysis reported results for several outcome measures, there were several effect sizes per study. In order to prevent studies with more outcomes from outweighing the ones with fewer ones, authors averaged effect sizes across multiple measures to get one effect size per treatment group. Results showed an overall treatment effect size of 0.96 for treatment compared to wait-list control. Similar to the other meta-analysis, investigators did not find significant differences between self-administered treatments and self-help treatments which included minimal therapist contact. Furthermore, no significant differences in outcomes were found based on the type of presenting problem. The effect size was somewhat higher for clinical compared to analogue studies (0.52 compared to 0.24). However, this difference was not reliable. Overall, the results of this meta-analysis suggest that self-help treatments are effective for a range of presenting problems and that therapist contact does not improve effectiveness.

The conclusions of the two meta-analyses described above differed on whether self-help treatment affected presenting problem differently. Gould and Clum (1993) concluded that

"diagnosable problems" and "skills deficits and diagnostic problems," such as fears, depression, headache, and sleep disturbance were more amenable to change compared to "habit disturbances" such as smoking, drinking, and overeating. In contrast, Scogin and colleagues (1990) did not find differences in effect sizes due to presenting problem.

A more recent meta-analysis was undertaken by Marrs (1995) in response to problems he perceived with earlier conducted. He noted that meta-analyses by Gould and Clum (1993) and Scogin and colleagues (1990) only included published studies introducing possible "publication bias" (Gould & Clum, 1993; Scogin et al., 1990). Secondly, he noted that both meta-analyses included a small number of studies limiting their power to detect differences. Hence, the most recent meta-analysis of bibliotherapy treatments conducted by Marrs (1995) targeted addressing shortcomings of the previously conducted meta-analyses. The inclusion criteria involved studies examining outcomes in adults only, not be a media-based campaign, have a comparison group from the same population as an intervention group, bibliotherapy be the primary treatment approach, the self-help treatment materials be longer than 10 pages, study outcomes were reported in English, and the reported outcome data was sufficient to conduct meta-analysis. Dissertation studies of the effectiveness of bibliotherapy were not included in the analysis due to the cost associated with obtaining the manuscripts. None of the studies prior to 1968 were included in the analysis because they did not meet inclusion criteria. Search results generated a total of 276 empirical studies 81 of which were unpublished and 195 published. Out of all these studies 197 were omitted due to not meeting study's inclusion criteria. Therefore, a total of 70 studies, nine of which were unpublished (13 percent) were included in this meta-analysis. Study characteristics such as design characteristics, publication type, amount of therapist contact, type of therapist contact, type of dependent variable, type of presenting problem, and type of reading

materials as well as effect sizes were coded by the study's primary investigator. The results showed an overall effect size of 0.57 of self-administered treatment compared to no treatment control (Marrs, 1995). Similar to the previous meta-analyses, this study did not find significant differences between self-administered and therapist-assisted treatments. However, when examining therapist-assisted treatment together with a type of presenting problem, a significant positive relationship was found between anxiety and weight loss. Furthermore, the author also compared traditional therapist-directed treatments to bibliotherapy with various amounts of therapist contact and concluded that there were no significant differences. The amount of contact with the therapist in bibliotherapy studies did not relate to the effect size. Also this meta-analysis did not find a difference in effectiveness between bibliotherapy and traditional therapist administered therapy.

Based on the results of the meta-analysis, Marrs concluded that certain presenting problems were more responsive to self-administered treatments. More specifically, the author found that assertion, anxiety, and sexual dysfunction had the best treatment outcomes. Presenting problems such as weight loss, studying problems, habit changes, alcohol use, and smoking were the least responsive to change via bibliotherapy.

The most recent meta-analysis examined effectiveness of bibliotherapy specifically targeting chronic and recurring mood and anxiety disorders (Den Boer, Wiersma, & Van Den Bosch, 2004). The main goals of the analysis were to examine effectiveness of bibliotherapy and self-help groups for clinically significant emotional disorders. Only randomized controlled trials with intervention and control conditions that used symptom measures or a psychiatric diagnosis in adults were included in the analysis. Sixteen studies met all the inclusion criteria, but only 13 bibliotherapy studies were included in the final analysis. Two studies were excluded due to not

being in English and one study was on self-help group. Since only published studies were included, authors acknowledged that publication bias likely influenced the findings. Similar to other meta-analysis, for the studies that had several outcome measures, results were averaged across multiple outcomes to obtain one effect size per treatment comparison. The results showed an overall effect of 0.84, which is similar to the effect sizes reported in previous meta-analyses (Den Boer et al., 2004). Furthermore, the results seemed to maintain over time with overall effect size of 0.76. One of the analyses examined whether severity of the symptoms of the presenting problem influenced the outcomes and found a mean effect size of 0.88. However, a test of homogeneity showed that 100 percent of the variance in this outcome could be attributed to sampling error. Overall, findings of this meta-analysis are consistent with the findings of the previous meta-analyses and indicate that bibliotherapy is an effective intervention. In summary, a number of meta-analyses with various inclusion criteria (e.g., published vs. unpublished) showed that bibliotherapy was effective with medium to large effect sizes.

Bibliotherapy for Specific Presenting Problems

Anxiety

Newman and colleagues (2003) reviewed self-help treatments for the range of anxiety disorders and concluded that overall self-help treatments were effective in reducing symptoms of anxiety disorders (Newman, Erickson, Przeworski, & Dzus, 2003). They noted that the effectiveness did vary depending on the type of anxiety disorder, with self-help interventions being the most effective for specific phobia. Authors also found that amount of contact between the therapist and the client was differentially important for various anxiety disorders. For example, self-administered treatment seemed to be the most effective for clients with symptoms of simple phobia. Moreover, predominantly self-administered treatments were the most effective

for specific phobia, panic disorder, and mixed anxiety samples. Authors emphasized that the client's perception of the treatment as credible as well as high motivation for treatment were important for the good treatment outcomes. Authors recommended that self-help treatments without any therapist contact might be most efficient as a "preliminary step" to treatment.

Reeves and Stace (2005) examined effectiveness of assisted bibliotherapy for individuals who presented in primary care with mild to moderate symptoms of anxiety (Reeves & Stace, 2005b). Individuals were referred to treatment by their general medical practitioners. Participants were further screened for eligibility by study therapists. Treatment was based on well-established cognitive-behavioral strategies which were presented to participants in six module booklets. The booklets were presented during the weekly 20-minute one-to-one "coaching" sessions with study therapists. Although only about half of the individuals who were referred to treatment completed it, those who did complete the treatment had a significant reduction of stress/anxiety symptoms. Furthermore, these outcomes were maintained at three months follow-up. Authors concluded that this intervention was an effective approach as part of a stepped care approach.

Depression

Cuijpers (1997) conducted a meta-analysis on the effectiveness of bibliotherapy for unipolar depression. All of the studies included in the meta-analysis compared bibliotherapy to wait-list group (Cuijpers, 1997). The results showed bibliotherapy to be an effective treatment for unipolar depression with mean effect size of 0.82. In another meta-analysis conducted by Gregory and colleagues (2004), they examined effectiveness of cognitive bibliotherapy for symptoms of depression (Gregory, Schwer Canning, Lee, & Wise, 2004). The meta-analysis included 29 studies and found a moderate effect size (0.77) in reducing symptoms of depression.

Insomnia

van Straten and colleagues (2009) conducted a meta-analysis of ten studies with over 1000 participants that showed improvements with insomnia (sleep efficiency, sleep onset latency, wake after sleep onset, and sleep quality) and outcomes were maintained at follow-up (van Straten & Cuijpers, 2009). No significant difference in outcomes compared to the therapist-conducted treatments.

Alcohol problems

Apodaca and colleagues (2003) conducted a meta-analytic review of 22 studies that showed bibliotherapy to be moderately effective in reducing problem drinking (Apodaca & Miller, 2003). This meta-analysis did not find significant differences in effectiveness between bibliotherapy compared to therapist delivered treatments.

Health Behavior Change

Krebs and colleagues (2010) included 88 "computer-tailored" interventions for health behaviors such as smoking cessation, physical activity, healthy eating, and mammography screenings (Krebs, Prochaska, & Rossi, 2010). They found an overall significant small to medium effect size of g=0.17 across four health behavior groups.

Limitations of Bibliotherapy Research and Intervention

As with any intervention, there are areas of concern about using bibliotherapy. Despite proliferation of self-help interventions, most of them lack empirical evidence to support their effectiveness (Rosen, 1987; Rosen, Glasgow, & Moore, 2003). More specifically, although self-help treatments are generally effective, the effectiveness of a particular treatment is unknown until it is scientifically tested (Glaslow & Rosen, 1978). For example, interventions that are effective when administered by a therapist, do not necessarily generalize to being effective when

self-administered, and, additionally, can lead to worsening of the presenting problem (Matson & Ollendick, 1977). Furthermore, bibliotherapy might not be appropriate for everyone. For example, the person's interpersonal style, reading ability, educational level, type of presenting problem, severity of symptoms, and co-occurring conditions can potentially affect their ability to understand or implement the instructions correctly (Chambless, Tran, & Glass, 1997; Keijsers, Hoogduin, & Schaap, 1994a; Keijsers, Hoogduin, & Schaap, 1994b; Rosen et al., 2003; Seivewright, Tyrer, & Johnson, 1998). Furthermore, individual is left to self-assess and self-diagnose their problem which could lead to lack of correct or reliable diagnosis, which in turn could lead to incorrect treatment, and, subsequently, potential iatrogenic outcomes or skepticism about effectiveness of psychological treatments. Additionally, for every treatment be it medical or psychological, delivered by a professional or self-administered, there is a problem with compliance. Following through with the treatment is even more of an issue with bibliotherapy as there is lack of supervision. Furthermore, bibliotherapies differ on the amount of contact with the therapist. In the existing self-help treatments the level of contact between the therapist and the client varies ranging from no contact to some degree of contact (Glasgow & Rosen, 1978).

Furthermore, regardless of the treatment approach, therapeutic alliance between the therapist and the client has been shown to be important for the treatment outcome (Horvath & Symonds, 1991). This presents another concern for the effectiveness of bibliotherapy, as there is typically variable amount of contact with the therapist. Newman and colleagues (2003) reviewed the research literature which showed that bibliotherapy for anxiety disorders was an effective stand-alone intervention without contact with a therapist and that motivation for treatment was the most important positive treatment outcome factor (Newman et al., 2003; Shechtman, 2009).

These findings were consistent with their own study results in which they examined degree of therapist contact in conjunction with the type of the presenting anxiety disorder symptoms.

With the high prevalence of mental health problems, regularity of experience of chronic stress and a number of barriers that get in the way of people accessing care, bibliotherapy, regardless of its shortcomings, is a great alternative method of treatment delivery that can be applied towards a broad range of difficulties. However, most of the currently available self-help treatments target specific problems. Providing empirical support for all of the individual bibliotherapies is costly and time consuming and, therefore, will delay empirically supported bibliotherapies being widely available. A bibliotherapy that reduces stress and targets a broad range of clinical mental health problems would make a large impact and avoid lengthy times and high costs of proving its effectiveness.

Mindfulness Based Stress Reduction (MBSR)

Mindfulness Based Stress Reduction (MBSR) is a mind-body intervention, which was first introduced in 1979 at the University of Massachusetts Medical School by Jon Kabat-Zinn to help people with medical conditions manage stress. The program consisted of eight 2.5 hour evening and one all-day group sessions led by a trained professional. It included a series of formal, informal meditation and gentle stretching yoga practices. Formal practices are periods of time specifically dedicated to meditation and include breath-focused attention, body scan-based attention to sensory experiences in one's body, open monitoring of moment-to moment experience, walking and eating meditations. Informal practices could be practiced throughout the day while engaging in routine activities and can include brief pauses of intentional shift of attention to present moment awareness. Through these practices participants learn to become

aware of their automatic, oftentimes maladaptive, reactions and give an opportunity to respond skillfully, which, in turn, can lead to feelings of well-being.

Over the years the original MBSR program and its modifications (Mindfulness-Based Cognitive Behavioral Therapy (MBCT), Mindfulness Based Therapy (MBT), Mindfulness-Based Childbirth and Parenting (MBCP)) have been adapted to a number of presenting problems and are currently being offered in over 250 hospitals around the United States, including medical centers at major universities such as Duke, Stanford, University of California at Los Angeles, the Penn State University, and the University of Massachusetts, to name just a few, and many more hospitals in other countries around the world.

MBSR has been applied to and showed to be effective for a wide variety of medical and psychological conditions including cancer (Cramer, Lauche, Paul, & Dobos, 2012; Shennan, Payne, & Fenlon, 2011; Smith, Richardson, Hoffman, & Pilkington, 2005), chronic pain (Grossman, 2004; Kabat-Zinn, Lipworth, & Burney, 1985; Kabat-Zinn, 1982; Kabat-Zinn, Massion, Kristeller, Gay Peterson, Fletcher, Pbert, Lenderking, and Santorelli, 1992; Merkes, 2010; Rosenzweig et al., 2010), fibromyalgia (Schmidt et al., 2011), pregnancy and childbirth (Duncan & Bardacke, 2010; Vieten & Astin, 2008), chronic medical disease (Bohlmeijer, Prenger, Taal, & Cuijpers, 2010), anxiety disorders (Fjorback, Arendt, Ornbøl, Fink, & Walach, 2011; Goldin & Gross, 2010; Hofmann, Sawyer, Witt, & Oh, 2010; Krisanaprakornkit, Krisanaprakornkit, Piyavhatkul, & Laopaiboon, 2006), mood disorders (Fjorback et al., 2011; Hofmann et al., 2010; Ma & Teasdale, 2004; Piet & Hougaard, 2011), and overall health and quality of life (Chiesa & Serretti, 2009; Grossman, 2004; Vibe, Bjørndal, Tipton, & Hammerstrøm, 2012).

A recent meta-analysis of 31 RCTs with a total of almost 2,000 participants showed MBSR and MBCT to have a moderate overall effect for combined mental health outcomes of 0.53 and 0.31 for somatic health (Fjorback et al., 2011). Furthermore, it also showed moderate effects for measures of personal development 0.50, quality of life 0.57, and mindfulness 0.70.

A recent comprehensive meta-analysis of 209 studies of mindfulness-based therapy for wide range of physical conditions, medical conditions, psychological disorders in non-clinical populations (Khoury et al., 2013) showed that it had moderate effect of Hedge's g = 0.53 compared to wait-list controls and a small overall effect compared to other psychological treatments (Hedge's g = 0.22). Anxiety and mood disorders had the largest effect sizes compared to other psychological disorders (Hedge's g = 0.89 and 0.69, respectively). There was also a moderate effect size (Hedge's g = 0.65) for studies with non-clinical populations. Furthermore, the outcomes of mindfulness-based therapy were comparable to cognitive-behavioral therapy and pharmacological treatment outcomes (Hedge's g = -0.07 and Hedge's g = 0.13, respectively). The outcomes achieved at the end of the intervention were maintained at follow-up. Authors concluded that mindfulness-based therapy was moderately effective for a range of medical and psychological problems.

Stress is a common and necessary factor in daily human life, and what prompted development of MBSR in the first place (Kabat-Zinn, 1990). Relaxation and stress management in general have been shown to effect parts of the immune system by increasing T-cytotoxic/ suppressor (CD3+CD) lymphocytes in men infected with HIV (Antoni et al., 2000). MBSR has been shown to regulate brain functioning, immune and endocrine systems (Davidson, 2003; Goldin & Gross, 2010; Solberg, Halvorsen, Sundgot-Borgen, Ingjer, & Holen, 1995). One study found that participation in the MBSR program produced effects on the brain and immune system

(Davidson, 2003). Authors found significant increase in left-sided anterior activation which has been associated with reduction in anxiety and negative affect, and increase in positive affect. Additionally, they found that antibody titers to influenza vaccine increased in participants in the intervention condition compared to controls. These findings are significant given the previous research which showed negative impact of stressful life events on antibody titers of influenza vaccine (Kiecolt-Glaser, Glaser, Gravenstein, Malarkey, & Sheridan, 1996). Another study presented findings that demonstrated that MBSR reduced clinical symptoms of social anxiety disorder and improved emotion regulation with reductions in brain activity in the midline cortical regions, amygdala and parahippocampal gyrus, which, respectively, have been connected to self-referential processes, emotion, and memory (Goldin & Gross, 2010). A meta-analysis of MBSR studies demonstrated that it had positive non-specific effects of reducing stress (Chiesa & Serretti, 2009). Furthermore, MBSR had greater effects in increasing spirituality, empathy, and self-compassion. These findings prove that anyone can benefit from MBSR.

Barriers to Accessing MBSR

MBSR shares the same obstacles to accessibility of treatment as many other psychological interventions. More specifically, like many other standard psychotherapy deliveries it assumes a 9 to 5 Monday through Friday work schedule (Lovell & Richards, 2000). Therefore, MBSR in its original format might not be accessible for individuals with variable or non-standard work schedules. Moreover, although MBSR is not a new treatment, the teacher training is demanding and lengthy process which resulted is a limited number of trained teachers who can deliver the intervention. This more specifically would be problematic for individuals living in small cities or rural areas. Furthermore, although the typical cost of the entire MBSR program is around $400, it still might be prohibitive to a lot of individuals.

MBSR in Bibliotherapy Format

Original MBSR program was adapted into bibliotherapy format, *A Mindfulness-Based Stress Reduction Workbook*, by senior highly regarded mindfulness teachers Bob Stahl, Ph.D. and Elisha Goldstein, Ph.D. The workbook consists of introduction, 11 chapters, and a cd with mp3 recordings of guided meditations. In the introduction workbook authors introduce themselves, provide suggestions on how to use the workbook, and guide self-evaluation of the extent of the individual's stress. The workbook breaks down traditional MBSR into eleven chapters. Chapter One introduces the concept of mindfulness. It includes formal mindfulness practices of mindful check-in. Chapter Two discusses the mind-body connection. More specifically, it talks about the autonomic nervous system, stress reaction, stress response and how mindfulness plays a role in stress-reduction. Chapter Three discusses how to practice mindfulness meditation. In this chapter formal practice of mindful breathing is introduced. In Chapter Four how mindfulness works with stress reduction is discussed. Topics such as negative self-talk, habitual styles of thinking, and negative interpretations are explored. A formal practice of walking meditation and an informal practice of applying STOP acronym (Stop, Take a breath, Observe, and Proceed) is described. Chapter Five explores mindfulness of the body, ways of working with physical pain, and barriers to emotional awareness are discussed. Formal practice of body scan is introduced and how to work with physical pain is discussed. Chapter Six presents ways of deepening one's practice. Formal sitting mindfulness meditation with mindfulness of senses (breathing, sensations, hearing, thoughts and emotions) and formal practice of lying yoga are introduced. Chapter Seven discusses meditation for anxiety and stress. Formal practices of standing yoga and self-inquiry for stress and anxiety as well as informal practice of applying RAIN acronym (Recognize, Allow, Investigate, and Non-identification) are

introduced. In Chapter Eight, self-compassion towards self and others through loving-kindness meditation is discussed. Chapter Nine introduces the concept of mindfulness in interpersonal relationships. It discusses concepts such as empathy, openness, compassion, loving-kindness, and equanimity. Readers are encouraged to practice mindful communication (listening, hearing vs. listening, emotions and listening) and to identify communication patterns in current relationships. In Chapter Ten healthy paths of mindful eating, exercise, rest, and connection as well as resistance to rest are explored. Chapter Eleven addresses how to keep up the mindfulness practice and it provides suggestions on how to set up formal practice and incorporate informal practice into daily life. At the end of each chapter there is a checklist which reminds and provides the structure the reader to schedule formal and informal mindfulness practices for the following week. Formal and informal practice and reflections logs are provided in each chapter and tailored to its content. Illustrations of yoga positions are accompanied by thorough descriptions. Furthermore, throughout the workbook authors share their personal stories of practice. The resource guide at the end of the book provides further resources on mindfulness.

The workbook was published in the spring of 2010 and, based on the literature and internet searches performed by this dissertation writer, there were no studies published or underway that were examining its effectiveness. Although this workbook is very affordable as it sells on Amazon.com for under $18 and under $10 for kindle edition, it does share some of the same obstacles to treatment as many other bibliotherapy treatments. As can be seen above, although MBSR has been shown to be effective, its effectiveness in bibliotherapy format has not been examined.

College students can particularly benefit from the MBSR given rising rates of mental health problems and stress levels as well as what appears to be a ever more increasing demands

with many college students holding part- or full-time jobs, participating in extracurricular activities, and carrying more responsibilities for their families while attending college full-time.

Onken and colleagues (1997) proposed a model of behavioral therapies research (Rounsaville, Carroll, & Onken, 2001; Onken, Blaine, & Battjes, 1997). The model divides the process of behavioral treatment development into three stages where stage one consists of "pilot/feasibility testing, manual writing, training program development, and adherence measure development for new and untested treatments" (Rounsaville et al., 2001). Stages two and three include further testing the new interventions effectiveness, generalizability, implementation, cost effectiveness, and consumer issues though randomized clinical trials (RCTs). The proposed current study is fitting as a stage one proof-of concept trial of a stage model of behavioral therapies research with examining feasibility of the MBSR bibliotherapy with suggested further replication research through randomized control trials (Rounsaville et al., 2001).

In summary, all treatments have advantages and areas for concern, with bibliotherapy not being an exception. Having an empirically supported bibliotherapy provides an opportunity to provide a cost-effective intervention to a large group of people in need.

Purpose and Rationale

The purpose of the current study was to evaluate feasibility of the use of the self-help workbook based on the empirically supported Mindfulness-Based Stress Reduction program and its effectiveness via randomized control trial with intervention (bibliotherapy) and no-treatment control groups. MBSR has shown to have positive effects on a range of medical and psychological conditions, however, its effectiveness in bibliotherapy form has not been examined. The primary goal of this study was to evaluate effectiveness of MBSR bibliotherapy within a college student sample on general stress responses as well as symptoms of depression,

anxiety, and quality of sleep with the hope that it may eventually be used in primary care settings or as an alternative to individual or group interventions which might not be available due to geographical, financial, or stigma barriers.

Hypotheses

Hypothesis 1: Participants in the bibliotherapy condition will show greater reduction in self-reported frequency and severity of symptoms of perceived stress and/or psychological distress immediately post-intervention compared to participants in the no-treatment control condition.

Hypothesis 2: Participants in the bibliotherapy condition will show greater reduction in self-reported symptoms of sleep disturbance immediately post-intervention compared to participants in the no-treatment control condition.

Hypothesis 3: Participants in the bibliotherapy condition will show greater satisfaction on self-reported measure of quality of life and improvement in self-reported mindfulness immediately post-intervention compared to participants in the no-treatment control condition.

Chapter 2

Method

Participants

Participants were recruited from an unselected sample of the undergraduate, graduate, medical school, and nursing school students at the major western university and community college. Participation was open to all the students except for those who were under the age of 18, who were currently in psychotherapy treatment, or were not fluent in English. Randomization was performed via http://www.randomizer.org/. Participants were informed about the condition they were randomized to after they signed informed consent form and completed baseline assessment measures. Study hypotheses were not described to the participants.

Procedure

Recruitment and follow-up for this study was conducted between April 2014 and May 2015. Study participants were recruited via flyers, classroom announcements, and postings on the university's psychology department's online subject recruitment system (see Appendix B). The announcements advertised this study as a wellness-oriented program that involved reading and following a self-help book. In exchange for their involvement in the study participants were offered extra credit points towards psychology courses. To incentivize participants in both conditions to complete the quizzes, for every completed weekly follow-up assessment participants were issued one raffle ticket, which at the end of the study was entered to win one of nine $100 gift cards. Participants in the no-treatment control group were given copy of the MBSR workbook upon completion of the last assessment.

Students who were interested in participating in the study were invited to come to the lab for informed consent procedures and pre-treatment assessment (see Appendix E). Students were told that their participation in the study was completely voluntary and that no penalty would result from not participating. If participants agreed to participate in the study after reading an informed consent form, they were asked to sign the form and complete demographic information and baseline questionnaires. All of the assessment data were collected via *Qualtrics*, which is a secure online survey system. After completion of pre-treatment assessment measures, participants were informed what study condition (intervention or no-treatment control) they were randomly assigned to. Participants who were randomized into intervention condition received the workbook and written instructions with the reading schedule. Written instructions outlined weekly readings and reminded participants that they would be asked to complete weekly content quizzes (total of 10 quizzes) and short symptom measures *The Counseling Center Assessment of Psychological Symptoms-34* (CCAPS-34) over the course this time.

Ten different quizzes were administered weekly on-line through *Qualtrics* as participants progress through the workbook. Each quiz included eight items relevant to the content of the chapter of the workbook which was assigned for the previous week (see Appendix D). Quizzes were given to assess understanding of the workbook and, also as an objective measure of the participants' use of the workbook. Participants were also told that they would receive prompts via email, text message or a call to complete follow-up assessments.

Intervention Condition

Participants in the bibliotherapy condition were told that they would read and follow a mindfulness workbook and were given a copy of the workbook after completing initial assessment. A sheet with written suggested timeline and instructions on how to use the

workbook was provided at this point. Participants in the intervention condition were instructed to read one chapter per week (except for weeks one and ten when they were instructed to read two chapters) and engage in reflection exercises, formal and informal mindfulness practices outlined in each chapter. Furthermore, participants were informed that they would be contacted weekly via email by the student investigator. The emails were used solely for administrative purposes and included reminders and instruction on the use the workbook as well as a link to the brief on-line survey through *Qualtrics* which accessed participants' use of the workbook (e.g., whether read chapter assigned for this week, frequency and time spent engaging in mindfulness practice, type of mindfulness meditation practiced, and barriers to practice) and the CCAPS-34 questionnaire (see Appendix C). The text of the reminder emails included instructions to complete a quiz which consisted of eight questions about the content from the previous week's reading.

Control Condition

After informed consent procedures, participants who were randomly assigned to the no-treatment control group were instructed that they would be contacted weekly via email by the student investigator and would contain the links to the on-line CCAPS-34 questionnaire through *Qualtrics*. Participants in the control condition did not receive the workbook after the randomization, however, because of ethical concerns, after completion of the data collection participants in this condition were fully debriefed about the study and offered a copy of the workbook.

Measures

Primary Outcome Measures

During the initial assessment participants were asked to provide sociodemographic information (e.g., gender, age, education, race/ethnicity, English language fluency, employment status, and years of education), alcohol, drug, and psychotropic medication use information. Participants in both conditions completed all of the primary outcome, secondary outcome, and quality assessment measures pre- and post-intervention (see Table 1).

Depression Anxiety Stress Scales-21 (DASS-21; Lovibond & Lovibond, 1995) is a 21-item self-report measure used to assess depression, anxiety, and stress over the period of one week prior to the assessment date. The depression scale consists of dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest, anhedonia, and inertia subscales. The anxiety scale consists of autonomic arousal, skeletal musculature effects, situational anxiety, and subjective experience of anxious affect subscales. Difficulty relaxing, nervous arousal, easy agitation, irritability, and impatience subscales compose the stress scale. The responses are rated on a four-point Likert scale from 0 (*did not apply to me at all*) to 3 (*applied to me most of the time, or most of the time*). It demonstrated good reliability, with Cronbach's alpha of .90 for Stress, 0.84 for Anxiety, and 0.91 for Depression scales (Lovibond & Lovibond, 1995) (see Appendix A).

The World Health Questionnaire Quality of Life-Brief (WHOQOL-BREF; World Health Organization, 2004) is a 26-item self-report questionnaire used to assess quality of life in four domains of physical (symptoms, functioning and disability), psychological (positive and negative affect, bodily image appearance, and behavior), social well-being (work, daily role, and personal relationships), and environmental (financial resources, physical safety and security, accessibility

to services, opportunities for acquiring new information and skills). The responses are rated on a five-point Likert scale from 1 (*very poor*) to 5 (*very good*). Cronbach's alpha for facets of the scale ranging from 0.65 to 0.93, and, and overall Cronbach's alpha of 0.89 therefore, demonstrates good internal consistency (Krägeloh et al., 2011; The WHOQOL, 1998) (see Appendix A).

Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983; Cohen & Williamson, 1988) is the most widely used psychological instrument to measure perceived stress. It assesses the degree to which the person experienced life situations as stressful in terms of feeling like they were unpredictable or uncontrollable. It also directly inquires about current levels of experienced stress. PSS is not a diagnostic instrument, and, therefore, does not have cut-off scores. It consists of ten self-report items rated on a five-point Likert scale from 0 (*never*) to 4 (*very often*) for the period of the past month. Coefficient alpha of 0.78 demonstrates a good internal validity (Cohen & Williamson, 1988) (see Appendix A).

Secondary Outcome Measures

Penn State Worry Questionnaire (PSWQ; (Brown, 2003; Meyer et al., 1990) is the most commonly used self-report measure of pathological worry. It consists of 16 self-report items with the responses rated on a five-point Likert scale from 1 (*not at all typical of me*) to 5 (*very typical of me*). The possible range of scores on PSWQ is from 16 to 80, with scores between 16 and 39 indicative of low worry, 40 to 59 of moderate worry, and 60 to 80 as high worry. The cut off score of 62 is considered as excessive worry (Behar, Alcaine, Zuellig, & Borkovec, 2003). PSWQ has been shown to be positively correlated with other self-report measures of worry (Beck, Stanley, & Zebb, 1995; Davey, 1993; van Rijsoort, Emmelkamp, & Vervaeke, 1999). It

has been shown to have good internal consistency and test-retest reliability (Beck et al., 1995; Meyer et al., 1990) (see Appendix A).

Anxiety Sensitivity Index (ASI; Reiss and McNally, 1985; Reiss et al., 1986) is a 16-item self-report questionnaire used to measure two aspects of anxiety sensitivity: beliefs about the dangerousness of anxiety sensations and fears of those sensations. Each item is rated on a five-point scale ranging from 0 (*very little*) to 4 (*very much*). Scores equal or above 27 are considered to be in high anxiety sensitivity range. The ASI is one of the post widely used and well-researched measures for panic disorder and related conditions. Individuals with anxiety disorders obtain higher scores on the ASI compared to those without anxiety disorder symptoms (Reiss et al., 1986). The ASI is a reliable (Cronbach's alpha .87, test-retest reliability of .71 to .75) and valid measure of the personality variable of anxiety sensitivity which is factorially independent of other anxiety measures (Peterson & Heilbronner, 1987; Reiss et al., 1986) (see Appendix A).

Pittsburgh Sleep Quality Index (PSQI; Buysee et al., 1989) is a 19-item self-report measure of quality, sleep habits, and disturbance of sleep over the past month. It derives seven clinical domains of sleep difficulties such as sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medications, and daytime dysfunction. The items are rated on a four-point Likert scale with different specific definitions of anchors depending on the subset of questions with an overall rule of from *infrequent* to *frequent* experiences. PSWI has shown good internal consistency with Cronbach's alpha of 0.83, good test-retest reliability with 0.85 correlation coefficient, and good concurrent and discriminative validity (Backhaus, Junghanns, Broocks, Riemann, & Hohagen, 2002; Buysee et al., 1989).

Overall PSQI score of above five shows a diagnostic sensitivity of 89.6 percent and specificity of 86.5 percent (see Appendix A).

Brief COPE (Carver, 1997) is a 28-item self-report measure used to assess a range of what would be considered functional and dysfunctional coping strategies. The items are rated on a four-item Likert scale with responses ranging from 1 (*I haven't been doing this at all*) to 4 (*I've been doing this a lot*). An abbreviated version has been created from the original 60-item original COPE measure to reduce patient burden (Carver, Scheier, & Weintraub, 1989). The Brief COPE has two items per scale which were chosen based on their high factor analysis loadings. There is a total of 14 subscales indicating 14 distinct coping reactions (e.g., self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame). Alpha coefficients for sub-scales ranging from 0.57 to 0.90 demonstrate a good internal reliability (see Appendix A).

Acceptance and Action Questionnaire (AAQ-II; Bond et al., 2011) is a 7-item self-report measure with the responses rated on a seven-point Likert scale from 1 (*never true*) to 7 (*always true*). AAQ is the most commonly used measure of psychological inflexibility and experiential avoidance. Because this measure was not designed to diagnose symptoms of mental disorders, the cut-off scores are not included. The higher scores are indicative of higher psychological inflexibility and experiential avoidance. Although different versions of AAQ have been created for specified populations (e.g., diabetes, epilepsy, pain, psychotic symptoms, smoking, tinnitus, and weight) and have shown to be effective in predicting outcomes in their specific areas, the general AAQ can be used in a variety of different settings to look at the processes that underlie therapeutic and behavioral change. The 7-item version is a revision of the previous 10-item scale

and has shown to have better psychometric consistency compared to all the previous versions. It has shown to have high reliability with a mean alpha coefficient of .84 and good test-retest reliability of 0.81 and 0.79 at 3- and 12-months, respectively. It has also showed satisfactory construct, concurrent, discriminant, predictive, and convergent validities (Bond et al., 2011) (see Appendix A).

Mindfulness Measure

Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkinds, Krietemeyer, and Toney, 2006; Baer et al., 2008) is a 39-item self-report measure with the responses rated on the five-point Likert scale from 1 (*never* or *very rarely true*) to 5 (*very often* or *always true*). FFMQ is one of the most commonly used measures used to assess various facets of mindfulness. Measure consists of five sub-scales (observing, describing, acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience) as well as a total scale score. The total FFMQ scale scores range from 39 to 195 with higher scores indicating more present moment awareness. FFMQ showed strong correlations between mindfulness sub-scales and other measures measuring related constructs and ability to predict levels of symptom (see Appendix A).

Quality Measures

Treatment Evaluation Inventory Short-Form (TEI-SF; Kelley et al., 1989) is a 7-item self-report measure of treatment acceptability and consumer satisfaction. The responses are rated on a five point Likert scale from *strongly disagree* to *strongly agree*. This measure was administered only to the participants in the intervention condition post-intervention (see Appendix A).

Other Activities Assessment (OAA) is a measure designed by the principal investigators specifically for this study. OAQ was administered only at post-intervention assessment and assessed health and wellness activities participants have been engaging prior to and since participation in the study. More specifically, it included two multiple choice questions asking which of the health and wellness activities (i.e., individual psychotherapy, support group, yoga, meditation group, other relaxation strategies, starting a hobby, attending a place of worship, etc.) participants regularly engaged in before and after participating in the current study. It also asked participants to rate on the scale from 1 to 10 (1 = not at all important, 10 = extremely important) how important this workbook program was to them and to explain reasons for their rating (See Appendix A).

Weekly Assessment Measures

During the weekly assessments all participants completed *The Counseling Center Assessment of Psychological Symptoms-34* (CCAPS-34; Locke et al., 2012) which was used to assess weekly change. Additionally, participants in the bibliotherapy condition also completed *Treatment Adherence Questionnaire* (TAQ), a measure that was designed by the principal investigators specifically for this study, and quizzes based on the content of the chapter recommended as a reading for that week (see Appendix A).

The Counseling Center Assessment of Psychological Symptoms-34 (CCAPS-34; Locke et al., 2012) a 34-item self-report measure that takes about 2 to 3 minutes to complete (see Appendix A). The CCAPS-34 was designed to be used as a repeated brief assessment at every therapy session or at specific intervals throughout the treatment. It consists of eight subscales related to symptoms of psychological disorders as well as overall distress in college students. More specifically, the subscales are Depression, Generalized Anxiety, Social Anxiety, Academic

Distress, Eating Concerns, Hostility, Alcohol Use, and Distress Index. The CCAPS-34 is a shortened version of the CCAPS-62 (Locke et al., 2011) which was created for use at the university counseling centers with college students. The CCAPS-34 shares the same items and subscales as CCAPS-62 except a Family Distress subscale is not included and the Substance Use subscale from the CCAPS-62 has been renamed Alcohol Use. Because of its length and comprehensiveness, and, hence, higher sensitivity for detection of lower levels of distress, the CCAPS-62 is recommended for pre and post-treatment assessment. Responses are rated on a five-point Likert-type scale ranging from 0 (*not at all like me*) to 4 (*extremely like me*). CCAPS-34 has shown good internal consistency with Cronbach's alpha of 0.92 and good reliability with 0.88 correlation coefficient. Subscale scores showed acceptable to good internal consistency with Cronbach's alpha coefficients ranging from 0.760 to 0.892 (Locke et al., 2012). Furthermore, CCAPS-34 showed good concurrent validity with the convergent correlations for subscales ranging from 0.52 to 0.78. It also showed good test-retest reliability with Pearson product-moment correlations ranging from 0.79 to 0.87 for the 1-week and 0.74 to 0.87 for the 2-week test-retest ($p<0.01$).

Treatment Adherence Questionnaire (TAQ) is a measure designed by the principal investigators specifically for this study. TAQ was administered on a weekly basis and assessed participant's use of the workbook. More specifically, it assessed percentage of suggested reading and suggested written exercises from the previous week completed, and what formal guided and informal meditation practices they engaged in. It also assessed barriers to completing suggested activities via multiple choice questions with answer choices including "I forgot," "I didn't have time," and "I didn't understand the material/Material was difficult to follow/ Instructions were not clear," or "other" (see Appendix A).

Workbook Quizzes. Each weekly quiz consisted of eight multiple-choice questions based on the content of the chapter suggested as reading for that week (see Appendix D).

Table 1.
Outline of Pre-, Post-, and Weekly Assessments

Measure	Pre-	Post-	Weekly
Sociodemographic Questionnaire	✓		
Primary Outcome Measures			
Depression, Anxiety and Stress Scale (DASS)	✓	✓	
Perceived Stress Scale (PSS)	✓	✓	
The World Health Organization Questionnaire Quality of Life – BREF (WHOQOL-BREF)	✓	✓	
Secondary Outcome Measures			
Penn State Worry Questionnaire (PSWQ)	✓	✓	
Anxiety Sensitivity Index (ASI)	✓	✓	
Five Facet Mindfulness Questionnaire (FFMQ)	✓	✓	
Acceptance and Actions Questionnaire-II (AAQ-II)	✓	✓	
Pittsburgh Sleep Quality Index (PSQI)	✓	✓	
Treatment Evaluation Inventory-Short Form (TEI-SF)		✓	
Other Activities Questionnaire (OAQ)		✓	
Weekly Assessment Measures			
The Counseling Center Assessment of Psychological Symtpoms-34 (CCAPS-34)	✓	✓	✓
Chapter quizzes*			✓
Treatment Adherence Questionnaire (TAQ)*			✓

*Bibliotherapy condition only

Chapter 3

Results

Sample Size Calculations

For preliminary studies like the current one, research suggest the use of a sample of 30 participants per group (Rounsaville et al., 2001). Therefore, a total of 60 participants (30 for intervention and 30 for no-treatment control groups) was estimated to be needed for the current study. In order to account for attrition rates, additional 15 participants per group were recruited for a total of 90 (45 intervention and 45 no-treatment control groups).

Attrition

A total of 92 participants from UNR and TMCC were recruited into the study and completed the pre-intervention survey. All 92 recruited study participants were randomly assigned either to the bibliotherapy (n = 47) or control (n = 45) condition. Three participants (all from the bibliotherapy condition) actively withdrew from the study within several weeks after enrollment and 21 participants (19 from intervention and 2 from control) did not complete post-intervention assessments. The final sample consisted of a total of 68 participants of which 53.2% (n = 25) in bibliotherapy and 91.5% (n = 43) in control condition were included in the data analyses.

Participant Demographics

Ethnic composition of the recruited study participants was as follows: 62% Caucasian, 17.4% Hispanic/Latino, 7.6% American Indian, 7.6% Asian/Asian American, 7.6% Multi-racial, 1.1% African American, 1.1% Native American, and 2.2% Other. The average age of the recruited study participants was 22.12 years (SD = 4.72, range 18 to 41). Majority of the study participants identified English as their native or first language (84.8%) and 94.6% were undergraduate students (n = 87). Relationship status of the study participants was as follows:

58.7% single/never married, 34.8% in a serious/committed relationship, 5.4% married/in domestic partnership, and 1.1% divorced. Current employment status reported by the study participants was as follows: 53.3% part-time employment, 35.9% unemployed, and 10.9% employed full-time. None of the study participants reported currently being in therapy and 96.7% denied current use of any psychotropic medications (see Table 2).

Randomization Check

With the exception of Anxiety DASS, MANOVA and chi-square tests did not reveal any significant differences between the bibliotherapy and control groups across sociodemographic and dependent measures at baseline. To account for pre-intervention differences, ANCOVA analyses were conducted with variable on which there were differences entered as a covariate. Correlational analyses were performed to test the relations among sociodemographic and pre-intervention factors included in the analyses (see Tables 3, 4, and 5).

Table 2.

Descriptive Statistics for Sociodemographic Variables by Condition for Assessment Completers

Variable	Bibliotherapy (*n = 25*) M (SD)	Control (*n = 43*) M (SD)	*P*
Age	23.0 (5.1)	21.6 (4.5)	1.7
Ethnicity (Caucasian)	64%	62.8	.93
Gender (Female)	76%	74.4%	.74
Relationship Status (Single/Never Married)	60%	60.5%	.99
Alcohol Use Frequency	3.5 (5.4)	3.7 (4.1)	.45
Experimental Drug Use Frequency	1.4 (6.2)	1.1 (3.0)	.41
English Native/First Language	84%	81%	.75
Employment Status (Employed)	40%	53.5%	.24
Years in College	3.6 (2.0)	3.2 (1.8)	.21
Graduate student	8%	4.7%	.27
Currently In Therapy (Yes)	0%	0%	n/a
Current Psychotropic Medications (Yes)	0%	2.3%	.44

Potential Covariates

To determine whether any sociodemographic or other background variables predicted changes on any of the dependent measures, and therefore needed to be entered as covariates in the main analyses, a series of correlational analyses were performed. Several demographic variables (employment status, use of experimental drugs, English as a native language, and year in college) had significant correlations at $p<05$. Employment status was negatively correlated with pathological worry ($r = -.28$, $p<.05$) and mindfulness post-intervention ($r = -.29$, $p<.05$) and positively correlated with describing subscale of mindfulness measure ($r = .26$, p,.05). Use of experimental drugs was negatively correlated with sleep post intervention ($r = -.24$, $p<.05$). English as a native language was negatively correlated with describing subscale of mindfulness measure ($r = -.26$, $p<.05$). Year in college was positively correlated with mindfulness of not

judging inner experiences (r = .27, p,.05) (see Tables 3, 4, and 5).

Table 3.

Correlations Between Sociodemographic Variables and Primary Outcome Measures

	DASS							WHOQOL							PSS	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Gender	-.03	.07	.13	.04	.12	.10	.21	.13	.03	.03	-.17	.00	.15	.14	.04	.00
Age in years	-.04	-.04	.00	-.08	.04	-.13	-.02	-.09	**.27***	.09	-.20	-.06	-.13	-.12	.06	.05
Ethnicity	.08	.04	-.01	-.01	.08	-.01	.12	.10	-.00	-.06	.13	.16	.12	.07	.11	.11
Relationship status	.03	.15	-.17	.05	.17	.12	.22	.27*	-.02	.05	-.11	-.05	.12	.08	.15	.12
English native language	.12	.18	-.02	.14	.13	.19	.15	.19	-.13	-.19	.04	.23	.16	.04	.06	-.02
Employment status	-.13	-.16	.14	-.09	-.02	-.15	-.14	**-.28***	**.29***	.07	.04	.05	-.09	-.20	-.09	-.17
Year in college	.00	-.05	-.10	-.08	.10	.02	.16	.10	.16	-.01	-.16	-.03	-.02	.06	.15	.14
Alcohol Use	-.04	.01	-.14	-.07	-.04	.03	-.09	-.12	.04	.06	.02	-.11	-.04	.07	.01	.10
Experimental Drug Use	-.13	-.04	-.04	-.05	-.15	-.02	-.15	-.20	-.01	-.07	-.02	-.07	-.03	-.01	-.04	.02
Psych Meds	.03	-.10	-.03	-.09	-.03	-.07	.00	-.02	.07	.03	.06	-.16	-.02	.04	-.04	.07

Notes. 1 = DASS Depression Pre, 2 = DASS Depression Post, 3 = DASS Anxiety Pre, 4 = DASS Anxiety Post, 5 = DASS Stress Pre, 6 = DASS Stress Post, 7 = WHOQOL Physical Pre, 8 = WHOQOL Physical Post, 9= WHOQOL Psychological Pre, 10 = WHOQOL Psychological Post, 11 = WHOQOL Social Pre, 12 = WHOQOL Social Post, 13 = WHOQOL Environmental Pre, 14 = WHOQOL Environmental Post, 15 = PSS Pre, 16 = PSS Post.
* p<.05

Table 4.
Correlations Between Sociodemographic Variables and Secondary Outcome Measures

	PSWQ		FFMQ		ASI		AAQ-II		PSQI	
	1	2	3	4	5	6	7	8	9	10
Gender	.21	.13	.03	.03	.00	-.17	.15	.14	.13	-.07
Age in years	-.02	-.09	.09	.27	-.06	-.20	-.13	-.12	.02	.06
Ethnicity	.12	.10	-.06	-.00	.16	.13	.12	.07	.02	.02
Relationship status	.22	.27*	.05	-.02	-.05	-.11	.12	.08	.10	.07
English native language	.15	.19	-.19	-.13	.23	.04	.16	.04	.00	.10
Employment status	-.14	**-.28***	.07	**.29***	.05	.04	-.09	-.20	-.15	-.12
Year in college	.16	.10	-.01	.16	-.03	-.16	-.02	.06	.01	.06
Alcohol Use	-.09	-.12	.06	.04	-.11	.02	-.04	.07	-.06	-.04
Experimental Drugs	-.15	-.20	-.07	-.01	-.07	-.02	-.03	-.01	**-.24***	-.03
Psych Meds	.00	-.02	.03	.07	-.16	.06	-.02	.04	.06	.07

Notes. 1 = PSWQ Pre, 2 = PSWQ Post, 3 = FFMQ Pre, 4 = FFMQ post, 5 = ASI Pre, 6 = ASI Post, 7 = AAQ-II Pre, 8 = AAQ-II Post, 9 = PSQI Pre, 10 = PSQI Post
*p<.05

Table 5.
Correlations Between Sociodemographic Variables and FFMQ Subscales

	Observing		Describing		Acting with Awareness		Nonjudging		Nonreactivity	
	1	2	3	4	5	6	7	8	9	10
Gender	.04	-.02	.01	.00	-.05	-.08	.12	.14	-.12	.03
Age in years	-.07	.07	.09	.12	.09	.21	.20	.31	-.19	-.10
Ethnicity	.00	-.02	.11	.03	-.06	.06	-.15	-.06	-.03	.00
Relationship status	.12	.05	-.01	-.10	.07	-.06	-.11	.04	.09	.02
English native language	-.01	-.03	-.21	**-.26***	.01	.05	-.11	-.07	-.17	-.05
Employment status	.02	.08	.12	**.26***	-.05	.07	.07	.22	-.03	.17
Year in college	-.09	-.02	.05	.10	-.04	.10	.13	**.27***	-.15	-.12
Alcohol Use	-.06	-.08	.05	.15	-.01	-.10	.09	.01	.07	.18
Experimental Drugs	-.16	-.09	.00	-.02	-.09	-.09	.10	.09	-.04	.08
Psych Meds	-.04	.06	.07	.14	.08	-.02	.01	-.03	-.07	.06

Notes. 1 = FFMQ Observing Pre, 2 = FFMQ Observing Post, 3 = FFMQ Describing Pre, 4 = FFMQ Describing Post, 5 = FFMQ Acting with Awareness Pre, 6 = FFMQ Acting with Awareness Post, 7 = FFMQ Nonjudging of Inner Experience Pre, 8 = FFMQ Nonjudging of Inner Experience Post, 9 = FFMQ Nonreactivity to Inner Experience Pre, 10 = FFMQ Nonreactivity to Inner Experience Post
*p<.05

The SPSS System (version 22) for Windows (SPSS, 2014) was used for all analyses. Tabachnick and Fidell (2013) procedures for data cleaning were applied prior to the data analyses to check for the accuracy, completeness, and normality of distribution of all relevant sociodemographic and pre-intervention symptom variables (i.e., age, ethnicity, gender, relationship status, education level, English as native language, use of alcohol, use of experimental drugs, currently being in therapy, and currently taking psychotropic medications). Z-scores were used to identify univariate outliers. Mahalnobis' distance and leverage were used to identify multivariate outliers. Pre-intervention differences between study groups were examined via MANOVAs for continuous variables and chi-square tests for categorical variables.

Univariate analyses revealed no significant skewness and/or kurtosis for variables relevant to the planned analyses.

Treatment Outcomes

Symptom Measures

For the symptom measures, we intended to conduct six comparisons using $\alpha = .05$ for each comparison. In order to control for Type I error, the familywise error rate (α_{EW}) was calculated using formula of α divided by a number of comparisons (.05/6 = .008). Hence, the familywise error rate $\alpha_{EW} = .008$ was used to evaluate significant findings.

Depression, Anxiety and Stress

A one-way repeated measures ANOVA was used to examine changes in depression following the intervention. There was a significant interaction effect of condition by time, $F(1, 66) = 16.4$, $p = .001$ (see Table 6), which implies that there were significant differences in the change in reported symptoms of depression from pre- to post-assessment across conditions, with the intervention condition reporting decrease in depressive symptoms from pre- to post-intervention and the control condition reporting no change in depressive symptoms.

A one-way ANCOVA was used to examine changes in anxiety symptoms following the intervention with DASS Anxiety pre-intervention as a covariate as differences in anxiety scores pre-intervention were found between the groups with higher anxiety symptom scores in the bibliotherapy condition. After controlling for significant main effect of DASS Anxiety pre-intervention, there was a significant interaction effect of condition by time, $F(1, 65) = 9.2$, $p = .003$ (see Table 6), which implies that when pre-existing differences in the DASS

anxiety were taken into account there were significant differences in the change in DASS anxiety from pre- to post-assessment across conditions, with the intervention condition reporting decrease in anxiety symptoms and control condition reporting no change in anxiety symptoms.

A one-way repeated measures ANOVA was used to examine changes in stress symptoms following the intervention. There was no significant interaction effect of condition by time, Wilks's $\Lambda = .94$, $F(1, 66) = 4.13$, $p = .05$, $\eta^2 = .06$ (see Table 6), which implies that there were no significant differences in the change in DASS stress symptoms from pre- to post-assessment across conditions.

A one-way repeated measures ANOVA was used to examine changes in perceived stress symptoms measured by the PSS following the intervention. There was no significant interaction effect of condition by time, $F(1, 65) = 3.9$, $p = .05$ (see Table 6), which implies that there were no significant differences in the change in reported symptoms of perceived stress measured by the PSS scale pre- to post-assessment across conditions.

Worry

A one-way repeated measures ANCOVA was used to examine changes in pathological worry following the intervention. Employment status entered as a covariate due to findings of correlation between baseline scores of PSWQ and employment status ($r = -.275$). After controlling for the effect of employment status, there was no significant interaction effect of condition by time, Wilks's $\Lambda = .99$, $F(1, 65) = .136$, $p = .713$, $\eta^2 = .002$ (see Table 6), which implies that there were no significant differences in the change in pathological worry from pre- to post-assessment across conditions. After controlling for the effect of employment status, there was also no significant main effect of time, $F(1, 65) = .35$, $MSE = 17.92$, $p =$

.555 on pathological worry, indicating that there was no effect of employment status on worry over time and that there were no significant changes in pathologic worry from pre- to post-assessment over time.

Sleep

A one-way repeated measures ANCOVA was used to examine changes in quality of sleep following the intervention. Experimental drug use was entered as a covariate due to findings of correlation between baseline scores of the PSQI and experimental drug use (r = -.242). There was no significant interaction effect of condition by time, Wilks's $\Lambda = .98$, $F(1, 61) = 1.49$, $p = .226$, $\eta^2 = .024$ (see Table 6), which implies that after shared variance of experimental drugs was accounted for, there were no significant differences in the change in quality of sleep from pre- to post-assessment across conditions. However, there was a significant main effect of time on quality of sleep, $F(1, 65) = 85.22$, $MSE = 469.60$, $p = .000$, indicating that there were significant changes in quality of sleep from pre- to post-assessment over time with participants in the bibliotherapy condition reporting improved quality of sleep. A one-way repeated measures ANOVA was used to examine changes in quality of sleep for completers following the intervention. There was no significant interaction effect of condition by time, Wilks's $\Lambda = 1.0$, $F(1, 8) = .00$, $p > .05$, $\eta^2 = .00$ (see Table 9), which implies that there were no significant differences in the change in quality of sleep ratings from pre- to post-assessment across conditions for completers. There was no significant main effect of time on quality of sleep, $F(1, 8) = 16.67$, $MSE = 12.05$, $p = .004$, indicating that there were no significant changes in quality of sleep over time for completers from pre- to post-assessment over time.

Table 6.

Means and Standard Deviations for Symptom Measures by Condition

		Bibliotherapy (n = 25)		Control (n = 43)	
		Mean	SD	Mean	SD
DASS Depression	T1	8.7	9.1	7.7	8.o
	T2	3.8	4.9	10.1	11.3
DASS Anxiety	T1	11.4	9.3	6.6	6.2
	T2	5.1	6.2	8.9	9.9
DASS Stress	T1	13.7	11.7	13.3	8.8
	T2	9.3	7.2	14.0	10.8
PSS	T1	18.4	7.9	17.8	6.3
	T2	15.3	5.6	18.1	7.1
PSWQ	T1	54.6	16.7	54.0	14.5
	T2	51.5	14.6	52.6	14.5
PSQI	T1	13.0	3.7	12.3	2.8
	T2	8.4	3.2	8.8	3.0

Notes. DASS = Depression, Anxiety and Stress Scale; PSS = Perceived Stress Scale; PSWQ = Penn State Worry Questionnaire; PSQI = Pittsburgh Sleep Quality Index; Bibliotherapy = book group; Control = No book group; T1 = Baseline assessment/ Pre-bibliotherapy assessment; T2 = Follow-up/ Post-bibliotherapy assessment

Quality of Life Measures

For the quality of life measures, we intended to conduct four comparisons using $\alpha = .05$ for each comparison. In order to control for Type I error, the familywise error rate (α_{EW}) was calculated using formula of α divided by a number of comparisons (.05/4 = .013). Hence, the familywise error rate $\alpha_{EW} = .013$ was used to evaluate significant findings.

A one-way repeated measures ANOVA was used to examine changes in physical quality of life following the intervention. There was a significant interaction effect of condition by time, Wilks's $\Lambda = .997$, $F(1, 66) = 11.45$, $p = .001$, $\eta^2 = .15$ (see Table 7), which implies that there were significant differences in the change in physical quality of life pre- to post-assessment across conditions, with the intervention condition reporting an increase and control condition reporting a decrease in physical quality of life.

A one-way repeated measures ANOVA was used to examine changes in psychological quality of life following the intervention. There was a significant interaction effect of condition by time, Wilks's $\Lambda = .85$, $F(1, 66) = 11.44$, $p = .001$, $\eta^2 = .15$ (see Table 7), which implies that there were significant differences the change in in psychological quality of life pre- to post-assessment across conditions, with the intervention condition reporting an increase and control condition reporting a decrease in psychological quality of life.

A one-way repeated measures ANOVA was used to examine changes in social quality of life following the intervention. There was no significant interaction effect of condition by time, $F(1, 66) = 3.05$, $p = .086$ (see Table 7), which implies that there were no significant differences in the change in social quality of life from pre- to post-assessment across conditions.

A one-way repeated measures ANOVA was used to examine changes in environmental quality of life following the intervention. There was a significant interaction effect of condition by time, $F(1, 66) = 19.00$, $p = .001$ (see Table 7), which implies that there were significant differences in the change in environmental quality of life from pre- to post-assessment across conditions.

Table 7.

Means and Standard Deviations for Quality of Life Outcome Measures by Condition

		Bibliotherapy (n = 25)		Control (n = 43)	
		Mean	SD	Mean	SD
WHOQOL Physical	T1	16.1	2.5	16.7	2.1
	T2	17.1	1.8	16.0	2.6
WHOQOL Psychological	T1	14.7	2.4	14.9	2.4
	T2	15.6	1.8	14.2	2.7
WHOQOL Social	T1	15.4	3.7	14.5	3.4
	T2	16.2	2.7	14.1	3.4
WHOQOL Environmental	T1	15.2	2.8	15.9	1.9
	T2	16.3	1.7	15.0	2.0

Notes. QOL = World Health Questionnaire Quality of Life; Bibliotherapy = book group; Control = No book group; T1 = Baseline assessment/ Pre-bibliotherapy assessment; T2 = Follow-up/ Post-bibliotherapy assessment

Process Measures

For the process measures, we intended to conduct seven comparisons using $\alpha = .05$ for each comparison. In order to control for Type I error, the familywise error rate (α_{EW}) was calculated using formula of α divided by a number of comparisons (.05/7 = .007). Hence, the familywise error rate $\alpha_{EW} = .007$ was used to evaluate significant findings.

Observing Type of Mindfulness

A one-way repeated measures ANOVA was used to examine changes in observing type of mindful awareness following the intervention. There was no significant interaction effect of condition by time, Wilks's $\Lambda = .98$, $F(1, 66) = 1.533$, $p = .220$, $\eta^2 = .023$ (see Table 8), which

implies that there were no significant differences in the change in observing mindful awareness from pre- to post-assessment across conditions. There was also no significant main effect of time on observing type of mindful awareness, $F(1, 65) = 2.17$, $MSE = 31.88$, $p = .146$, indicating that there were no significant changes in observing type of mindful awareness from pre- to post-assessment over time.

Describing Type of Mindfulness

A one-way repeated measures ANCOVA was used to examine changes in describing type of mindful awareness following the intervention. Employment status was entered as a covariate due to findings of correlation between post-intervention scores of FFMQ describing subscale and employment status ($r = .256$). After controlling for effect of employment status, there was no significant interaction effect of condition by time, Wilks's $\Lambda = 1.00$, $F(1, 64) = 0.124$, $p = .726$, $\eta^2 = .002$ (see Table 8), which implies that there were no significant differences in the change in describing type of mindful awareness from pre- to post-assessment across conditions. There was also no significant main effect of time on describing type of mindful awareness, $F(1, 64) = 1.00$, $MSE = 10.100$, $p = .319$, indicating that there were no significant changes in observing mindful awareness from pre- to post-assessment over time.

A one-way repeated measures ANCOVA was used to examine changes in describing type of mindful awareness following the intervention. English as a native language was entered as a covariate due to findings of correlation between post-intervention scores of describe subscale on FFMQ and English as a native language ($r = -.262$). After controlling for effect of English as a native language, there was no significant interaction effect of condition by time, Wilks's $\Lambda = 1.00$, $F(1, 63) = 0.324$, $p = .571$, $\eta^2 = .005$ (see Table 8), which implies

that there were no significant differences in the change in describing type of mindful awareness from pre- to post-assessment across conditions. There was also no significant main effect of time on describing type of mindful awareness, $F(1, 63) = .413$, $MSE = 4.297$, $p = .523$, indicating that there were no significant changes in describing type of mindful awareness from pre- to post-assessment over time.

Acting with Awareness Type of Mindfulness

A one-way repeated measures ANOVA was used to examine changes in acting with awareness type of mindful awareness following the intervention. There was no significant interaction effect of condition by time, Wilks's $\Lambda = 1.00$, $F(1, 65) = 0.343$, $p = .836$, $\eta^2 = .001$ (see Table 8), which implies that there were no significant differences in the change in acting with awareness type of mindful awareness from pre- to post-assessment across conditions. There was also no significant main effect of time on acting with awareness type of mindful awareness, $F(1, 65) = 1.670$, $MSE = 29.173$, $p = .201$, indicating that there were no significant changes in acting with awareness type of mindful awareness from pre- to post-assessment over time.

Nonjudging of Inner Experience Type of Mindfulness

A one-way repeated measures ANCOVA was used to examine changes in nonjudging of inner experience mindful awareness following the intervention. Year in college was entered as a covariate due to findings of correlation between post-intervention scores of FFMQ nonjudging of inner experience subscale and year in college ($r = .274$). After controlling for effect of year in college, there was no significant interaction effect of condition by time, Wilks's $\Lambda = .91$, $F(1, 64) = 6.126$, $p = .016$, $\eta^2 = .087$ (see Table 8), which implies that there were no significant differences in the change in nonjudging of inner experience mindful

awareness from pre- to post-assessment across conditions. There was also no significant main effect of time on nonjudging of inner experience mindful awareness, $F(1, 65) = 2.48$, $MSE = 44.172$, $p = .120$, indicating that there were no significant changes in nonjudging of inner experience mindful awareness from pre- to post-assessment over time.

Nonreactivity of Inner Experience Type of Mindfulness

A one-way repeated measures ANOVA was used to examine changes in nonreactivity of inner experience type of mindful awareness following the intervention. There was a significant interaction effect of condition by time, Wilks's $\Lambda = .83$, $F(1, 65) = 13.080$, $p = .001$, $\eta^2 = .168$ (see Table 8), which implies that there were significant differences in the change in nonreactivity of inner experience type of mindful awareness from pre- to post-assessment across conditions with the intervention condition reporting an increase and control condition reporting a decrease in mindful awareness.

Anxiety Sensitivity

A one-way repeated measures ANOVA was used to examine changes in anxiety sensitivity following the intervention. There was a significant interaction effect of condition by time, Wilks's $\Lambda = .81$, $F(1, 66) = 15.358$, $p = .000$, $\eta^2 = .189$ (see Table 8), which implies that there were significant differences in the change in anxiety sensitivity from pre- to post-assessment across conditions, with the bibliotherapy condition reporting decrease and control condition reporting increase in anxiety sensitivity ratings.

Psychological Flexibility/Experiential Avoidance

A one-way repeated measures ANOVA was used to examine changes in psychological flexibility/experiential avoidance following the intervention. There was no significant interaction effect of condition by time, Wilks's $\Lambda = .98$, $F(1, 65) = 1.12$, $p = .294$, $\eta^2 = .04$

(see Table 8), which implies that there were no significant differences in the change in psychological flexibility/experiential avoidance from pre- to post-assessment across conditions.

Table 8.

Means, Standard Deviations, *Univariate Statistics, and Effect Size Estimates for Process Outcome Measures by Condition from ANOVA and ANCOVA*

		Bibliotherapy (n = 25)		Control (n = 43)		F (Condition X Time)	η^2
		Mean	SD	Mean	SD		
Describe FFMQ	T1	28.6	6.2	24.4	7.0	0.1	.00
	T2	29.3	5.4	24.4	6.5		
Observe FFMQ	T1	25.0	7.8	24.8	6.7	1.5	.02
	T2	23.7	6.1	21.9	6.4		
Acting with Awareness FFMQ	T1	27.9	6.1	29.0	5.1	0.3	.00
	T2	26.6	6.8	27.5	7.6		
Nonjudging FFMQ	T1	28.3	8.6	28.3	7.5	6.1	.09
	T2	31.4	7.0	27.5	8.0		
Nonreactivity FFMQ	T1	19.3	4.8	19.6	4.2	13.1*	.17
	T2	21.6	4.0	21.6	4.0		
ASI	T1	23.5	12.7	20.0	12.4	15.4*	.19
	T2	21.4	12.8	29.3	11.3		
AAQ-II	T1	19.1	9.1	21.5	9.4	1.1	.02
	T2	15.4	7.9	19.5	9.5		

Notes. FFMQ = Five Facet Mindfulness Questionnaire; ASI = Anxiety Sensitivity Index; AAQ-II = Acceptance and Action Questionnaire-II; Bibliotherapy = book group; Control = No book group; T1 = Baseline assessment/ Pre-bibliotherapy assessment; T2 = Follow-up/ Post-bibliotherapy assessment

*$p < .007$

Coping Styles Measures

For the coping styles measures, we intended to conduct fourteen comparisons using $\alpha = .05$ for each comparison. In order to control for Type I error, the familywise error rate (α_{EW}) was calculated using formula of α divided by a number of comparisons (.05/14 = .004). Hence, the familywise error rate $\alpha_{EW} = .004$ was used to evaluate significant findings.

One-way repeated measures ANOVAs on each Brief COPE subscale revealed that participants in the bibliotherapy condition reported no significant group differences in use of the venting ($F(1, 66) = 7.55$, $MSE = 9.77$, $p = .008$), self-blame (Wilks's $\Lambda = .89$, $F(1, 66) = .8.46$, $p = .005$, $\eta^2 = .114$), self-distraction (Wilks's $\Lambda = .99$, $F(1, 66) = .07$, $p = .791$, $\eta^2 = .001$; $F(1, 66) = 3.83$, $MSE = 6.63$, $p = .055$), denial (Wilks's $\Lambda = .99$, $F(1, 66) = .61$, $p = .440$, $\eta^2 = .001$; $F(1, 66) = .07$, $MSE = 0.54$, $p = .792$), substance abuse (Wilks's $\Lambda = .98$, $F(1, 66) = 1.05$, $p = .309$, $\eta^2 = .016$; $F(1, 66) = 2.68$, $MSE = 1.45$, $p = .106$), behavioral disengagement (Wilks's $\Lambda = .98$, $F(1, 66) = 1.12$, $p = .294$, $\eta^2 = .017$; $F(1, 66) = 3.64$, $MSE = 2.29$, $p = .061$), humor (Wilks's $\Lambda = .99$, $F(1, 66) = .34$, $p = .563$, $\eta^2 = .005$; $F(1, 66) = 1.12$, $MSE = 1.35$, $p = .294$), acceptance (Wilks's $\Lambda = .98$, $F(1, 66) = 1.15$, $p = .288$, $\eta^2 = .288$; $F(1, 66) = 3.05$, $MSE = 5.61$, $p = .086$), religion (Wilks's $\Lambda = .99$, $F(1, 66) = .06$, $p = .814$, $\eta^2 = .001$; $F(1, 66) = 2.87$, $MSE = 3.89$, $p = .095$), active coping (Wilks's $\Lambda = 1.00$, $F(1, 66) = .01$, $p = .934$, $\eta^2 = .000$; $F(1, 66) = .007$, $MSE = .01$, $p = .934$), instrumental support (Wilks's $\Lambda = 1.00$, $F(1, 66) = .02$, $p = .883$, $\eta^2 = .000$, $F(1, 66) = .99$, $MSE = 1.28$, $p = .445$), emotional support (Wilks's $\Lambda = 1.00$, $F(1, 66) = .01$, $p = .913$, $\eta^2 = .000$; $F(1, 66) = .67$, $MSE = 1.08$, $p = .416$), positive reframing (Wilks's $\Lambda = 1.00$, $F(1, 66) = .03$, $p = .871$, $\eta^2 = .000$, $F(1, 66) = .03$, $MSE = .05$, $p = .871$), and planning (Wilks's $\Lambda = 1.00$, $F(1, 66) = .02$, $p = .902$, $\eta^2 = .002$, $F(1, 66) = 1.02$, $MSE = 1.64$, $p = .316$) (see Table 9).

Table 9.

Means, Standard Deviations, *Univariate Statistics, and Effect Size Estimates for Coping Styles by Condition from ANOVA*

		Bibliotherapy (n = 25)		Control (n = 43)		F (Condition X Time)	η^2
		Mean	SD	Mean	SD		
Brief COPE Self-Distraction	T1	5.1	0.3	5.2	0.2	0.8	.00
	T2	5.4	0.2	4.9	0.2		
Brief COPE Denial	T1	2.8	1.2	2.6	1.1	0.6	.00
	T2	2.8	1.5	2.5	0.9		
Brief COPE Substance Abuse	T1	2.5	1.3	2.5	1.2	1.1	.02
	T2	2.6	1.0	2.9	1.4		
Brief COPE Behavioral Disengagement	T1	2.4	0.8	2.8	1.2	1.1	.02
	T2	2.5	0.9	3.3	1.4		
Brief COPE Venting	T1	4.6	1.9	4.2	1.6	0.0	.00
	T2	4.0	1.7	3.7	1.4		
Brief COPE Humor	T1	3.8	1.6	3.7	1.9	0.3	.01
	T2	3.4	1.5	3.7	1.5		
Brief COPE Self-Blame	T1	4.4	2.2	4.5	1.9	8.5	.11
	T2	3.4	1.7	4.8	1.9		
Brief COPE Acceptance	T1	6.0	1.4	5.6	2.0	1.1	.29
	T2	5.3	2.0	5.4	1.6		
Brief COPE Religion	T1	4.4	2.3	3.4	1.6	0.1	.00
	T2	4.9	1.8	3.7	1.8		
Brief COPE Active Coping	T1	6.0	1.6	5.5	1.2	0.0	.00
	T2	6.0	1.9	5.5	1.6		
Brief COPE Use of Emotional Support	T1	5.3	1.7	4.6	1.8	0.0	.00
	T2	5.5	1.9	4.8	1.7		
Brief COPE Use of Instrumental Support	T1	5.3	1.7	4.6	1.8	0.0	.00
	T2	5.5	1.9	4.8	1.7		
Brief COPE Positive Reframing	T1	5.9	1.7	5.4	1.7	0.0	.00
	T2	5.8	2.0	5.4	1.9		
Brief COPE Planning	T1	6.0	1.9	5.5	1.6	0.0	.00
	T2	5.8	1.9	5.3	1.8		

Notes. Brief COPE = 14 subscales; Bibliotherapy = book group; Control = No book group; T1 = Baseline assessment/ Pre-bibliotherapy assessment; T2 = Follow-up/ Post-bibliotherapy assessment

*$p < .004$

Feasibility and Usability

Overall, participants rated treatment as moderately useful (M = 22.62, SD = 2.85) and moderately important (M = 4.94, SD = 3.13). These findings from this measure in conjunction with the mean rating of 4.94 on the item from the OAA evaluating importance of the intervention, suggest suitable acceptability.

Twenty-five participants (53.2%) completed the study with a mean workbook reading rate of 76.5% over a ten week period (range 64-90.2%) and a mean workbook writing exercises completion rate of 58.6% over a ten week period (range 40-82.9%). During the last week of the bibliotherapy intervention 81.4% of the study participants reported engaging in sitting and breathing meditation, 90.9% in yoga practice, 40.7% body scan, 50% loving kindness meditation, 22.7% walking meditation, 4.5% mindful check-in, 4.5% mindful eating of a raising, and 13.6% mindful self-inquiry.

Table 10.

Use of the Book and Completion of Exercises

	Week 1 (n=41)	Week 2 (n=38)	Week 3 (n=34)	Week 4 (n=31)	Week 5 (n=26)	Week 6 (n=26)	Week 7 (n=25)	Week 8 (n=22)	Week 9 (n=20)	Week 10 (n=22)
Read ≥50% assigned *readings* for this week	90.2%	84.2%	82.4%	67.7%	76.9%	69.2%	64.0%	72.7%	80.0%	77.3%
Completed ≥50% assigned *writing* exercises	82.9%	73.7%	73.5%	61.3%	53.8%	46.2%	40.0%	59.1%	45.0%	50.0%
Tried/Completed assigned *guided* practice ≥ 1 time	82.8%	n/a*	46.9%	61.3%	53.7%	76.7%	40.0%	27.1%	n/a*	n/a*

**no formal practices were assigned*

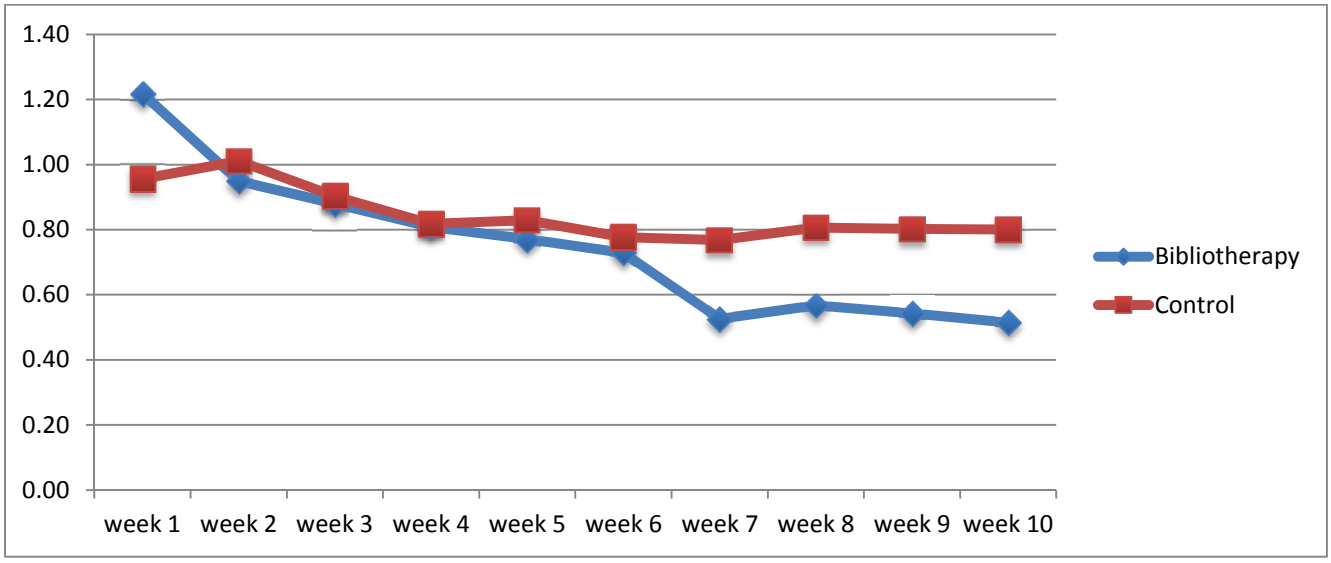
Table 11.

Mean Weekly CCAPS-34 Distress Sub-Scale Scores by Condition

	WEEK									
	1	2	3	4	5	6	7	8	9	10
Distress										
Bibliotherapy	1.2	1.0	0.9	0.8	0.8	0.7	0.5	0.6	0.5	0.5
Control	1.0	1.0	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Depression										
Bibliotherapy	0.9	0.6	0.6	0.5	0.6	0.5	0.3	0.3	0.2	0.2
Control	0.8	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Anxiety										
Bibliotherapy	1.5	1.3	1.2	1.1	1.0	0.9	0.7	0.7	0.8	0.8
Control	1.1	1.2	0.8	0.9	0.8	0.8	0.8	0.8	0.7	0.8
Social Anxiety										
Bibliotherapy	1.8	1.5	1.4	1.5	1.2	1.2	1.1	1.0	1.1	1.0
Control	1.7	1.8	1.7	1.4	1.5	1.4	1.5	1.5	1.4	1.4
Academic Dis										
Bibliotherapy	1.8	1.6	1.6	1.5	1.5	1.6	1.3	1.4	1.3	1.2
Control	1.6	1.6	1.6	1.6	1.6	1.4	1.5	1.5	1.5	1.5
Eating										
Bibliotherapy	1.4	1.0	1.0	1.0	0.7	0.9	0.8	0.9	0.7	1.0
Control	1.2	1.3	1.2	1.1	1.1	0.9	0.9	1.1	1.1	1.0
Hostility										
Bibliotherapy	0.7	0.5	0.3	0.4	0.3	0.4	0.3	0.3	0.2	0.3
Control	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.3
Alcohol										
Bibliotherapy	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1
Control	0.5	0.3	0.4	0.3	0.3	0.2	0.3	0.3	0.3	0.2

Figure 1.

Mean CCAPS-34 Distress subscale scores over 10 weeks.



Barriers to Practice

The barriers to using the workbook and engaging in the mindfulness practice identified by the participants from a list of multiple choice options on the weekly TAQ were consistent with those reported in the mindfulness literature and included categories/domains such as perceived lack of time, prioritizing other tasks over mindfulness practice, external disruptions (i.e., lack of space, noise, illness, etc.), preconceived notions about effectiveness of the intervention, perceived low self-efficacy about one's ability to be mindful (i.e., "cannot keep the mind clear"), and unwillingness to experience unpleasant or unwanted emotions or physical sensations.

Table 12.

TAQ Question 7 What got in the way of competing suggested activities in the workbook in the previous week? "Other" response option

Week 1
• "I completed the exercises except the cd parts because I don't have a cd drive on my laptop"
• "I completed them, just a little later than expected!"
• "I have done them before in the past, so I concentrated more on the thought processes"
• "I just started"
• "I had one exam last week and two exams this week. I didn't have enough time to dedicate myself to the activities as well as studying/homework/and being president of an organization."
• "I was out of town and didn't have time."
• "Just began the book."
• "Didn't make time to put the c in a player & check out the meditations."
• "I have only had the book for two days."
• "Did most, but had to prioritize other schoolwork."
• "School and work"
Week 2
• "I complete all the readings but I don't have a disk drive in my computer to listen to the CD"
• "Finals"
• "I did all of the activities with the exception of writing things down in the workbook. I did the exercises, but did not want to write in my book. I have a "rule" not to write in my workbooks in case I use them in the future. I haven't yet had a chance to arrange to write the answers elsewhere. "

- "All activities were completed except for the CD (no access to a CD/disk player)"
- "Taking 21 credits and studying for exams already"
- "Homework"
- "School and work"
- "Exams, interviews, waiting back on an internship, ash Wednesday"

Week 3

- "Sick"
- "Priority was visiting family"
- "I do not listen to the CD"
- "Schedule and life overwhelm"
- "School and work"
- "Exams, Mariachi Performance, Scholarship Applications"

Week 4

- "I did not want to write in workbook to preserve for future use; time was limited"
- "I moved into new apartment"
- "I'm to overwhelmed with other things and life events to pick up the book"
- "Midterms"
- "I do not listen to the CD"
- "I am busy planning an event on campus and it's taken 100% of my free time!"
- "Work"
- "School, work, homework, studying"

Week 5

- "Had sick child"
- "Jobs and babysitting"
- "Didn't want to write in the workbook; also limited on time"
- "I do not listen to the CD"
- "School, work and studying"
- "Spring break I had no "break," was working as an intern at a conference, got minimal free time and sleep"

Week 6

- "Work and little sleep/little free time"
- "Work"
- "Don't have copies made of workbook to write in"
- "Midterms"
- "I do not listen to CD"
- "School work"
- "The week before spring break I had many assignments to get done ahead of time including performances to attend for mariachi"

Week 7

- "New position at work"
- "Don't have copies made of workbook to write in, time and energy"
- "I do not do the CD"
- "Work"
- "School work"
- "I've been mindful throughout a hectic last few weeks, however I have not progressed further beyond the body scan"
- "Spring break"

Week 8

- "I do not listen to the CD"
- "Rigidity: writing in the workbook"
- "School deadlines"
- "Studying for test and work"

Week 9

- "Writing in the workbook"
- "I don't listen to the CD"
- "Work"
- "School and work"
- "School and work"

Week 10

- "I don't listen to the CD"
- "Final projects and exams at school"
- "School and Work"

Other Activities

Activities participants reported participating in before and after participating in the study assessed via OAA are outlined in Table 13.

Table 13.

Percent Other Health and Wellness Activities Engaged in Regularly Before and After Participation in the Current Study

	Before Study (N = 87)	After Study (N = 87)
Individual psychotherapy	7.5	5.7
Group psychotherapy	2.3	2.3
Support group	3.4	3.4
Yoga	17.2	16.1
Exercising	50.6	41.4
Meditation group	1.1	2.3
Reading a self-help book (*title*)	5.7	4.6
Hypnosis	0.0	0.0
Biofeedback	1.1	1.1
Progressive muscle relaxation	3.4	1.1
Other relaxation strategies (other than mindfulness meditation)	2.3	11.5
Started a hobby	31.0	23.0
Writing in a journal	16.1	10.3
Praying	25.3	21.8
Attending church, synagogue, masque, or other religious or spiritual services	12.6	14.9
Martial arts	1.1	1.1

Notes. Titles of self-help books: Self Help Books: *Seven Habits of Highly Effective People*, *Bashar*, *Mindful Eating*, *The Four Agreements*, *The Power of Now*, and *Kundalini Rising*.

Chapter 4

Discussion

The current study was the first randomized control study to examine the feasibility as well as the effectiveness of MBSR in the bibliotherapy format. Participants who were randomly assigned to the bibliotherapy condition reported satisfaction with the intervention and found it useful. Out of the participants who completed the weekly follow-up assessments, three quarters reported reading at least half of the workbook and more than half of the participants reported completing at least half of the writing exercises from the workbook. As predicted, participants in the bibliotherapy condition also reported a reduction in symptoms of depression, anxiety, general distress and anxiety sensitivity. Furthermore, they reported an increase physical, psychological, and environmental quality of life, as well as increased nonreactivity to inner experiences mindful awareness.

Surprisingly, there were no statistically significant findings for stress, perceived stress, pathologic worry, social quality of life, sleep, psychological flexibility, and all of the coping styles.

Consistent with findings reported in the empirical MBSR literature, the current study found a reduction in the symptoms of depression and anxiety within participants in the MBSR bibliotherapy condition (Fjorback et al., 2011; Goldin & Gross, 2010; Hofmann et al., 2010; Krisanaprakornkit, Krisanaprakornkit, Piyavhatkul, & Laopaiboon, 2006; Ma & Teasdale, 2004; Piet & Hougaard, 2011). The current findings that the MBSR bibliotherapy group reported a significant reduction in anxiety sensitivity from pre- to post-intervention are also consistent with previous findings reported in the literature (Anderson, Lau, Segal, and Bishop, 2007; Arch & Ayers, 2013). Furthermore, the current findings of improved quality of life in response to

participation in MBSR bibliotherapy are also consistent with those reported in the traditional MBSR literature (Carlson, Speca, Patel, and Goodey, 2003; Chiesa & Serretti, 2009; Flugel Colle et al., 2010; Grossman, 2004; Jazaieri, Goldin, Werner, Ziv, and Gross, 2012; Jazaieri, Goldin, Werner, Ziv, and Gross, 2012; Vibe, Bjørndal, Tipton, & Hammerstrøm, 2012).

The finding that participants in the MBSR workbook condition reported increases in nonjudging of inner experiences mindful awareness contributes to the growing evidence about MBSR results in changes in mindfulness and adds to the existing literature by extending these findings to alternative MBSR delivery (Carmody & Baer, 2008; Carmody, Baer, Lykins, & Olendzki, 2009; Nyklicek and Kuijpers, 2008; Robins, Keng, Ekblad, & Bratley, 2012). Higher mindful awareness leads to the noting of a range of experiences without limit to only positive or only negative experiences. These findings are exciting as they not only add to the literature about effectiveness of MBSR in general, but also provide evidence that the effectiveness of MBSR transcends the format of the intervention, which has significant clinical implications as it allows for exponentially greater access to and wider dissemination of a bibliotherapy that is effective in managing a range of psychological difficulties.

We hypothesized that participants in the bibliotherapy condition would show a greater reduction in frequency and severity of symptoms of stress, perceived stress and pathologic worry as well as an increase in social quality of life, psychological flexibility, and adaptive coping styles compared to participants in the no-intervention condition. These hypotheses were not supported by the results. Stress measured by the DASS Stress Subscale and perceived stress measured by the PSS did not reveal significant differences in the reported symptoms of stress from pre- to post-assessment between conditions after correction for Type I error.

Pathological worry was not found to decrease within the MBSR bibliotherapy condition or within those reading at least half of the workbook. This finding is contradictory to reports of the effects of MBSR on worry in the existing literature (Delgado et al., 2010; Evans et al., 2008; Robins, Keng, Ekblad, & Bratley, 2012). It is also surprising given that the current findings did reveal a significant decrease in anxiety within the MBSR workbook condition. The lack of significant findings on the other outcome measures is also inconsistent with some of the literature. One of the possible explanations could be due to need of a larger sample size to detect the effects. Alternatively, the lack of significant findings on these outcome measures could be due to specific sensitivity of these measures to the timing of the follow-up assessment. Since college students were the target population of the present study, enrollment of the study coincided with the beginning of the 16 week semester, with study participation lasting for 11 weeks. While allowing the study to be conducted in a time period in which students were likely experiencing the various stressors of college life, using this time frame also lead to the follow-up assessments being conducted shortly before final exams, a time that is known to be particularly stressful and worrisome for college students.

At the end of the current study a number of participants from the bibliotherapy condition indicated that they found the workbook easy to read and use and the workbook format as useful and interactive. Additionally, participants indicated that they found the workbook content applicable to their concerns, nonjudgmental, and appreciated absence of the religious and political topics.

Barriers to using the workbook and engaging in the mindfulness practice identified by the participants were consistent with those reported in the broader mindfulness literature, and included categories such as perceived lack of time, prioritizing other tasks over mindfulness

practice, external disruptions (i.e., lack of space, noise, illness, etc.), preconceived notions about the effectiveness of the mindfulness practice, perceived low self-efficacy about one's ability to be mindful (i.e., "cannot keep the mind clear"), and unwillingness to experience unpleasant or unwanted emotions or physical sensations. At the end of the current study, a number of participants from the bibliotherapy condition indicated that they believed that support in the form of the periodic check-ins would have enhanced their motivation and improved their adherence to the bibliotherapy intervention. Although previous research suggested that contact with therapist during the course of bibliotherapy was not significantly helpful, it might have had different effects in the current study due to a commonly reported difficulty of maintaining mindfulness practice (Gould & Clum, 1993). Other major categories of the comments about the workbook included ease of readability, ease of use, amenity of the use of the workbook, applicability to one's concerns, abstinence from religious and political topics, appreciation and usefulness of the interactive format, and use of nonjudgmental directive language. Overall, the majority of participants found the intervention moderately acceptable and moderately important. These findings are important as they support the assumption that the bibliotherapy format is an intervention that is easier and can provide wider access to the MBSR compared to the traditional in-person group format.

Strengths and Limitations

One of the limitations of the current study was limited diversity, with majority of the study participants being white females in their early 20s. Although current study's sample is consistent with the overall trend of women being more willing to participate in research, and the limited ethnic diversity is reflective of the UNR and Reno, current findings could not be generalized beyond those matching the demographic characteristics of the current sample. Furthermore,

although the sample size for the current study was chosen based on the recommendations for preliminary research, it was relatively small (Rounsaville et al., 2001). Moreover, there was a moderate dropout rate from the bibliotherapy condition. To account for the potential attrition we recruited an additional 50 percent of participants per group and provided incentives such as chances to win one of nine $100 gift cards and extra credit points for each completed weekly assessment.

Some of the participants indicated that they might have benefited from contact with a provider during the course of following the workbook. These barriers were consistent with those identified in the bibliotherapy and MBSR literature. Although contact with a provider during the course of following the MBSR workbook might have been beneficial, the decision not to include it in the current study's design was based on the evidence from other bibliotherapy studies which showed that contact during the course of following bibliotherapy was not significantly helpful (Gould & Clum, 1993). Additionally, not including contact, directions, or support from the therapist/treatment provider during the course of the MBSR bibliotherapy maximized external validity by making the conditions as close the real-world circumstances. Furthermore, previous research has shown that motivation for treatment was more essential compared to the contact with the therapist (Newman et al., 2003; Shechtman, 2009). However, it should also be considered that desire for ongoing support expressed by participants in the current study is consistent with adherence difficulties commonly expressed by those attempting to implement mindfulness practice outside of a group setting.

Despite some of the limitations, this was the first randomized control study to examine MBSR in the bibliotherapy format and provides good foundation for future examination. Findings provide scientific support for the acceptability and effectiveness of MBSR, an

established and well-supported intervention, in a bibliotherapy format. The random control design of this study provides more confidence in the outcomes being attributed to the intervention.

Future Directions

Some studies have shown maintenance of bibliotherapy treatment gains for as long as 8 years (Miller & Taylor, 1980). In the future studies it would be useful to conduct additional follow-up assessments to examine the rates and effects of continued mindfulness practice over time, long-term obstacles to practice, and to allow comparison of how MBSR bibliotherapy outcomes compare to the findings from traditional MBSR programs. Future studies could also look at whether there is continued or periodic return to use of the workbook over time. Given the evidence of long-term treatment gains following bibliotherapy interventions and the hypothesized need for ongoing mindfulness practice in order for MBSR to continue to be beneficial, future studies might also test the effect of adding an option of participation in an on-line or in-person mindfulness community after, or even during, bibliotherapy in order to enhance or support ongoing mindfulness practice. Furthermore, given evidence of long-term treatment gains following bibliotherapy intervention and with need for ongoing mindfulness practice, future studies might focus on adding an option of participation in an on-line or in-person mindfulness community after completion of the bibliotherapy. Moreover, given the promising results of the current study, future studies might also focus on conducting a similar study with individuals who are more culturally and ethnically diverse to test the effectiveness and feasibility of MBSR bibliotherapy with individuals with different cultural and ethnic backgrounds. It would also be useful to examine the use and barriers to use of the MBSR bibliotherapy in a variety of settings such as primary care. This is particularly important given that individuals who

are ethnic and cultural minorities are often reported to have particular difficulty accessing and being willing to access mental health treatment.

Moreover, future studies could examine use of the MBSR bibliotherapy as an alternative or an adjunct intervention for individuals with more severe symptoms. More severe psychological distress symptoms typically go along with lower levels of motivation and increased difficulty of engaging with the intervention all interventions or just bibliotherapy. In the traditional group or individual therapy and traditional MBSR programs, individuals can get support from the therapist or group facilitator in addressing those difficulties to help them to continue progressing through the treatment. Hence, given the desire to expand application of the MBSR, future studies might focus on the examination of the role of intermittent support in various forms throughout the course of following MBSR bibliotherapy. Additionally, it could examine use of the MBSR bibliotherapy in the stepped care approach where self-guided MBSR bibliotherapy would be a beginning step, followed by the MBSR with intermittent contact with the therapist, group, or peer support, and potential progression to the weekly individual therapy as the highest level of intervention.

Conclusions and Summary

Current study's design incorporated knowledge learned from earlier tests of the bibliotherapy and represents a test of truly self-managed bibliotherapy. It contributes to the existing literature by providing information about the feasibility and effectiveness of MBSR bibliotherapy. Many of the participants in the current study reported experiencing significant distress, depression, anxiety, sleep disruption, and decreased quality of life and none of them reported currently being in psychotherapy. Individuals who might not be willing to seek out help in the traditionally offered format of psychotherapy might be more open to private self-paced bibliotherapy

intervention. The finding that study participants are experiencing these symptoms but not seeking assistance in the form of psychotherapy are consistent with findings that many individuals with similar symptoms in the general population are also not seeking mental health treatment. As discussed earlier in this paper, there are numerous obstacles to people seeking treatment and early intervention may be a valuable way of addressing symptoms before they rise to more severe intensity levels. College students are a particularly vulnerable population as they are often under significant amounts of stress due to factors such as academic demands, job and family responsibilities, and limited financial resources. Hence, the lack of willingness of college students or general population to address "not yet problems" is understandable in terms of making the most effective use of limited current resources, and addressing mental health problems only when they are interfering with other important areas of functioning. However, waiting to seek treatment until mental health symptoms cause serious problems often results in similar consequences as ignoring mild, chronic physical symptoms in that ignoring milder symptoms until they become severe often carries not only higher financial costs, but also higher demands on time and resources than an earlier intervention would have required. Early intervention not only addresses difficulties before they get more severe, but also is less costly and more often than not allows for an easier and less time-intensive resolution of mental health symptoms. The current findings suggest MBSR bibliotherapy is both feasible and effective. Findings from the current study are important as they provide support for MBSR bibliotherapy as a lower-cost, lower-demand, lower-stigma treatment alternative to in-person psychotherapy that is effective in reducing a range of symptoms of psychological distress.

In summary, study results provide support for the feasibility and effectiveness of MBSR bibliotherapy at reducing symptoms of psychopathology and improving quality of life and

mindful awareness. Findings from the current study not only add to the existing knowledge on evidence-based bibliotherapy interventions and the larger MBSR literature, but also have high ecological validity and are generalizable to the natural collegiate settings, hence, contributing to the empirical literature for applied clinical interventions. These findings provide scientific support for the use MBSR bibliotherapy as a self-guided intervention or a preliminary step within a stepped-care model, which creates opportunities for the wider utilization of MBSR, while also offering an approach that can overcome geographical, financial, and stigma-related barriers.

Appendices

Appendix A

Demographics

What is your gender?

- ❍ Male
- ❍ Female
- ❍ Other

What is your age?

What is your ethnicity?

- ❍ African American
- ❍ Asian or Asian American
- ❍ Hawaiian or Other Pacific Islander
- ❍ Hispanic or Latino
- ❍ Native American or American Indian
- ❍ Caucasian
- ❍ Multi-racial
- ❍ Other

What is your relationship status?

- ❍ Single or never married
- ❍ Serious or Committed relationship
- ❍ Married or in domestic partnership
- ❍ Widowed
- ❍ Divorced
- ❍ Separated

Is English your native or first language?

- ❍ Yes
- ❍ No

Which of the following categories best describes your current employment status?

- ❍ Employed, working part-time
- ❍ Employed, working full-time
- ❍ Not employed

What year are you in college?

- ❍ 1
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5
- ❍ 6+ undergraduate
- ❍ Graduate student
- ❍ Medical school student

During the last 12 months, how many times PER MONTH did you usually have any kind of drink containing alcohol? By a drink we mean half an ounce of absolute alcohol (e.g. a 12 ounce can or glass of beer or cooler, a 5 ounce glass of wine, or a drink containing 1 shot of liquor).

During the last 12 months, how many times PER MONTH did you usually take experimental drugs (e.g., marijuana, heroin, opium, meth, ecstasy).

Are you currently in therapy?

- ❍ Yes
- ❍ No

Are you currently taking any medications for mental health concerns?

- ❍ Yes
- ❍ No

If Yes, what is the name or type of medication?

WHOQOL-BREF

The following questions ask how you feel about your quality of life, health, or other areas of your life. Please choose the answer that appears most appropriate. If you are unsure about which response to give to a question, the first response you think of is often the best one. Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life IN THE LAST FOUR WEEKS.

	Very poor	Poor	Neither poor nor good	Good	Very Good
How would you rate your quality of life?	❍	❍	❍	❍	❍

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
How satisfied are you with your health?	❍	❍	❍	❍	❍

The following questions ask how much you have experienced certain things IN THE LAST FOUR WEEKS.

	Not at all	A little	A moderate amount	Very much	An extreme amount
To what extent do you feel that physical pain prevents you from doing what you need to do?	❍	❍	❍	❍	❍

	Not at all	A little	A moderate amount	Very much	An extreme amount
How much do you need any medical	❍	❍	❍	❍	❍

treatment to function in your daily life?					

	Not at all	A little	A moderate amount	Very much	An extreme amount
How much do you enjoy life?	❍	❍	❍	❍	❍

	Not at all	A little	A moderate amount	Very much	An extreme amount
To what extent do you feel your life to be meaningful?	❍	❍	❍	❍	❍

	Not at all	A little	A moderate amount	Very much	Extremely
How well are you able to concentrate?	❍	❍	❍	❍	❍

	Not at all	A little	A moderate amount	Very much	Extremely
How safe do you feel in your daily life?	❍	❍	❍	❍	❍

	Not at all	A little	A moderate amount	Very much	Extremely
How healthy is your physical environment?	❍	❍	❍	❍	❍

The following questions ask about how completely you experienced or were able to do certain things IN THE LAST FOUR WEEKS.

	Not at all	A little	Moderately	Mostly	Completely
Do you have enough energy for everyday life?	❍	❍	❍	❍	❍

	Not at all	A little	Moderately	Mostly	Completely
Are you able to accept your bodily appearance?	❍	❍	❍	❍	❍

	Not at all	A little	Moderately	Mostly	Completely
Have you enough money to meet your needs?	❍	❍	❍	❍	❍

	Not at all	A little	Moderately	Mostly	Completely
How available to you is the information that you need in your day-to-day life?	❍	❍	❍	❍	❍

	Not at all	A little	Moderately	Mostly	Completely
To what extent do you have the opportunity for leisure activities?	❍	❍	❍	❍	❍

	Very poor	Poor	Neither poor nor good	Good	Very good
How well are you able to get around?	❍	❍	❍	❍	❍

	Very Dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very Satisfied
How satisfied are you with your sleep?	❍	❍	❍	❍	❍

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
How satisfied are you with your ability to perform your daily living activities?	❍	❍	❍	❍	❍

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
How satisfied are you with your capacity for work?	❍	❍	❍	❍	❍

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
How satisfied are you with yourself?	❍	❍	❍	❍	❍

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
How satisfied are you with your personal relationships?	❍	❍	❍	❍	❍

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
How satisfied are you with your sex life?	❍	❍	❍	❍	❍

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
How satisfied are you with the support you get from your friends?	❍	❍	❍	❍	❍

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
How satisfied are you with the conditions of your living place?	❍	❍	❍	❍	❍

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
How satisfied are you with	❍	❍	❍	❍	❍

your access to health services?					

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
How satisfied are you with your transport?	❍	❍	❍	❍	❍

The following question refers to how often you have felt or experienced certain things IN THE LAST FOUR WEEKS.

	Never	Seldom	Quite often	Very often	Always
How often do you have negative feelings such as blue mood, despair, anxiety, depression?	❍	❍	❍	❍	❍

ASI

Please rate each item by selecting one of the five answers for each question. Please answer each statement by checking the statement that best applies to you.

	Very little	Little	Some	Much	Very Much
It is important to me not to appear nervous	❍	❍	❍	❍	❍

	Very Little	Little	Some	Much	Very Much
When I cannot keep my mind on a task, I worry that I might be going crazy.	❍	❍	❍	❍	❍

	Very Little	Little	Some	Much	Very Much
It scares me when I feel "shaky" (trembling).	❍	❍	❍	❍	❍

	Very Little	Little	Some	Much	Very Much
It scares me when I feel faint.	❍	❍	❍	❍	❍

	Very Little	Little	Some	Much	Very Much
It is important to me to stay in control of my emotions.	❍	❍	❍	❍	❍

	Very Little	Little	Some	Much	Very Much
It scares me when my heart beats rapidly.	❍	❍	❍	❍	❍

	Very Little	Little	Some	Much	Very Much
It embarrasses me when my stomach growls.	❍	❍	❍	❍	❍

	Very Little	Little	Some	Much	Very Much
It scares me when I am nauseous.	❍	❍	❍	❍	❍

	Very Little	Little	Some	Much	Very Much
When I notice that my heart is beating rapidly, I worry that I might have a heart attack.	❍	❍	❍	❍	❍

	Very Little	Little	Some	Much	Very Much
It scares me when I become short of breath.	❍	❍	❍	❍	❍

	Very Little	Little	Some	Much	Very Much
When my stomach is upset, I worry that I might be seriously ill.	❍	❍	❍	❍	❍

	Very Little	Little	Some	Much	Very Much
It scares me when I am unable to keep my mind on a task.	❍	❍	❍	❍	❍

	Very Little	Little	Some	Much	Very Much
Other people notice when I feel shaky.	❍	❍	❍	❍	❍

	Very Little	Little	Some	Much	Very Much
Unusual body sensations scare me.	❍	❍	❍	❍	❍

	Very Little	Little	Some	Much	Very Much
When I am nervous, I worry that I might be mentally ill.	❍	❍	❍	❍	❍

	Very Little	Little	Some	Much	Very Much
It scares me when I am nervous.	❍	❍	❍	❍	❍

PSWQ

Rate each of the following statements on a scale of 1 ("not at all typical of me") to 5 ("very typical of me"). Please do not leave any items blank.

	Not at all typical of me	2	3	4	Very typical of me
If I do not have enough time to do everything, I do not worry about it.	❍	❍	❍	❍	❍

	Not at all typical of me	2	3	4	Very typical of me
My worries overwhelm me.	❍	❍	❍	❍	❍

	Not at all typical of me	2	3	4	Very typical of me
I do not tend to worry about things.	❍	❍	❍	❍	❍

	Not at all typical of me	2	3	4	Very typical of me
Many situations make me worry.	❍	❍	❍	❍	❍

	Not at all typical of me	2	3	4	Very typical of me
I know I should not worry about things, but I just cannot help it.	❍	❍	❍	❍	❍

	Not at all typical of me	2	3	4	Very typical of me
When I am under pressure I worry a lot.	❍	❍	❍	❍	❍

	Not at all typical of me	2	3	4	Very typical of me
I am always worrying about something.	❍	❍	❍	❍	❍

	Not at all typical of me	2	3	4	Very typical of me
I find it easy to dismiss worrisome thoughts.	❍	❍	❍	❍	❍

	Not at all typical of me	2	3	4	Very typical of me
As soon as I finish one task, I start to worry about everything else I have to do.	❍	❍	❍	❍	❍

	Not at all typical of me	2	3	4	Very typical of me
I never worry about anything.	❍	❍	❍	❍	❍

	Not at all typical of me	2	3	4	Very typical of me
When there is nothing that I can do about a concern, I do not worry about it anymore.	❍	❍	❍	❍	❍

	Not at all typical of me	2	3	4	Very typical of me
I have been a worrier all my life.	❍	❍	❍	❍	❍

	Not at all typical of me	2	3	4	Very typical of me
I notice that I have been worrying about things.	❍	❍	❍	❍	❍

	Not at all typical of me	2	3	4	Very typical of me
Once I start worrying, I cannot stop.	❍	❍	❍	❍	❍

	Not at all	2	3	4	Very typical

	typical of me				of me
I worry all the time.	❍	❍	❍	❍	❍

	Not at all typical of me	2	3	4	Very typical of me
I worry about projects until they are all done.	❍	❍	❍	❍	❍

BRIEF COPE

We are interested in how people respond when they confront difficult or stressful events in their lives. There are lots of ways to try to deal with stress. This questionnaire asks you to indicate what you generally do and feel, when you experience stressful events. Obviously, different events bring out somewhat different responses, but think about what you usually do when you are under a lot of stress. Then respond to each of the following items by selecting an answer listed below. Please try to respond to each item separately in your mind from each other item. Choose your answers thoughtfully, and make your answers as true FOR YOU as you can. Please answer every item. There are no "right" or "wrong" answers, so choose the most accurate answer for YOU--not what you think "most people" would say or do. Indicate what YOU usually do when YOU experience a stressful event.

	Not at all	A little bit	A medium amount	A lot
I've been turning to work or other activities to take my mind off things.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been concentrating my efforts on doing something about the situation I'm in.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been saying to myself "this isn't real"	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been using alcohol or other drugs to make myself feel better.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been getting emotional support from others.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been giving up trying to deal with it.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been taking action to try to make the situation better.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been refusing to believe that it has happened.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been saying things to let my unpleasant feelings escape.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been getting help and advice from other people.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been using alcohol or other drugs to help me get through it.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been trying to see it in a different light, to make it seem more positive.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been criticizing myself.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been trying to come up with a strategy about what to do.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been getting comfort and understanding from someone.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been giving up the attempt to cope.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been looking for something good in what is happening.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been making jokes about it.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been doing something to think about it less, such as going to the movies, watching TV, reading, daydreaming, sleeping, or shopping.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been accepting the reality of the fact that it has happened.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been expressing my negative feelings.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been trying to find comfort in my religion or spiritual beliefs.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been trying to get advice or help from other people about what to do.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been learning to live with it.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been thinking hard about what steps to take.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been blaming myself for things that happened.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been praying or meditating.	❍	❍	❍	❍

	Not at all	A little bit	A medium amount	A lot
I've been making fun of the situation.	❍	❍	❍	❍

DASS21

Please read each statement and select an answer which indicates how much the statement applied to you OVER THE PAST WEEK. There are no right or wrong answers. Do not spend much time on any one statement.

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I found it hard to wind down	❍	❍	❍	❍

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I was aware of dryness of my mouth	❍	❍	❍	❍

	Not at all	To some degree or some of the time	To a considerable degree or a good part of the time	Very much or most of the time
I couldn't seem to experience any positive feeling at all	❍	❍	❍	❍

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of	❍	❍	❍	❍

physical exertion)				

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I found it difficult to work up the initiative to do things	❍	❍	❍	❍

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I tended to over-react to situations	❍	❍	❍	❍

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I experienced trembling (e.g., in the hands)	❍	❍	❍	❍

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I felt that I was using a lot of nervous energy	❍	❍	❍	❍

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I was worried about situations in which I might panic and make a fool of myself	❍	❍	❍	❍

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I felt that I had nothing to look forward to	❍	❍	❍	❍

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I found myself getting agitated	❍	❍	❍	❍

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I found it difficult to relax	❍	❍	❍	❍

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I felt down-hearted and blue	❍	❍	❍	❍

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I was intolerant of anything that kept me from getting on with what I was doing	❍	❍	❍	❍

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I felt I was close to panic	❍	❍	❍	❍

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I was unable to become enthusiastic about anything	❍	❍	❍	❍

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I felt I wasn't worth much as a person	❍	❍	❍	❍

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I felt that I was rather touchy	❍	❍	❍	❍

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)	❍	❍	❍	❍

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I felt scared without any good reason	❍	❍	❍	❍

	Not at all	To some degree, or some of the time	To a considerable degree, or a good part of the time	Very much, or most of the time
I felt that life was meaningless.	❍	❍	❍	❍

PSQI

The following questions relate to your usual sleep habits during the PAST MONTH ONLY. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all questions.

1. During the past month, what time have you usually gone to bed at night?

2. During the past month, how long (in minutes) has it usually taken you to fall asleep each night?

3. During the past month, what time have you usually gotten up in the morning?

4. During the past month, how many hours of actual sleep did you get at night? (This may be different than the number of hours you spent in bed.)

5. During the past month, how often have you had trouble sleeping because you.....

	Not during the past month	Less than once a week	Once or twice a week	Three or more times a week
a. Cannot get to sleep within 30 minutes	❍	❍	❍	❍
b. Wake up in the middle of the night or early morning	❍	❍	❍	❍
c. Have to get up to use the bathroom	❍	❍	❍	❍
d. Cannot breathe comfortably	❍	❍	❍	❍
e. Cough or snore loudly	❍	❍	❍	❍
f. Feel too cold	❍	❍	❍	❍
g. Feel too hot	❍	❍	❍	❍
h. Have bad dreams	❍	❍	❍	❍
i. Have pain	❍	❍	❍	❍

j. Other reason(s), please describe:	❍	❍	❍	❍

	Not during the past month	Less than once a week	Once or twice a week	Three or times a week
6. During the past month, how often have you taken medicine to help you sleep (prescribed or "over the counter")?	❍	❍	❍	❍
7. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?	❍	❍	❍	❍

	No problem at all	Only a very slight problem	Somewhat of a problem	A very big problem
8. During the past month, how much of a problem has it been for you to keep up enough enthusiasm to get things done?	❍	❍	❍	❍

	Very good	Fairly good	Fairly bad	Very bad
9. During the past month, how would you rate your sleep quality overall?	❍	❍	❍	❍

	No bed partner or room mate	Partner/room mate in other room	Partner in same room but not same bed	Partner in same bed
Do you have a bed partner or room mate?	❍	❍	❍	❍

If you have a room mate or bed partner, ask him/her how often in the past month you have had:

	Not during the past month	Less than once a week	Once or twice a week	Three or more times a week
a. Loud snoring	❍	❍	❍	❍
b. Long pauses between breaths while asleep	❍	❍	❍	❍
c. Legs twitching or jerking while you sleep	❍	❍	❍	❍
d. Episodes of disorientation or confusion during sleep	❍	❍	❍	❍
e. Other restlessness while you sleep, please describe:	❍	❍	❍	❍

CCAPS 34

The following statements describe thoughts, feelings, and experiences that people may have. Please indicate how well each statement describes you, during the PAST TWO WEEKS, from "not at all like me" (0) to "extremely like me" (4) by selecting the correct number. Read each statement carefully. Select only one answer per statement and please do not skip any questions.

	Not at all like me	1	2	3	Extremely like me
I am shy around others	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
My heart races for no good reason	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I feel out of control when I eat	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I don't enjoy being around people as much as I used to	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I feel isolated and alone	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I think about food more than I would like to	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I am anxious that I might have a panic attack in public	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I feel confident that I can succeed academically	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I have sleep difficulties	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
My thoughts are racing	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I feel worthless	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I feel helpless	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I eat too much	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I drink alcohol frequently	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I have spells of terror or panic	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
When I drink alcohol I can't remember what happened	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I feel tense	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I have difficulty controlling my temper	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I make friends easily	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I sometimes feel like breaking or smashing things	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I feel sad all the time	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I am concerned that other people do not like me	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I get angry easily	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I feel uncomfortable around people I don't know	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I have thoughts of ending my life	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I feel self conscious around others	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I drink more than I should	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I am not able to concentrate as well as usual	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I am afraid I may lose control and act violently	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
It's hard to stay motivated for my classes	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I have done something I have regretted because of drinking	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I frequently get into arguments	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I am unable to keep up with my school work	❍	❍	❍	❍	❍

	Not at all like me	1	2	3	Extremely like me
I have thoughts of hurting others	❍	❍	❍	❍	❍

FFMQ

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

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
When I'm walking, I deliberately notice the sensations of my body moving.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I'm good at finding words to describe my feelings.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I criticize myself for having irrational or inappropriate emotions.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I perceive my feelings and emotions without having to react to them.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
When I do things, my mind wanders off and I'm easily distracted.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
When I take a shower or bath, I stay alert to the sensations of water on my body.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I can easily put my beliefs, opinions, and expectations into words.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I watch my feelings without getting lost in them.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I tell myself I shouldn't be feeling the way I'm feeling.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
It's hard for me to find the words to describe what I'm thinking.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I am easily distracted.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I believe some of my thoughts are abnormal or bad and I shouldn't think that way.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I pay attention to sensations, such as the wind in my hair or sun on my face.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I have trouble thinking of the right words to express how I feel about things.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I make judgments about whether my thoughts are good or bad.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I find it difficult to stay focused on what's happening in the present.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
In difficult situations, I can pause without immediately reacting.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
It seems I am "running on automatic" without much awareness of what I'm doing.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
When I have distressing thoughts or images, I feel calm soon after.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I tell myself I shouldn't be thinking the way I'm thinking.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I notice the smells and aromas of things.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
Even when I'm feeling terribly upset, I can find a way to put it into words.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I rush through activities without being really attentive to them.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
When I have distressing thoughts or images I am able just to notice them without reacting.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I think some of my emotions are bad or inappropriate and I shouldn't feel them.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
My natural tendency is to put my experiences into words.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
When I have distressing thoughts or images, I just notice them and let go of them.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I do jobs or tasks automatically without being aware of what I am doing.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I pay attention to how my emotions affect my thoughts and behavior.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I can usually describe how I feel at the moment in considerable detail.	❍	❍	❍	❍	❍

	never or very rarely true	rarely true	sometimes true	often true	very often or always true
I find myself doing things without paying attention.	❍	❍	❍	❍	❍

	never or very rarely true.	rarely true	sometimes true	often true	very often or always true
I disapprove of myself when I have irrational ideas.	❍	❍	❍	❍	❍

AAQ-II

Below you will find a list of statements. Please rate how true each statement is for your by selecting a statement next to it.

	Never true	Very seldom true	Seldom true	Sometimes true	Frequently true	Almost always true	Always true
My painful experiences and memories make it difficult for me to live a life that I would value.	❍	❍	❍	❍	❍	❍	❍

	Never true	Very seldom true	Seldom true	Sometimes true	Frequently true	Almost always true	Always true
I'm afraid of my feelings.	❍	❍	❍	❍	❍	❍	❍

	Never true	Very seldom true	Seldom true	Sometimes true	Frequently true	Almost always true	Always true
I worry about not being able to control my worries and feelings.	❍	❍	❍	❍	❍	❍	❍

	Never true	Very seldom true	Seldom true	Sometimes true	Frequently true	Almost always true	Always true
My painful memories prevent me from having a fulfilling life.	❍	❍	❍	❍	❍	❍	❍

	Never true	Very seldom true	Seldom true	Sometimes true	Frequently true	Almost always true	Always true
Emotions cause problems in my life.	❍	❍	❍	❍	❍	❍	❍

	Never true	Very seldom true	Seldom true	Sometimes true	Frequently true	Almost always true	Always true
It sees like most people are handling their lives better than I am.	❍	❍	❍	❍	❍	❍	❍

	Never true	Very seldom true	Seldom true	Sometimes true	Frequently true	Almost always true	Always true
Worries get in the way of my success.	❍	❍	❍	❍	❍	❍	❍

PSS

The questions in this scale ask you about your feelings and thoughts DURING THE LAST MONTH. In each case, you will be asked to indicate by selecting how often you felt or thought a certain way.

	Never	Almost never	Sometimes	Fairly often	Very often
In the last month, how often have you been upset because of something that happened unexpectedly?	❍	❍	❍	❍	❍
In the last month, how often have you felt confident about your ability to handle your personal problems?	❍	❍	❍	❍	❍

	Never	Almost never	Sometimes	Fairly often	Very often
In the last month, how often have you felt that you were unable to control the important things in your life?	❍	❍	❍	❍	❍

	Never	Almost never	Sometimes	Fairly often	Very often
In the last month, how often have you felt nervous and "stressed?"	❍	❍	❍	❍	❍

	Never	Almost never	Sometimes	Fairly often	Very often
In the last month, how often have you felt that things were going your way?	❍	❍	❍	❍	❍

	Never	Rarely	Sometimes	Fairly Often	Very Often
In the last month, how often have you found that you could not cope with all the things that you had to do?	❍	❍	❍	❍	❍

	Never	Almost never	Sometimes	Fairly often	Very often
In the last month, how often have you been able to control irritations in your life?	❍	❍	❍	❍	❍

	Never	Almost never	Sometimes	Fairly often	Very often
In the last month, how often have you felt that you were on top of things?	❍	❍	❍	❍	❍

	Never	Almost never	Sometimes	Fairly often	Very often
In the last month, how often have you been angered because of things that were outside of your control?	❍	❍	❍	❍	❍

	Never	Almost never	Sometimes	Fairly often	Very often
In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	❍	❍	❍	❍	❍

TAQ

Please evaluate the extent to which you read and followed the exercises suggested in the workbook during the PREVIOUS WEEK.

1. How much of the suggested readings from the book did you read over the previous week?

- Not at all
- Less than 25 percent
- About half
- About 75 percent
- I read most of the suggested readings
- I read all of the suggested readings

2. What percentage of exercises from the suggested readings for the previous week did you complete while reading the chapter?

- Not at all
- Less than 25 percent
- About half
- About 75 percent
- I completed most of the exercises
- I completed all of the exercises

3. How often did you engage in the exercises suggested in the chapter during the previous week?

- None
- Once a week
- 2 to 3 times per week
- Almost daily

Click to write the question text

	15 Min	30 Min	45 Min	Other
Mindfully Eating a Raisin - CD Track 1	•	•	•	•
Mindful Check-In - CD Track 2	•	•	•	•
Five-Minute Mindful Breathing - CD Track 3	•	•	•	•
Fifteen-Minute	•	•	•	•

Mindful Breathing - CD Track 4				
Walking Meditation - CD Track 5	•	•	•	•
Body Scan - CD Track 6-8	•	•	•	•
Sitting Meditation - CD Track 9-11	•	•	•	•
Mindful Lying Yoga - CD Track 12-15	•	•	•	•
Mindful Self-Inquiry for Stress and Anxiety - CD Track 16	•	•	•	•
Mindful Standing Yoga - CD Track 12, 17-19	•	•	•	•
Loving-Kindness Meditation - CD Track 20-22	•	•	•	•
Mindful Listening	•	•	•	•

5. How often did you engage in each of the informal mindfulness practices over the previous week? If you did not do it, put 0.

Mindful Eating
Weaving Mindfulness Throughout Your Day (p. 35)
Bringing the Eight Attitudes of Mindfulness into Your Life (p. 46)
STOP (p. 60)
Minding Your Pain (p. 72)
Being Mindful of Habits (p. 112)
RAIN (p. 116)
Loving-Kindness in Daily Life (p. 153)
Mindful Listening (p. 166)
Mindful Eating Revisited (p. 178)
Mindful Exercise (p. 181)
The Gift of Rest (p.182)
Mindful Connection (p. 184)

6. What got in the way of you following the workbook?

- I forgot
- I didn't have time
- I did not understand the material/ Material was difficult to follow/ Instructions were unclear
- Other (describe): _____

TEI-SF

Please complete the items listed below by selecting statement that best indicates how you feel about the treatment.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I find this treatment to be an acceptable way of dealing with my worry and anxiety.	•	•	•	•	•

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I liked the procedures used in this treatment.	•	•	•	•	•

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I believe this treatment is likely to be effective.	•	•	•	•	•

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I experienced discomfort as a result of the treatment.	•	•	•	•	•

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I believe this	•	•	•	•	•

treatment is likely to result in permanent improvement.					

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I believe it would be acceptable to use this treatment with individuals who cannot choose treatment for themselves.	•	•	•	•	•

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Overall, I have a positive reaction to this treatment.	•	•	•	•	•

OAA

1. What other health and wellness activities had you already been doing regularly BEFORE consenting to participate in this study? (Check all that apply)

- Individual psychotherapy
- Group psychotherapy
- Support group
- Yoga
- Exercising
- Meditation group
- Reading a self-help book (list title) _____
- Hypnosis
- Biofeedback
- Progressive muscle relaxation
- Other relaxation strategies (other than mindfulness meditation)
- Started a hobby
- Writing in a journal
- Praying
- Attending church, synagogue, masque, or other religious or spiritual services
- Martial arts
- Other (describe) _____

2. What other health and wellness activities have you started doing regularly SINCE consenting to participate in this study? (Check all that apply)

- Individual psychotherapy
- Group psychotherapy
- Support group
- Yoga
- Exercising
- Meditation group
- Reading a self-help book (list title) _____
- Hypnosis
- Biofeedback
- Progressive muscle relaxation
- Other relaxation strategies (other than mindfulness meditation)
- Started a hobby
- Writing in a journal
- Praying

- Attending church, synagogue, masque, or other religious or spiritual services
- Martial arts
- Other (describe) _____

3. How important has this workbook program been to you? (Please move slider to the number on the scale below)

_____ Please move slider to the corresponding number on the scale

3a. Please explain why you have given it the rating above:

4. What other comments do you have about the workbook?

Appendix B

Recruitment Materials

Class Recruitment Script:

Hello. I would like to inform you of a research study being conducted at UNR. You are welcome to participate if you want to, and your participation is completely voluntary. The study is testing effectiveness of the self-help book outlining a wellness-oriented stress reduction program to help people deal with stress and live the life they want. You need to be 18 years of age or older, currently enrolled as a student, fluent in English, and not currently receiving psychotherapy to participate in this study. The study will involve reading and following a self-help book over a period of 11 weeks and completing brief weekly web-based assessments during the same time duration. It will take approximately one hour per week to participate in the study, except for week one and week eleven when it will take approximately two hours. You will be randomly assigned either to the intervention or a wait-list condition. If you are assigned to the intervention condition you will receive the copy of the book at the time of the consent. If you are assigned to the wait-list condition, you will receive the copy of the book after twelve weeks. Regardless of the condition you are assigned you will be asked to complete brief weekly on-line assessments. You will receive one raffle ticket for each completed weekly web-based assessment which will be used to enter you to win one of the two $100 gift cards at the end of the study. Furthermore, if you are enrolled in a psychology course which offers extra credit you can earn up to 13 research credits for your participation in the study. All the information you provide will be kept strictly confidential and will not be shared with anyone else in any way. If you are interested you can contact the co-investigator, Yelena Oren at 775-354-8575 or by email at wellnessunr@google.com to register for the study.

Flyer Handout Script for Instructors to Provide to Students

Attached please find a flyer describing a research study being conducted here at UNR. The study is examining the impact of the self-help book outlining a wellness-oriented stress reduction program to help people deal with stress and live the life they want. Also, participation is completely voluntary and will not impact your grade in this class. You are eligible for the study if you are 18 years of age or older, currently enrolled as a student, fluent in English, and are not currently receiving psychotherapy. You can contact the co-investigator, Yelena Oren, using the contact information provided in the flyer for more information.

SONA post:

Experiment Name: Effectiveness of Mindfulness-Based Stress Reduction Bibliotherapy (up to 13 credits)

Short description: Test the effects of a self-help workbook designed to help students deal with stress and live the life they want.

Long Description: This study is testing the effectiveness of a self-help book outlining a wellness-oriented stress reduction program to help people deal with stress and live the life they want. You need to be 18 years of age or older, currently enrolled as a student, fluent in English, and not currently receiving psychotherapy to participate in this study. The study will involve reading and following a self-help book over a period of 11 weeks and completing brief weekly web-based assessments during that same time duration. It will take approximatelly one hour per week to participate in the study, except for weeks one and eleven when it will take approximatelly two hours. You will be randomly assigned either to internvetion or wait-list condition. If you are assigned to the internvetion condition you will receive the copy of the book at the time of the consent. If you are assgined to the wait-list condition, you will receive the copy of the book after twelve weeks. Regardless of the condition you are assigned you will be asked to complete brief weekly on-line assessments. You will receive one raffle ticket for each completed weekly web-based assessment which will be used to enter you to win one of the two $100 giftcards at the end of the study. Futheremore, if you are enrolled in a psychology course which offers extra credit you can earn up to 13 research credits for your participation in the study. All the information you provide will be kept strictly confidential and will not be shared with anyone else in any way.

If you are interested in particpating, please contact the co-investigator, Yelena Oren at 775-354-8575 or by email at wellnessunr@gmail.com to register for the study.

Appendix C

Follow-Up E-mails

MBSR Book Study Week 1 Control

Subject: MBSR workbook study: week 1 survey

[First Name],

This is your weekly MBSR Workbook Study follow-up survey (click the link below). Your study ID is **${m://ExternalDataReference}.** We appreciate you taking time to complete this survey. We estimate that it will take you no longer than *5 minutes* to complete these questionnaires and you will receive 1 raffle ticket. Your answers are **very important** in evaluating effectiveness of this workbook!

If you decide that you would like to speak to a mental health professional, please contact UNR Counseling Services at 775-784-4648 or refer to the referral information sheet provided during the initial study appointment.

Have a great week!

Yelena
Co-Investigator
MBSR Workbook Study

Follow this link to the Survey:
${l://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:
${l://SurveyURL}

Follow the link to opt out of future emails:
${l://OptOutLink?d=Click here to unsubscribe}

MBSR Book Study Week 1 Intervention

Subject: MBSR workbook study: week 1 survey

[First Name],

This is your weekly MBSR Workbook Study follow-up survey (click the link below). Your study ID is **${m://ExternalDataReference}.** We appreciate you taking time to complete this survey. We estimate that it will take you no longer than *10 minutes* to complete these questionnaires and you will receive 1 raffle ticket. Your answers are **very important** in evaluating effectiveness of this workbook!

We suggest that during the following week you read chapter 2 and engage in reflection exercises, formal and informal mindfulness practices.

If you decide that you would like to speak to a mental health professional, please contact UNR Counseling Services at 775-784-4648 or refer to the referral information sheet provided during the initial study appointment.

Have a great week!

Yelena
Co-Investigator
MBSR Workbook Study

Follow this link to the Survey:
${l://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:
${l://SurveyURL}

Follow the link to opt out of future emails:
${l://OptOutLink?d=Click here to unsubscribe}

Follow-up Survey Email

Subject: Final MBSR workbook study follow-up survey

[First Name],

This is your final MBSR Workbook Study follow-up survey (click the link below). Your study ID is **${m://ExternalDataReference}.** We appreciate you taking time to complete this final follow-up survey. We estimate that it will take you no longer than 60 minutes to complete these questionnaires and you will receive 1 raffle ticket.

Completion of this survey concludes your participation in the study. Your responses will help us evaluate effectiveness of MBSR workbook in reducing stress and related symptoms. If results show that this workbook has hypothesized effects, it may offer a cost-effective alternative to people who are not able to get access to traditional MBSR.

If you decide that you would like to speak to a mental health professional, please contact UNR Counseling Services at 775-784-4648 or refer to the referral information sheet provided during the initial study appointment.

Thank you!

Yelena
Co-Investigator
MBSR Workbook Study

Follow this link to the Survey:
${l://SurveyLink?d=Take the Survey}
Or copy and paste the URL below into your internet browser:
${l://SurveyURL}
Follow the link to opt out of future emails: ${l://OptOutLink?d=Click here to unsubscribe}

MBSR Book Study Completed Email

Subject: MBSR workbook study: Would you like copy of the book (no further obligations)

[First Name],

Thank you for completing final MBSR Workbook Study follow-up survey! Completion of this survey concludes your participation in this study. Your responses will help us evaluate effectiveness of MBSR workbook in reducing stress and related symptoms. If results show that this workbook has hypothesized effects, it may offer a cost-effective alternative to people who are not able to get access to traditional MBSR.

If you would like a copy of the workbook, please let me know by responding to this email. Please note that choosing to get copy of the workbook does not require any additional time commitment or survey completions from you.

Raffle tickets that you have accumulated by completing follow-up surveys will be used in a drawing of several $100 gift cards after all the data for all the study participants has been collected (anticipated January 2015). If you are one of the winners, we will contact you using contact information you have provided at the time of consent. If you are taking Psychology classes during Summer 2014 or Fall 2014 semesters and would like to apply extra credits earned by participating in this study to those courses, please contact study investigator at wellnessunr@gmail.com with course, instructor, and term information.

If you decide that you would like to speak to a mental health professional, please contact UNR Counseling Services at 775-784-4648 or refer to the referral information sheet provided during the initial study appointment.

Thank you & best of luck!

Yelena
Co-Investigator
MBSR Workbook Study

Appendix D

Workbook Quizzes

QUIZ 1 (Intro & Ch. 1) Introduction & What is Mindfulness?

1. What are the names of the authors of the workbook?
    a. Mary Loputo and John Millman
    b. Bob Stahl and Elisha Goldstein
    c. Eric Newman and Thomas Chen
    d. None of the above.

2. What is mindfulness?
    a. Being fully aware of whatever is happening in the present moment, without filters or the lens of judgment.
    b. A simple and direct practice of moment-to-moment observation of the mind-body process through calm and focused awareness without judgment.
    c. Taking life one moment at a time
    d. All of the above.

3. Mindfulness can be practiced in the following way(s)?
    a. Formal practice
    b. Informal practice
    c. Strict practice
    d. A and B.

4. Formal mindfulness practice is
    a. Taking time out each day to intentionally sit, stand, or lie down and focus on breath, bodily sensations, sounds, other senses, or thoughts and emotions
    b. Wearing special clothes and using specialized equipment when practicing mindfulness
    c. Mindfulness practiced in designated mindfulness centers and lead by trained staff.
    d. None of the above.

5. Informal mindfulness practice is
    a. Bringing mindful awareness to daily activities such as eating, exercising, chores, relating to others, and any other action, whether at work , home, or anywhere else you find yourself
    b. The wrong way to practice mindfulness
    c. Is the most beneficial way of practicing mindfulness
    d. None of the above.

6. Stress and anxiety have been associated with
    a. Poor physical health
    b. Cardiovascular disease
    c. Cancer

d. All of the above.

7. Mindfulness-Based Stress Reduction
    a. Was founded by Jon Kabat-Zinn
    b. Was first introduced at the University of Massachusetts Medical Center
    c. Was designed to introduce mindfulness into mainstream culture
    d. All of the above.

8. Mindfulness has been shown to have positive effects on
    a. Stress
    b. Depression
    c. Pain
    d. All of the above.

QUIZ 2 (Ch. 2) Mindfulness and the Mind-Body Connection

1. When person experiences stress the body produces
    a. Cortisol
    b. Epinephrine
    c. Norepinephrine
    d. All of the above.

2. The autonomic nervous system
    a. Regulates vital bodily functions such as the brain, heart, and respiration
    b. Consists of the sympathetic and parasympathetic nervous systems
    c. Is directly involved in how stress affects the body
    d. All of the above.

3. Mindfulness-based approaches have been proved to be effective in reducing symptoms of
    a. Anxiety
    b. Chronic pain
    c. Unhealthy brain functioning
    d. All of the above.

4. Common stress reactions include
    a. Muscular tension
    b. Headaches
    c. Gastrointestinal problems
    d. All of the above.

5. Which one of the statements below is true?
    a. Meditation and relaxation are the same
    b. Meditation can bring on feelings of relaxation
    c. Meditation is opposite of relaxation
    d. None of the statements are true.

6. The purpose of meditation is to
    a. Experience the present moment
    b. Relax
    c. Feel frustrated
    d. Get exercise.

7. What is the key feature of awareness?
    a.
    b. It allows one to control own thoughts and emotions
    c. It presents an opportunity to make a choice of how to respond
    d. All of the above.

8. Which of the following is/are informal ways of practicing mindfulness suggested in the workbook?
    a. When taking a bath or a shower
    b. When driving
    c. When eating a meal
    d. All of the above.

QUIZ 3 (Ch. 3) How to Practice Mindfulness Meditation

1. Which of the following is/are the attitude(s) of mindfulness?
    a. Nonjudgment
    b. Nonstriving
    c. Self-compassion
    d. All of the above.

2. How does the workbook suggest using qualities of mind?
    a. Studying them rigorously and getting tested
    b. Writing them in a journal
    c. Reflecting on them and cultivating them according to your best understanding
    d. None of the above.

3. Beginner's mind is
    a. Mind of someone who is learning a new language
    b. Quality of awareness to see things as though seeing it for the first time
    c. A term used to describe developing mind of a child
    d. None of the above.

4. Which one of the statements below about mindful breathing is correct
    a. Oftentimes serves as the foundation for meditation practices
    b. Can be observed in nose, chest, or belly
    c. Sometimes recommended as a way to deal with stress and anxiety
    d. All of the above.

5. What are the benefits of brining the mind back after it has wandered?
    a. Provides training in concentration
    b. May help you discover that you've filled with self-judgment , worry, sadness, anger, or confusion
    c. May realize you've been worrying or experiencing other distressing emotions
    d. All of the above.

6. Which of the following ways of positioning body for mediation practice are suggested in the workbook?
    a. Sitting on the floor, on a meditation cushion, or in a chair
    b. Closing eyes
    c. Folding hands on the lap or placing them on your thighs
    d. All of the above.

7. What is the wandering mind?
    a. A pattern of thoughts present during walking and hiking
    b. Being lost in thoughts of the future or memories of the past
    c. Theory of the mind that explains people get certain thoughts
    d. All of the above.

8. If you cannot find time to meditate, what does the workbook suggest?
    a. Schedule date with yourself to practice meditation
    b. Schedule meditation together with something you already do on the daily basis
    c. Set up reminders on the calendar or your phone
    d. All of the above.

QUIZ 4 (Ch. 4) How Mindfulness Works With Stress Reduction

1. The chapter suggests that the way to deal with the anxiety is to
    a. Pretend like it does not exist
    b. Try to control the world around you
    c. Turn toward the anxiety
    d. Eliminate the stressors causing the stress.

2. Past difficult and distressing events can influence current stress and anxiety
    a. Yes
    b. No

3. What is one of the major ways in which mindfulness helps with stress?
    a. By enabling one to observe the mind traps that may play a role in stress and ones reactions to stress
    b. By forgetting about negative things and focusing on the positive
    c. By teaching techniques which help remember all the good things that happen
    d. All of the above.

4. What are mind traps?
    a. Mental habits that tend to exacerbate stress and pain
    b. Playing mind tricks on others
    c. Places in our mind where information we cannot recall easily is stored
    d. None of the above.

5. What is self-talk?
    a. The way in which we talk to ourselves
    b. Habitual styles of thinking and how we automatically interpret events
    c. Is oftentimes negative
    d. All of the above.

6. Which one below is the name of the habitual thinking style?
    a. Catastrophizing
    b. Mind reading
    c. Blaming
    d. All of the above.

7. Which of the statements below is true?
    a. Ways in which we interpret events has a big effect on the level of stress
    b. There is no relationship between how we interpret events and emotions
    c. Everyone interprets events in the same way
    d. None of the above.

8. Acronym STOP stands for

a. Stop, Take a breath, Observe, and Proceed
b. Sacrifice, Talk, Order, and Pray
c. Stop, Talk, Obey, and Pace
d. Sleep, Taste, Obsess, and Party.

QUIZ 5 (Ch. 5) Mindfulness of the body

1. What is the body scan meditation?
    a. A deep investigation into the moment-to-moment experiences of the body
    b. Bringing awareness and acknowledgement to whatever is felt or sensed in the body
    c. A way of identifying and eliminating negative feelings and sensations in the body
    d. A and B only.

2. Which body part(s) is/are typically included in the body scan meditation?
    a. Feet
    b. Abdomen
    c. Hands
    d. All of the above.

3. Which of the statements below about the body scan is/are true?
    a. You have to experience pleasant or unpleasant sensations
    b. Neutral sensations can be part of the body scan
    c. Getting rid of the pain the main focus
    d. All of the above.

4. Which one below is NOT one of the steps of applying mindfulness to chronic pain described in the workbook?
    a. Sensing into the body and feeling how you hold tension and pain
    b. Working with emotional reactions to the pain and tension
    c. Focusing on the pain and figuring out the root cause of it
    d. Learning to live in the here and now and dealing with pain one moment at a time.

5. What happened to Joe's family members?
    a. Attended family reunion
    b. Died in the car accident
    c. Got sick on vacation
    d. None of the above.

6. Which of the items listed below is/are identified in the workbook as barrier(s) to awareness of emotions?
    a. Invalidation of emotions by self or others
    b. Confusion between thoughts and emotions
    c. Not being able to verbally express emotions
    d. All of the above.

7. Which one of the emotions is NOT included on the writing exercise of Identifying Emotions in the Body?
    a. Anger
    b. Confusion
    c. Surprise
    d. Love.

8. What misconception(s) about his own awareness does Elisha Goldstein describe having in his personal story in this chapter of the workbook?
    a. Confusing thoughts and feelings
    b. Thinking he was aware of his emotions
    c. Thinking he did not have any feelings of pain
    d. All of the above.

QUIZ 6 (Ch. 6) Deepening Your Practice

1. What are the formal sitting mindfulness meditations outlined in this chapter?
    a. Mindfulness of breathing
    b. Mindfulness of sensations
    c. Mindfulness of hearing
    d. All of the above.

2. What is choiceless awareness?
    a. When the present moment becomes the primary focus of attention
    b. When you are able to control everything in your awareness
    c. Spontaneously developing heightened awareness through mindfulness
    d. None of the above.

3. What obstacles to meditation did Bob describe dealing with in the story from this chapter?
    a. Pressing thoughts and emotions
    b. Hunger
    c. The crowing of roosters
    d. Pain.

4. What does this chapter describe that inspired yogis to begin practicing yoga?
    a. Insight on yoga dreams
    b. Teachings from mystical guru
    c. Observations of animals
    d. None of the above.

5. In the story described in this chapter, what disease was Frank diagnosed with?
    a. Tuberculosis
    b. Lou Gehrig's disease
    c. Polio
    d. Parkinson's.

6. Mindfulness of sensations
    a. Is awareness of the field of physical sensations
    b. Can include awareness of whatever sensations are predominant in each moment
    c. Can be experienced as pleasant, unpleasant, or neutral
    d. All of the above.

7. What are mental events?
    a. Unconscious defense mechanisms
    b. Thoughts and emotions
    c. Crazy things people do
    d. None of the above.

8. How does the workbook suggest working with thoughts that you take so seriously?
    a. Acknowledging that thoughts and emotions are transitory
    b. Considering the mind to be a sense organ, and, hence, accepting that mind does what it is supposed to - thinks
    c. Sit outside, look up at the clouds floating by, and imagine yourself as the sky and thoughts as clouds that come and go
    d. All of the above.

QUIZ 7 (Ch. 7) Meditation for Anxiety and Stress

1. What does RAIN acronym stand for?
    a. Revolt, Assassinate, Interrogate, and Negotiate
    b. Recognize, Allow, Investigate, and Non-identify
    c. Research, Analyze, Integrate, and Narrate
    d. Rationalize, Accept, Imitate, and Navigate.

2. What personal inquiry does Bob describe working with in a story from this chapter?
    a. Depression after breaking his leg
    b. Anxiety after being fired from a job
    c. Anger after talking to a hospital administrator
    d. None of the above.

3. Which word is oftentimes associated with a rule or judgment?
    a. Must
    b. Should
    c. Maybe
    d. Could.

4. Which of the following is NOT a method of building awareness of own inner rules suggested in this chapter?
    a. Sleeping on the other side of the bed
    b. Styling your hair differently
    c. Wearing a watch on the hand opposite to the one you are used to
    d. Eating with your opposite hand.

5. Which of the following is NOT a yoga pose outlined in this chapter?
    a. Triangle pose
    b. Mountain pose
    c. Lion pose
    d. Downward-facing dog pose.

6. What is the subject of Allison's concern in the story from in this chapter?
    a. Raise in salary
    b. Annoying coworker
    c. Demanding boss
    d. None of the above.

7. Which of the following are recommended for practicing yoga?

    a. Wear comfortable clothes
    b. Use yoga mat
    c. Drink 5 glasses of water before starting
    d. A and B.

8. What happened to a pilot in the story described in the chapter?

a. He was shot with enemy gunfire
b. He lost his pilot's license because he was an alcoholic
c. He lost his vision due to an accident and could no longer fly
d. His wife left him for another pilot.

QUIZ 8 (Ch. 8) Transforming Fear Through Loving-Kindness Meditation

1. How is loving-kindness meditation defined in this chapter?
    a. Benevolent goodwill
    b. Conditional love
    c. Selflessness towards those who are less fortunate, even if detrimental for you
    d. Treating others in the way you would want to be treated.

2. What is the origin of loving-kindness meditation?
    a. Buddha taught it to monks as an antidote to fear to help them deal with sprits that were bothering them during meditation
    b. Buddha taught it to monks as a way of dealing with people of other faiths
    c. Buddha taught it to monks as a way of connecting to animals
    d. None of the above.

3. What do authors identify as the great unnamed epidemic in this chapter?
    a. Malaria
    b. Lack of self-compassion
    c. Post-Traumatic Stress disorder (PTSD)
    d. Depression.

4. What are common phrases from the loving-kindness meditation outlined in this chapter?
    a. May this person be thoughtful, effective, successful, and popular
    b. May this person be safe, healthy, have ease of body and mind, and be at peace
    c. May this person be kind, forgiving, patient, and generous
    d. None of the above.

5. How do authors suggest working with resistance during loving-kindness meditation?
    a. Intensifying negative feelings to see how much you really don't like this person
    b. Choosing a different person
    c. Acknowledging and observing lack of loving feelings
    d. Replacing negative feelings with positive ones.

6. Which of the following questions are suggested to help inquire about resentment towards those you are struggling to extend loving-kindness to?
    a. Do you benefit in any way from holding a grudge?
    b. How does your body feel when you do this?
    c. How does it affect your thoughts and emotions?
    d. All of the above.

7. It is normal to experience contrary feelings of anger and sadness when practicing loving-kindness meditation.
    a. True
    b. False.

8. Which of the following are ways of informal loving-kindness practice suggested in the chapter?

a. Extending it to person you are having difficulty with
b. Extending it to a supermarket or post-office worker
c. Extending it to everyone in the crowd while attending public event
d. All of the above.

QUIZ 9 (Ch. 9) Interpersonal Mindfulness

1. Which of the following statements about habitual ways we interact with others is TRUE
   a. Many of these behaviors developed in response to early life interactions with parents and caregivers
   b. Once you learned to respond a certain way you cannot change it
   c. Only behaviors based on dysfunctional interactions become habitual
   d. None of the above.

2. Why is interpersonal mindfulness important?
   a. Human beings are social animals and spend a lot of time interacting with others
   b. It teaches how to get other people to do what you want
   c. Interactions with others can be a major source of stress
   d. A and C only.

3. What research is described in the chapter to help understand relationship patterns?
   a. John Bowlby's research on attachment
   b. Ivan Pavlov's research on conditioning
   c. Jean Piaget's research on cognitive development
   d. Joseph Wolpe's research on systematic desensitization.

4. Why did Elisha (Elisha's story) get angry and hide under the table when his family would go out to eat?
   a. They never took him with them
   b. They never went to restaurants he liked
   c. He felt they were spending money they didn't have
   d. They would always make him finish everything on his plate.

5. What does recent research on attachment described in the chapter say?
   a. Attachment pattern of parents does not have any impact on the attachment patterns of their children
   b. Attachment is only important in large families
   c. Attachment pattern current parents have to their own parents predicts the attachment their children will have to them
   d. None of the above.

6. Which of the following qualities are essential in cultivating interpersonal mindfulness?
   a. Openness
   b. Empathy
   c. Compassion
   d. All of the above.

7. Most of us feel like we are *hearing* others, we often are not actually *listening*.
   a. True
   b. False.

8. What is the major human need identified in this chapter?
    a. Need to be heard
    b. Need for shelter and food
    c. Need for education
    d. None of the above.

QUIZ 10 (Ch. 10 & 11) The Healthy Path of Mindful Eating, Exercise, Rest, and Connection & Keeping Up Your Practice

1. Which of the following is/are ways of practicing mindful eating suggested in the workbook?
    a. Listen to your body to notice whether you are hungry or not
    b. Notice taste and texture of food at different points of cooking process
    c. Feel utensils in your hands
    d. All of the above.

2. What is one of the main reasons people new to mediation fall asleep when practicing?
    a. Apathy
    b. Hunger
    c. Tiredness
    d. A and C only.

3. What forms can doing nothing look like?
    a. Taking a nap
    b. Sitting in a chair
    c. Hanging out by a lake
    d. All of the above.

4. One of the best ways of maintaining informal mindfulness practice is by incorporating it into the routine daily activities such as taking a shower or driving a car.
    a. True
    b. False.

5. What strategy is suggested in dealing mind's tendency to strive to do more and more?
    a. Follow it because it will help in becoming a better at meditation
    b. Become present and choose to be mindful
    c. Try on attitude of nonstriving
    d. B and C only.

6. Which of the following is identified in this chapter as being vital for physical health?
    a. Healthy diet
    b. **Love and connection**
    c. Adequate amount of sleep
    d. None of the above.

7. What was the profession of the person whose research on love and connection are discussed in chapter 10?
    a. Psychologist
    b. Cardiologist
    c. Monk
    d. Radio personality.

8. In order to establish regular mindfulness practice it is important to do certain amount of organization and scheduling.
    a. True
    e. False.

Appendix E

UNIVERSITY OF NEVADA, RENO SOCIAL BEHAVIORAL INSTITUTIONAL REVIEW BOARD
CONSENT TO PARTICIPATE IN A RESEARCH STUDY

TITLE OF STUDY: Effectiveness of Mindfulness-Based Stress Reduction Bibliotherapy
INVESTIGATOR(S): Holly Hazlett-Stevens, Ph.D., 775-682-8702 and Yelena Oren, 775-354-8575
PROTOCOL #: 2014S053
SPONSOR: AlterMed Research Foundation

PURPOSE

You are asked to participate in a research study. The purpose of this study is to evaluate the effectiveness of a self-help book aimed at reducing stress.

PARITCIPANTS

You are being asked to participate because you are a UNR or TMCC student over the age of 18, are able to read and write English, and are not currently receiving psychotherapy.

PROCEDURES

If you agree to participate in this study, you will complete a series of questionnaire measures on-line. You will also be asked to provide your email address and a phone number so that you can be contacted with further instructions about following the workbook, completing questionnaire measures, getting raffle tickets, and, if applicable, receiving your raffle prize of a $100 gift card.

If you are randomized into the workbook condition you will receive a copy of the stress reduction workbook at the end of this appointment after completing the questionnaire measures. You will be asked to read one chapter per week and follow the exercises included in each chapter, which should take approximately 60 minutes. The only exception is the first week and eleventh week when you will be asked to read and complete exercises from 2 chapters, which is expected to take up to 2 hours. Additionally, weekly you will be asked to complete several brief measures and a short quiz on-line. You will receive an email and/or text message from the study investigators with weekly instructions as well as to follow-up on your progress of completing above-mentioned questionnaire measures and quizzes. You will receive a raffle ticket for each completed assessment which will be entered to win one of two $100 gift cards at the end of the study. The total time of participation in the program is 11 weeks. At the end of the 11 weeks you will be asked to complete a set of questionnaire measures similar to the ones you completed at the time of the initial consent to participate in the study. If you are enrolled in a psychology course you will be eligible to earn up to 13 psychology experience credits (PEC) to be applied to your psychology course if allowed by your course instructor.

If you are randomized into the no-treatment control condition, you will be contacted weekly and asked to complete several brief questionnaire measures on-line. You will receive an email and/or text message from the study investigators to follow-up on your progress of completing above-mentioned measures. You will receive a raffle ticket for each completed assessment which will be entered to win one of two $100 gift cards at the end of the study. The total time of participation in the program is 11 weeks. At the end of the 11 weeks you will be asked to complete a set of questionnaire measures similar to the ones you completed at the time of the initial consent to participate in the study. After completion of the final set of measures you will receive a copy of the workbook to use at your discretion. If you are enrolled in a psychology course you will be eligible to earn up to 13 psychological experience credits (PEC) to be applied to your psychology course if allowed by your course instructor.

The total time commitment for the study will not exceed 13 hours over the next 11 weeks.

DISCOMFORTS, INCONVENEINCES, AND/OR RISKS

The risks of participating in this study are minimal. There may be some discomfort when filing out questionnaires or reading the stress reduction workbook. If you experience any distress or discomfort when taking part in the study, please let the Principal or Co-Investigator know via email or phone contact. If you decide that you would like to speak to a mental health professional, please contact UNR Counseling Services, 202 Thompson Bldg., 784-4648. You may end your participation in the experiment at any time without losing any psychological experience credits and raffle tickets already earned, and the workbook will still be yours to keep. There is a small possibility of a breach of confidentiality, as you will be providing your email address and phone number to the co-investigator at the time of consent. However, all information gathered will be treated as confidential, the email addresses and phone numbers will be stored separately from your data, and the data will only be published in aggregate form so that individuals will not be identified.

BENEFITS

There may be no direct benefits to you as a participant in this study. However, we see this research as being useful in learning how people use this workbook. Through your participation you may help this book being used as an additional or alternative treatment.

CONFIDENTIALITY

Your identity will be protected to the extent allowed by law. You will not be personally identified in any reports or publications that may result from this study.

The Department of Health and Human Services (HHS), other federal agencies as necessary, and the University of Nevada, Reno Social Behavioral Institutional Review Board may inspect your study records.

The results of this study will be confidential. To minimize loss of confidentiality all information will be coded by number and all data will be kept in locked file cabinets, with direct access available only to project staff. All data files will be coded by number, so no identifying information will be retained.

COSTS/COMPENSATION

There will be no cost to you. If you are eligible, you may earn psychology experience credits for participation in this research study; therefore you may be eligible to earn up to 13 credits. Additionally, you will receive a free copy of the workbook regardless of your group assignment. If you are randomly assigned to the workbook condition, you will receive the workbook at the time of the consent. If you are randomly assigned to the no-treatment control condition, you will be offered a copy of the workbook 12 weeks after signing this consent form. Additionally, you will earn one raffle ticket for each completed assessment which will be entered into a raffle to win one of two $100 gift cards at the end of the study.

If you think you have suffered a research related injury, you should immediately contact the Principal Investigator, Holly Hazlett-Stevens, Ph.D. at 775-682-8702.

RIGHT TO REFUSE OR WITHDRAW

You may refuse to participate or withdraw from the study at any time and still receive the care you would normally receive if you were not in the study. If the study design or use of the data is to be changed, you will be informed and your consent re-obtained. You will be told of any significant new findings developed during the course of this study, which may relate to your willingness to continue participation.

If you choose to withdraw from the study at any time, and you are eligible to psychology experience credit, you will still receive the amount of credit corresponding to the number of hours you participated in the study at the discretion of your psychology instructors.

QUESTIONS

If you have questions about this study or wish to report a research-related injury, please contact Holly Hazlett-Stevens, Ph.D. at 775-682-8702 at any time.

You may ask about your rights as a research participant or you may report (anonymously if you so choose) any comments, concerns, or complaints to the University of Nevada, Reno Social Behavioral Institutional Review Board, telephone number 775-3278-2368, or by addressing a letter to the Chair of the Board, c/o UNR Office of Human Research Protection, 205 Ross Hall/ 331, University of Nevada, Reno, Reno, Nevada, 89557.

CLOSING STATEMENT

I have read ( ) this consent form or have had it read to me ( ). [Check one.]

_____has explained the study to me and all of my questions have been answered. I have been told of the risks or discomforts and possible benefits of the study.

If I do not take part in this study, my refusal to participate will involve no penalty or loss of rights to which I am entitled. I may withdraw from this study at any time without penalty [or loss of other benefits to which I am entitled].

I have been told my rights as a research subject, and I voluntarily consent to participate in this study. I have been told what the study is about and how and why it is being done. All my questions have been answered.

I will receive a signed and dated copy of this consent form.

Signature of Participant Date

Signature of Person Obtaining Consent Date

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