SEEKING YOUR CENTER:
ASSESSING A COMPUTER-BASED PSYCHOEDUCATIONAL INTERVENTION FOR
SPIRITUAL STRUGGLES IN COLLEGE FRESHMEN

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ABSTRACT
Research has demonstrated that spiritual struggles are related to deleterious effects on psychological well-being, and can lead to a wide range of addictive behavior in college students (Bryant & Astin, 2008; Pargament et al., 1998; Exline, Yali & Sanderson, 2000; Johnson, Sheets & Kristeller, 2006; Astin & Astin, 2004; Faigin & Pargament, 2008). Some promising studies have found that small-group interventions can diminish the negative effects of spiritual struggles (Oemig et al., 2008; Tarakeshwar, Pearce, and Sikkema, 2005; Avants et al., 2005; Murray-Swank & Pargament, 2005); while computer-based psychoeducation interventions have proven effective in addressing other psychological or behavioral problems (Braithwaite & Fincham, 2007; Orbach, Lindsay, & Grey, 2007; Low et al., 2006). The current project is the first of its kind to assess the impact of a computer-based psychoeducation intervention for spiritual struggles that can be applied to a large group of people. Findings indicate that a spiritually sensitive intervention does not appear to protect students from the negative effects of spiritual struggles (e.g., psychological distress, addictive behavior, stigma related to spiritual struggles) more than a secular (stress reduction) intervention or no intervention. These results indicate that this one-time, computer-based psychoeducation intervention does not protect freshmen college students from negative outcomes associated with spiritual struggles. However, there is reason to believe that changes in the administration and intervention design could prove effective in future studies. Suggestions for future research are provided; limitations and practical implications are discussed.
This dissertation is dedicated to my parents Joseph and Stella Caprini
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INTRODUCTION

In the literature on the psychology of religion, the concept of spiritual struggles has received increased attention. To date, spiritual struggles have been linked to lower self-esteem, increased negative mood, anxiety, depression, and alcohol use in samples of college students (Bryant & Astin, 2008; Pargament et al., 1998; Exline, Yali & Sanderson, 2000; Johnson, Sheets & Kristeller, 2006; Astin & Astin, 2004). A recent study expanded these findings by providing evidence that spiritual struggles may also be a risk factor in developing a wide range of addictive behaviors in college freshmen, including gambling, prescription drug use, recreational drug use, sex, shopping, caffeine use, food starving, tobacco use, and work (Faigin & Pargament, 2008). These findings suggest that spiritual struggles may have deleterious affects on the health and well-being of college students; therefore, interventions that target the development of a healthy spirituality and provide resources to resolve struggles seem warranted.

Although there are a few studies showing the efficacy of small-group interventions in addressing spiritual struggles (Oemig et al., 2008; Tarakeshwar, Pearce, and Sikkema, 2005; Avants et al., 2005; Murray-Swank & Pargament, 2005), there are no existing interventions that address spiritual struggles and can be applied to a large number of people. In this direction, computer-based psychoeducational interventions have shown promise. There is evidence that computer-based psychoeducational interventions can be a cost-effective, flexible, and versatile alternative for treating problems such as generalized anxiety and depression (Braithwaite & Fincham, 2007), test anxiety (Orbach, Lindsay, & Grey, 2007), and maladaptive eating patterns (Low et al., 2006). A computer-based intervention may also help decrease the negative outcomes commonly associated with spiritual struggles. The purpose of this project is to assess the impact of a computerized psychoeducational intervention on negative psychological and behavioral
outcomes for first-year college students. Specifically, I plan to compare the effectiveness of an intervention that addresses spiritual struggles, an intervention that addresses college stress (secular intervention), or no intervention on addictive behavior, psychological distress, and stigma related to spiritual struggles in a sample of college freshmen.

**Spiritual Struggles**

*Spiritual and Religious Coping*

Researchers have investigated ways that individuals utilize a personal religious or spiritual framework to cope with stress. In 1998, Pargament and colleagues introduced the concept of positive and negative religious coping with major life stressors. They define positive religious coping as a way of interpreting and responding to life events that reflect a secure relationship with God, a sense of meaning and purpose in life, spiritual connectedness with others, and a sense of spirituality. This pattern of coping has been empirically linked to healthier psychological adjustment in multiple studies (see review by Ano & Vasconcelles, 2005). A great deal of research has focused solely on positive forms of religious coping (see Pargament, 1997 for review). Nevertheless, it is important to consider other aspects of spirituality that could have more detrimental effects on quality of life, psychological adjustment, and behavior patterns. This leads to the topic of spiritual struggles.

**Spiritual Struggles**

Negative religious coping, or spiritual struggles, can be defined as conflict, tension, or doubt regarding spiritual matters and “a sign of spirituality in tension and in flux” (Pargament, Desai & McConnell, 2006, p. 124). Struggles can be understood as “efforts to conserve or transform a spirituality that has been threatened or harmed” (Pargament, Murray-Swank, Magyar & Ano, 2005). Spiritual struggles do not have to be a “sign of pathology or weak faith”
(Pargament, 2007); quite the contrary, they can represent a turning point in life, an enduring lifetime experience, or a fleeting state (Pargament, 2007). In other words, a struggle is a response to a threat or challenge to one’s framework of religious or spiritual thought, practice, relationship, and experience and can lead to either decline or growth (Pargament, Desai & McConnell, 2006).

Three types of religious and spiritual struggles have been conceptualized and studied: interpersonal, intrapersonal, and divine. (Pargament, Murray-Swank, Magyar & Ano, 2005; Exline, 2002). Interpersonal spiritual struggles refer to spiritual conflicts with friends, family, and/or religious congregations. For example, people who feel excluded from church groups, lack spiritual support from core individuals in their lives, or engage in spiritual conflicts with others may be in the midst of interpersonal spiritual struggles. In contrast, intrapersonal spiritual struggles are marked by personal doubts and questions regarding one’s spirituality, faith tradition, or life purpose, or conflicts within oneself about morals, beliefs, and practices. Lastly, divine spiritual struggles are expressions of conflict, questions, and tension in relationship to God, such as feeling abandoned by or angry with the divine. These three types of spiritual struggles can have pervasive effects on individual, social, and physical health and well-being (Bryant & Astin, 2008; Pargament, Smith, Koenig & Perez, 1998; Exline, Yali & Sanderson, 2000; Faigin & Pargament, 2008). Before reviewing the prevalence and manifestation of spiritual struggles in college, it is important to consider if there is something unique to this construct or if spiritual struggles could be explained through other basic processes.

Historically in the field of psychology of religion and spirituality, some theorists have viewed religion and spirituality through a reductionistic lens. Specifically, it has been argued that attributions of the divine are an “illusion” or a defense mechanism for anxiety (Freud, 1927), an
attachment figure (Kirkpatrick, 2005), an object representation (Rizzuto, 1979), a physiological response (D’Aquili & Newberg, 1998), or a source of identity and community (Durkheim, 1915). However, others (Frankl, 1984; James, 1901; Pargament, 2002; Miller & C’ de Baca, 2001; Pargament, Magyar-Russell & Murray-Swank, 2005; Pargament, 2007) have argued theoretically and empirically that there is something unique to religiousness and spirituality — and thus to spiritual struggles.

Religion and spirituality play a distinctive and important role for many individuals. National polls in the United States reveal that approximately 80% of people believe in God and consider religion an important part of their lives (Gallop Poll, May 10-13, 2007¹). What is it about religion that draws so many to its shores, especially when under duress? This is perhaps due to the very nature of religion and spirituality. Pargament (1997) posited, “religion offers a response to the problem of human insufficiency” and can complement nonreligious coping through offering solutions to “the limits of personal powers” (p. 310). When under stress or pushed beyond our resources, people can look towards the ultimate for solace or unique solutions to life problems. Specifically, “The solutions may come in the form of spiritual support when other forms of social support are lacking, explanations when no other explanations seem convincing, a sense of ultimate control through the sacred when life seems out of control, or new objects of significance when old ones are no longer compelling” (Pargament, 1997, p. 310).

Given the central and distinctive place of religion and spirituality in the lives of many people in the United States, threats and challenges to this domain of life may be particularly problematic. Those who wrestle with spiritual struggles may experience a unique form of distress due to the profound nature of the questions, doubts, and tension experienced. Unlike the pressure

and uncertainty, for example, of choosing a college major, a common stressor for most undergraduates, the perception of a divine force as punishing or abandoning may imply an ultimate unforgiveability or unacceptability of the individual (Pargament, Magyar-Russell, & Murray-Swank, 2005). Doubting if one is accepted or loved by a divine force may highlight existential questions that have no apparent answer, which may lead to disorientation or misinterpretation of religious tenets. Furthermore, believing that God is vengeful, angry, or has no power over evil can lead to disillusionment, fear, and distrust that can shatter one’s perspective of God, others, and the world (Pargament, Magyar-Russell, & Murray-Swank, 2005). This perhaps explains the pervasiveness of negative psychological outcomes specifically related to spiritual struggles.

According to research, spiritual struggles also appear to stand apart from other types of distress (see review in Pargament, 1997). For example, a study by Trenholm, Trent, and Compton (1998) highlights the role of spiritual struggles in people with panic disorder. These researchers investigated religious conflict, state-trait anxiety, rational behavior, illness attitude, and symptoms of panic disorder in 60 women who were classified one of three groups (panic disorder with therapy, panic disorder without therapy, and therapy clients without panic disorder). Data revealed that religious conflict (e.g., religious guilt) uniquely predicted panic disorder in both groups (panic with therapy, λ=.54, p<.0001; panic with no therapy, λ=.32, p<.0001), even after controlling for irrational thinking, state anxiety, abnormal illness behavior and hypochondriacal beliefs. The researchers conclude that the anxiety fueling the panic disorder “goes beyond the concept of an individual who becomes frightened by the catastrophizing of body sensations;” but instead encompasses perceptions of failing religious ideals, causing feelings of guilt and fears of moral transgressions (Trenholm, Trent, & Compton, 1998).
Similarly, in a longitudinal study of 596 medically ill, hospitalized, elderly patients, spiritual struggles were shown to be a risk factor for mortality. Pargament and colleagues (2004) assessed for positive and negative religious coping (spiritual struggles) and mortality two years later. Results indicated that individuals who endorsed feelings of being unloved by and alienated from God ("Questioned God's love for me," "Wondered whether God had abandoned me"), or felt that the devil was involved in their illness ("Decided the devil made this happen") were 20-30% more likely to die over a two-year period, even when controlling for physical and mental health, and demographic variables (risk ratio for death, 1.06; 95% confidence interval, 1.01-1.11; $\chi^2 = 5.89; p = .02$; Pargament, Koenig, Tarakeshwar & Hahn, 2004). These examples provide evidence that spiritual struggles are distinctive forms of tension and conflict that can have pervasive effects on health and well-being. In summary, the spiritual domain and spiritual struggles, more specifically, appear to play distinctive roles in peoples’ lives.

Although there is some evidence to suggest that spiritual struggles can lead to positive outcomes, as well as spiritual- and stress-related growth (Pargament, Koenig, Tarakeshwar & Hahn, 2004; Pargament, Koenig & Perez, 2000), the literature points to robust links between spiritual struggles and negative outcomes, such as psychopathology and distress. Furthermore, some studies (Astin & Astin, 2004; Desai, 2006; Johnson, Sheets & Kristeller, 2006) found that one-half of students experience these types of spiritual tensions during the college years. Taken as a whole, these findings underscore the importance of developing a deeper understanding of the construct of spiritual struggles so that the lessons learned can be applied to college settings.

**Spiritual Struggles in College**

The first year of college has been identified as a time of important personal and spiritual/religious exploration and development. A recent longitudinal study of 112,232 students from 236
colleges within the United States investigated the spiritual and religious values and beliefs, occupational and educational aspirations of first-year college students (Astin & Astin, 2004). The purpose of the study was to answer questions about spiritual searching, spiritual self-perception, how college experiences impact spiritual/religious quests, affinity for religious practices and how these affect academic and personal development. Students were asked to complete a 160-item questionnaire about their perspectives and practices relating to spirituality and religion. The majority of the respondents (66%) attended public universities and colleges; 17% of the students attended nonsectarian private institutions. The remaining participants attended Catholic (7%), Evangelical (3%), or “other” Church-Affiliated institutions (8%).

In contrast to the stereotype that college students have relatively little interest in spiritual matters, the findings from this study indicated that religious and spiritual issues are an important part of life for the entering college student. Most students reported that they believe in God (79%) and agreed strongly or somewhat that “religious beliefs provide strength, support, and guidance” (69%).

Moreover, college was identified as a place and time for personal development and spiritual/religious exploration. In the same study, over two-thirds of college students indicated that it is “very important” or “essential” that college develop their personal values (67%), enhance self-understanding (69%), and expect college to provide for students’ emotional development (63%). Additionally, almost half of the students indicated that it is “essential” or “very important” to seek out opportunities to grow spiritually (47%) and that personal expression of spirituality be encouraged while in college (48%). It is clear that the first year of college is an important place for personal self-discovery and spiritual meaning-making.
Despite the salience of religious and spiritual beliefs, however, many first-year college students simultaneously expressed religious reservations or doubts. Only 42% identified themselves as “secure” in their current views on spiritual/religious matters. Nearly half of the time, students described themselves as “doubting” (10%), “seeking” (23%), or “conflicted” (15%) in their views of spiritual/religious matters. Additionally, only 15% of the time students indicated that they were “not interested” in these types of concerns.

Findings from the same study, using a subset sample of 3,493 college freshman from 46 public and private universities, suggest that spiritual struggles have detrimental effects on the health and well-being of college students. In this study, spiritual struggles were found to be a predictor of greater psychological distress, such as feeling depressed, overwhelmed, anxious or stressed ($\beta = .23$, $p<.01$), poorer physical health ($\beta = -0.05$, $p<.01$), lower self-esteem ($\beta = -0.08$, $p<.01$), less perceived spiritual ($\beta = -0.05$, $p<.01$) and religious growth ($\beta = -0.12$, $p<.01$). These results are significant, even after controlling for participant demographics, institutional variables, college major variables, hours/week devoted to studying, and seeking individual counseling (Bryant & Astin, 2008).

Spiritual struggles have been studied in other college populations and connected to various negative outcomes. For example, Pargament and colleagues (1998) studied religious coping techniques and mental health outcomes in a sample of 196 college students. Students who had recently (within the past two years) experienced a major negative life event, such as the death of a friend or family member or personal injustice were invited to participate in this study for course credit. Participants completed a Religious Red Flags scale, which was developed for this study and assessed various domains of possible problematic religious coping techniques.
Wrong Direction is described by Pargament and colleagues as “religious involvement in goals or values that reflect an imbalance of self-concerns and concerns that go beyond oneself” (p. 79). This domain involves three subscales: Self Neglect, Self Worship, and Religious Apathy. The second dimension, Wrong Road involves “religious coping strategies that are inappropriate to the demands of critical life events or to the specific ends sought through coping” (p. 79). It incorporates four subscales: God’s Punishment, Religious Passivity, Religious Vengeance, and Religious Denial. The last domain, Against the Wind, is described as “religious conflicts with others in an individual’s religious system, with God, or within the individual him/herself” (p. 80). Pargament and colleagues involved four subscales for this dimension: Interpersonal Religious Conflict, Conflict with Church Dogma, Anger at God, and Religious Doubts. It is important to note that this framework for spiritual struggles was a precursor to prior categorization of interpersonal, intrapersonal, and divine spiritual struggles that was be used in the current study.

Pargament and colleagues measured various domains of mental health, including self-esteem, trait anxiety, psychosocial competence. Focusing on students who had experienced a recent death of a friend or family members, spiritual struggles were correlated with lower self-esteem, less problem-solving ability, greater anxiety and negative mood. Specifically, students who had a more difficult time problem solving scored higher on the measures of Self Worship ($r = -.34, p<.01$), Religious Apathy ($r = -.32, p<.01$), Passivity ($r = .22, p<.05$), Religious Denial ($r = .24, p<.01$), Religious Conflict ($r = -.21, p<.05$), Anger at God ($r = -.42, p<.01$), and Religious Doubts ($r = -.23, p<.01$). Higher levels of negative mood were associated with more Religious Passivity ($r = .36, p<.01$), Religious Apathy, ($r = -.43, p<.01$), God’s Punishment ($r = .28, p<.01$), Religious Vengeance ($r = .30, p<.01$), Religious Conflict ($r = .51, p<.01$), Church
Dogma ($r = .42, p<.01$), Anger at God ($r = .57, p<.01$), and Religious Doubts ($r = .47, p<.01$).

Higher levels of anger at God were tied to greater trait anxiety ($r = .22, p<.05$), and lower levels of self-esteem were associated with more Self Worship ($r = -.24, p<.05$), Religious Apathy ($r = -.25, p<.05$), and Religious Denial ($r = -.24, p<.05$).

Among students who experienced a personal injustice, lower self-esteem was linked with an increase in Religious Apathy ($r = -.31, p<.01$) and God’s Punishment ($r = -.34, p<.01$). Likewise, more impaired problem-solving ability was correlated with higher levels of Religious Apathy ($r = -.37, p<.01$), God’s Punishment ($r = -.27, p<.01$), and Religious Doubts ($r = -.23, p<.01$). Higher scores on trait anxiety were correlated with higher scores on God’s Punishment ($r = .32, p<.01$). Lastly, increases in negative mood were tied to Religious Apathy ($r = .21, p<.05$), God’s Punishment ($r = .42, p<.01$), Religious Conflict ($r = .27, p<.01$), and Religious Doubts ($r = .27, p<.01$).

Similarly, Exline, Yali and Sanderson (2000) conducted a comparable study investigating depression associated with spiritual struggles among a sample of 200 college students. Spiritual struggles were defined in this study as “religious strain” and measured using a 20-item face valid survey that also queried for “religious comfort.” Religious Strain is composed of three subscales: Alienation from God, Religious Rifts, Fear and Guilt.

Furthermore, the authors adapted existing questionnaires to develop a religious participation and belief salience scale, called the Religiosity Index. Religious participation was assessed through 17 items regarding one’s behaviors associated with organized (e.g., church attendance) and non-organized (e.g., private prayer) religious activity over the past month. The belief salience subscale is composed of items that ask about the degree to which religious beliefs
provide meaning and purpose to life, influence other areas in life, and serve as the guiding force in life perspective.

Findings indicate that religious strain was associated with depression, even when religious comfort and level of religiousness were held constant ($r (151) = .36, p < .001$). Subscales of religious strain also evinced a relationship with depressed feelings. Religious Rift and Alienation from God were significant predictors of depression ($\beta = .22, p < .01$ and $\beta = .26, p = .01$, respectively). Therefore, it is clear that these types of religious strain can have detrimental implications for college student’s affect above and beyond the effects of religiousness and religious comfort alone.

Lastly, a recent study expands the scope of detrimental effects of spiritual struggles to encompass addictive behaviors (Faigin & Pargament, 2008). Specifically, in this longitudinal study of 90 college students, spiritual struggles was identified as a risk factor for addictiveness in 11 out of 14 domains. Spiritual struggles were measured using a modified version of the validated Negative R-COPE (Pargament, Koenig & Perez, 2000). This modified version of the Negative R-COPE consisted of three subscales: Divine Spiritual Struggles (e.g., “Feeling punished by God for my lack of devotion”); Intrapersonal Spiritual Struggles (e.g., “Wondering if God really exists”); and Interpersonal Spiritual Struggles (e.g., “Arguing with my parents because of our religious beliefs”). These subscales were chosen as they are particularly appropriate to the college student sample and the issues associated with addiction.

Fourteen domains of addictiveness were assessed in this study. Alcohol, prescription drug use, recreational drug use, nicotine, caffeine, sex, gambling, food starving, food bingeing, work, exercise, and shopping were measured using the Shorter PROMIS Questionnaire (SPQ; Christo et al., 2004). The SPQ measures both individual attitudes (e.g., “I have used alcohol as both a
comfort and a strength”) and behaviors (e.g., “I have often avoided meal times by claiming that I have already eaten when it is not true”).

Video game use was measured using The Problem Video Game Playing scale (PVP). The PVP is a nine-item scale measuring negative effects of addiction (preoccupation, tolerance, loss of control, withdrawal, escape, lies and deception, disregard for physical or psychological consequences, and family/school disruption) generally associated with excessive video game use (Salguero & Moran, 2002). Internet use was assessed using the 20-item Problematic Internet Use Questionnaire (PIUQ; Thatcher & Goolam, 2005). The PIUQ assesses three factors of problematic internet use: Online Preoccupation, Adverse Effects, and Social Interactions. The PIUQ was correlated with other measures shown to predict problematic internet use, including feelings of depression, isolation and loneliness; total time online ($r = .46$); types of activities conducted online (e.g., messaging, chatting, gaming); and Young’s criteria of Internet addiction (Thatcher & Goolam, 2005).

Findings indicate that spiritual struggles predicted an increase in 11 of 14 measures of addictive behavior and overall SPQ over the two to three month period of the study. Specifically, higher scores on spiritual struggles were tied to greater scores for 11 addiction scales: the Overall Shorter PROMIS Questionnaire ($\beta = .30$, $p < .001$), Caffeine ($\beta = .23$, $p < .01$), Exercise ($\beta = .16$, $p < .05$), Food Starving ($\beta = .27$, $p < .001$), Gambling ($\beta = .33$, $p < .001$), Prescription Drugs ($\beta = .33$, $p < .001$), Recreational Drugs ($\beta = .25$, $p < .01$), Sex ($\beta = .18$, $p < .05$), Shopping ($\beta = .26$, $p < .01$), Tobacco ($\beta = .27$, $p < .001$), and Work ($\beta = .34$, $p < .001$). Additionally, specific domains of spiritual struggle (e.g., divine, interpersonal, and intrapersonal) were shown to predict change in addictive behavior over time. Interestingly, spiritual struggles were not associated with changes in Internet and Video Game use or Food Bingeing and Alcohol subscales. These results
suggest that spiritual struggles may be a risk factor in the development of a wide range of addictive behaviors for first-year college students. The authors conclude that these findings underscore the need for spiritually integrated interventions to support students in the development of their health and well-being as they transition to college. Such interventions may include orientation modules that provide psychoeducation about spiritual struggles, positive religious coping, and campus resources, such as campus ministries, spiritually sensitive counselors, or spiritually sensitive intervention groups (Faigin & Pargament, 2008).
PSYCHOLOGICAL INTERVENTIONS

Spiritual Struggles Interventions

The freshman year of college has been described as a developmental window period when students explore their own identities, grapple with questions of the meaning of their lives, and learn how to handle multiple stressors as they move toward greater autonomy (Astin & Astin, 2004). Clearly, many students encounter spiritual struggles as they deal with these developmental tasks, and as noted earlier, these struggles have been associated with distress. Therefore, interventions for spiritual struggles seem warranted.

Some promising efforts have already been undertaken in this regard. For instance, Tarakeshwar, Pearce, and Sikkema (2005) developed and implemented an eight-week spiritually oriented group for community members coping with HIV. Sessions were devoted to several topics: processing shame, guilt, and stigma of HIV; discussing unhealthy relationship patterns with others and with a Higher Self; understanding spirituality and mental and physical health; identifying religious resources and sources of strain; developing spiritual and religious goals; and fostering hope. Comparing participants before and after the intervention, participants reported a decrease in negative religious coping (pre=2.31, post=1.61, \( p < 0.02 \)), an increase in self-rated religiosity (pre=2.92, post=3.38, \( p < 0.05 \)), and a decrease in depression (pre=18.00, post=12.73, \( p < 0.05 \); Tarakeshwar, Pearce, & Sikkema, 2005). The efficacy of this program over a relatively short period of time helps set the stage for interventions that addresses spiritual struggles in college students.

A similar study investigated the outcome of an eight-week spiritually integrated intervention for a small group of females (two subjects) who experienced sexual abuse as children (Murray-Swank & Pargament, 2005). Sessions focused on understanding images of
God; engaging in and working through spiritual struggles, such as feelings of anger and resentment towards God; processing feelings of shame; and developing a sense of spiritual connection. Participants completed a daily measurement log assessing positive and negative religious coping, spiritual self-worth, and spiritual distress. A survey battery measuring spiritual well-being, religious coping, and image of God were administered pre- and post-intervention. Results indicated that both participants improved in spiritual well-being, positive religious coping and images of God. Additionally, qualitative assessment pointed to a marked impact of the intervention as illustrated by one client who stated, “I believe [this program] was something that was meant to bring to the surface what I still need to deal with in a healthy, safe way. I don’t believe that in all the therapy I have been through I ever dealt with some of the stuff that is now at the surface …” (Murray-Swank & Pargament, 2005, page 200).

Additionally, Ano (2005) developed a brief psychospiritual treatment program that focuses on the spiritual struggle between the desire to cultivate virtue and resist personal vices. Ano implemented this four-week intervention with the goal of reducing distress related to spiritual struggle and promote spiritual growth through utilization of internal and external spiritual resources. Fifty participants from a mid-sized church were randomly assigned to treatment or a waitlist control group; all participants completed questionnaires at pretest, posttest, and four weeks following the completion of the intervention. Results indicate that participants in the spiritual struggles intervention showed more improvements in capacity to cultivate virtue (F (1, 19) = 17.40, p = .00) and resist vice (F (1, 19) = 22.55, p = .00) during the pre- and post-test periods than those participants in the waitlist control group. Additionally, those assigned to the experimental condition showed greater improvements in eight out of 10 outcomes measures, including depression, stress, scrupulosity, spiritual development, self-control, spiritual
motivation, vice and virtue, than their non-treatment counterparts. These effects were maintained at the four-week follow-up (Ano, 2005). These promising studies show that spiritual struggles interventions can improve aspects of personal functioning, health, and well-being as well as help people process and resolve their struggles.

Spiritually integrated treatment programs can also be used for treatment of addiction and HIV risk behaviors. Spiritual Self-Schema (3-S) is a manual-guided intervention that integrates cognitive behavioral therapy with non-theistic Buddhist practices (Avants, Beitel, & Margolin, 2005). 3-S is an eight week program that allows for people of various religious backgrounds to draw upon their personal spirituality and apply it within the 3-S framework. The underlying tenet of this brief psychotherapy is consistent with the Buddhist teaching to “do no harm to self or others.” Each of the eight psychotherapy sessions are separated into one of the three Buddhist “teachings:” mastery of the mind, morality, and wisdom, which are derived from Buddha’s Noble Eightfold path. These training sessions emphasize an awareness of “unwholesome habit patterns of the mind” (addicted self schema) and promote development of more “wholesome habit patterns of the mind” (spiritual self schema) to facilitate a release from suffering (Avants et al., 2005).

Participants involved in the 3-S program achieved significant changes on self-reported spirituality/ religiousness in daily life. Specifically, they increased on several subscales of the Multidisciplinary Measure of Religiousness/Spirituality scale (MMRS): Private Religious Practices [F(1,20) = 18.18, p<0.0001], Daily Spiritual Experience [F(1,20) = 6.65, p<0.05], Organizational Religiousness [F(1,20) = 4.79, p<0.05], and Religious and Spiritual Coping [F(1,20) = 8.22, p<0.05]. Additionally, of the 23 participants who completed the 3-S program, 14 people indicated that they plan to continue to meditate daily, and are currently doing so.
Expression of spiritual qualities in daily life and the perceived influence of spirituality on behavior both increased significantly during the course of the 3-S intervention ([F(1,20) = 4.79, p<0.05]; [F(1,20) = 4.79, p<0.05] respectively). Lastly, this study provided evidence of behavior change. Specifically, there was evidence that the amount of heroin and cocaine used during the week before each assessment decreased significantly [F(1,20) = 9.51, p<0.01]. Furthermore, during the post-treatment interview, all participants, with the exception of one, indicated that 3-S had a positive effect on drug craving, drug use, motivation for HIV prevention, and motivation for abstinence (Avants et al., 2005).

More recently, a group of researchers (Oemig et al., 2008) designed a nine-week group-based intervention for spiritual struggles called *Winding Road*. This manualized intervention is designed to help students navigate through spiritual struggles and recognize that they are a natural part of one’s spiritual life. This program is not affiliated with any theological perspective. Information was portrayed through experiential exercises, including spiritual genogramming, visualizations, and meditation; participants were expected to complete weekly homework assignments and encouraged to assimilate the material in a way that was consistent with their personal spiritual values. *Winding Road* sessions were 90 minutes long and each week focused on a different session aim: to normalize and articulate spiritual struggles; explore one’s personal spiritual identity; broaden concepts of the sacred/divine; build effective coping strategies; facilitate acceptance; facilitate forgiveness; and provide resources such as meditation for psycho-spiritual care.

To assess the effectiveness of this group, twelve undergraduate participants were assigned to one of two groups, each facilitated by two psychology graduate students. Each participant completed a battery of questionnaires pre- and post-intervention to assess religious
coping strategies, depression, and other psychological indicators. Findings from an analysis of this program conducted by Oemig and colleagues (2008) indicate that participants in Winding Road showed a significant decrease in negative religious coping \((t(9)=2.87, p<.01)\), decrease in negative affect related to spiritual struggles \((t(8)=1082, p=.05)\), increase in positive affect related to spiritual struggles \((t(8)=2.40, p<.05)\), decrease in overall psychological distress \((t(9)=3.71, p<.01)\), and a decrease in reported experiences of stigmatization related to spiritual struggles \((t(7)=2.21, p<.05)\). The authors conclude that spiritually sensitive, psychoeducational intervention for college students can have a significant impact on the psychological and spiritual well-being of participants (Oemig, et al, 2008). This sets the stage for the current study.

Although research supports the efficacy of spiritually sensitive interventions on behavior, psychological health, and spirituality, most of these interventions require small groups involving two or more facilitators. Considering the limitations of available and qualified personnel to facilitate such groups, and the prevalence of spiritual struggles in the college population, it may not be feasible to apply these interventions to large groups of incoming freshmen, who appear to at risk for deleterious effects of spiritual struggles (e.g., Faigin & Pargament, 2008; Bryant & Astin, 2008). Therefore, this study explored the effectiveness of a spiritual struggles intervention that can reach a large number of participants in a college setting. Computer-based teaching modules and psychoeducational approaches offer one promising direction for the development of such a spiritual struggles intervention.

**Computer-Based Teaching Modules**

The long-term goal for the development of this spiritual struggles intervention is to impact the largest number of college students. In keeping with this goal, it was decided to develop interventions that would be brief, interactive to maintain attention, informative, and
efficient for the participants. Additionally, in this era of reliance on computer technology, especially among young adults, it is reasonable to believe that a computer-based psychoeducation module may be an effective medium for sharing critical information efficiently and clearly within a college population.

In fact, according to a recent meta-analysis (Wantland, Portillo, Holzemer, Slaughter, & McGhee, 2004), the number of web-based health interventions has increased 12-fold over a seven-year period (1996 to 2003). Furthermore, sixteen out of seventeen studies showed that web-based therapy was more effective in terms of patient’s behavioral changes and/or improved knowledge than a non-web-based therapy intervention (with homogeneity statistic estimation showing very different study parameters ($Q_{w4} = 18.238, P \leq .001$) and effect sizes ranging from -.25 to .29).

Other studies have found that computer-based technologies are cost-effective, flexible, and versatile interventions for treating eating disorders (Low et al., 2006), preventing eating disorders (Jacobi et al., 2007), and decreasing test anxiety (Orbach, Lindsay & Grey, 2007) to name a few. However, almost all of these programs employed a multiple time-point group structure rather than a one-time individualized administration procedure, as needed for the current study.

However, one study employed a one-time, individualized computer-based psychoeducational module similar to the intervention proposed for the current project. This study, by Braithwaite and Fincham (2007) explored the efficacy of a computer-based relationship focused preventative intervention (ePREP). The authors developed this psychoeducational teaching module based on empirically validated techniques for improving relationships, adapted from Markman and colleagues’ Prevention and Relationship Enhancement
program (PREP, Markman, Stanely, & Blumberg, 2001). The teaching module focused on static (e.g., differing religious backgrounds, parental divorce) and dynamic risk factors (e.g., difficulty communicating well, unrealistic beliefs about marriage) that are correlated with poor relationship outcomes (Markman, Stanley, & Blumberg, 2001). Furthermore, the ePREP taught students ways to recognize these risk factors and edified them in ways to manage conflict through effective communicate and problem solving skills. Another purpose of the training module was to encourage people to build upon the existing positive qualities of their relationship. This relationship-focused ePREP was compared to an existing cognitive behavioral intervention for anxiety and depression called the Cognitive Behavioral Analysis System of Psychotherapy (CBASP) (McCullough, 2000). Additionally, Braithwaite and Fincham (2007) included a control group where participants viewed basic information (definitions, prevalence rates, and available treatment forms) regarding depression, anxiety, and relationships.

The interventions were designed to take about the same amount of time and involved a similar amount of content, composed of pictures and written text (no video or audio clips). Each computer-based module took approximately one hour and was individually administered so the participants controlled the pace of the information flow. Skills were taught and participant mastery was assessed by their completion of a quiz after each section of a given intervention. Participants were given a copy of the slides for their respective programs and instructed to implement the skills they had learned for maximum benefits to their relationships; they received a weekly email reminder that assessed individual implementation of skills, which also may have triggered participants to remember to utilize techniques they learned. Ninety-one participants were queried at two time points: before the intervention, and eight weeks post-intervention. At each assessment point, subjects completed validated measures of depression, anxiety, as well as a
positive and negative mood profile, and relationship measures, including trust in romantic relationships.

Results indicate that both the ePREP and CBAST participants had statistically significant decreases in depression [$F (1, 89) = 4.65, p < .001$] and anxiety [$F (1, 89) = 4.86, p < .01$] as compared to subjects in the control group. Additionally, both interventions appear to be effective in decreasing psychological and physical aggression [$F (1, 89) = 8.30, p < .001$] and increasing trust [$F (1, 89) = 6.01, p < .01$] within a romantic relationship as compared to the control condition. It is interesting that the ePREP did not reduce negative outcomes more sharply than the CBAST; however both of these interventions were more effective than the control condition in decreasing depression and anxiety for young adults involved in romantic relationships.

These findings demonstrate that a computer-based intervention can effectively decrease potential negative relationship outcomes, even if administered in only one session. Furthermore, the effects were maintained eight weeks following the one-hour interventions. Therefore, the researchers conclude that computer-based interventions can be an efficacious, flexible, and cost-effective method in educating students on relationship issues. Braithwaite and Fincham (2007) additionally state that “the versatility of computer based interventions remove many of the financial, temporal, and logistic limitations inherent in existing interventions, expanding the boundaries of what is possible for clinicians and researchers” (p. 620). The current study followed a similar design by utilizing a one-time, one-hour, computer-based intervention; however, this project also utilized a psychoeducational model in addition to adapting material from existing empirically supported interventions.

Psychoeducation

Psychoeducation has been shown to be a flexible and effective method of treatment, one
believe that might be a useful to dealing with spiritual struggles. Lukens and McFarlane (2004) defined psychoeducation (PE) as a “treatment modality that integrates and synergizes psychotherapeutic and educational interventions” (p. 206). Furthermore, PE has been described as a “therapeutic approach under which psychological …functioning is viewed not in terms of abnormality (or illness) leading to diagnoses, prescription, therapy, and cure; but rather in terms of client dissatisfaction (or ambition) leading to goal-setting, skill-teaching, satisfaction, or goal achievement” (Authier, 1977, p. 15). PE can be used to attain therapeutic and educational goals involving general or specific skills, ranging from relationship and interpersonal communication to handling aggressive impulses, and coping with frustration.

A review of the major sociological, psychological and educational databases (SocINDEX, PsycINFO, and ERIC) revealed no major meta-analytic reviews of the general efficacy of PE. However, there is evidence suggesting that psychoeducation can be an effective way to decrease symptoms, increase knowledge, and improve quality of life.

In one such study of a brief four-session PE intervention for cancer patients and their family, results indicated that patient’s quality of life improved significantly. Specifically, 363 patients and 150 family members participated in a weekly large group meeting in which a group facilitator taught “Coping with Cancer Stress.” Techniques such as relaxation training, thought monitoring, mental imagery, emotional expression, stress management, and goal setting were taught and practiced in a group setting; home practice through workbooks and tape recording were also used.

Two hundred and seven participants completed surveys that assessed health-related quality of life and levels of emotional distress before and after the four-week intervention. Data indicated that patients demonstrated a statistically significant improvement (mean
improvement=3.91, SD=9.04, p<.001) between survey time points, which was similar to family members/s support (mean improvement=4.56, SD=8.43, p<.001). The authors call this type of intervention an “entrance level program” that could lead patients and their supporters to choose which coping skills (e.g., meditation) they would like to pursue more deeply (Cunningham, Edmonds, & Williams, 1999). Although this study investigated the effects of a large group intervention and did not utilize a control or comparison group, the PE intervention yielded promising results.

Psychoeducation modules can take many forms: single-session (Clemans, 2004) and longer-term programs (Hebert, 2003); psychoeducation groups (Bechdolf, Kohn, Knost, Pukrop, & Klosterkotter, 2005), online forums (Low et al., 2006), individual care (Banerjee, Duggan, Huband, & Watson, 2006), or paper resources (Dannon, Iancu, & Grunhaus, 2002); and combinations of psychoeducation with cognitive behavioral therapy (Cash & Hrabosky, 2003) and/or medication regimes (Dannon, Iancu, & Grunhaus, 2002). Psychoeducation has also been used to address a wide range of therapeutic concerns such as eating disorders (Cash & Hrabosky, 2003), schizophrenia (Magliano, Fiorillo, Malangone, De Rosa, & Maj, 2006), breast cancer (Rosberger, Edgar, Collet, & Fournier, 2002), panic disorder (Dannon, Iancu, & Grunhaus, 2002), family support for loved ones with mental illness (Pollio, North, & Osborne, 2002) and even marital intimacy (Durana, 1997). Authier (1977) concluded “psychoeducation content is limited only by the imagination of the persons seeking help and by the ability of the psychological practitioner to be innovative and creative enough to design a systematic program for teaching clients the psychological self-help that will make their lives more fulfilling” (p. 15).

Some state that the guiding principle underlying the psychoeducation model is of “organizing patients' experiences of their illnesses from a subjective to an objective frame of
reference that facilitates their gaining a sense of cognitive mastery that can diminish the anxiety and stress compounding the illness” (Hayes & Gantt, 1992). Others assert that the psychoeducation model meets the call for “giving psychology away [because] the most effective way to help people is to teach them to help themselves” (Authier, 1977). Therefore, although there are multiple forms and modalities for psychoeducation, its overall goal is to provide people with education, skills training, and resources to work through an identified problem.

Although computer-based PE modules are not yet in widespread use, some researchers (Chang, 2005) underscore the need for computerized psychoeducation efforts to respond to the natural inclination of the general public to utilize web resources. Therefore, this study utilized a computer-based psychoeducation approach with the goal of providing education, skills training, and resources to help students deal with spiritual struggles.
PRESENT STUDY

Study Design

Study Aim

Research provides evidence that spiritual struggles are prevalent in college populations. Additionally, spiritual struggles have been shown to be a risk factor for the development of a wide range of addictive behaviors in college freshmen, as well as having other negative effects on health and well-being. Empirical data support the efficacy of spiritually sensitive group interventions in decreasing negative behaviors, psychological symptoms, and improving self-reported spirituality. However, to date there are no spiritually sensitive interventions designed for implementation on a large-scale, such as an incoming class of college freshmen. Therefore, this study compared the effectiveness of a one-time computer-based psychoeducational intervention for spiritual struggles, general stress reduction intervention (secular), or no intervention (control group) on reported addictive behaviors, psychological distress, and stigma related to spiritual struggles in a sample of freshmen college students. In summary, the purpose of this project is to determine if a spiritually sensitive psychoeducational intervention, designed in a format for large-scale implementation, protects students from the risks of spiritual struggles above and beyond that of a stress reduction intervention.

Hypotheses

A group X time interaction is hypothesized with respect to the dependent variables (addictive behavior, psychological distress, stigma related to struggle) such that participants in the spiritual struggles intervention group will report less addictive behaviors, psychological distress, and stigma related to struggle over the course of the intervention than participants in the stress reduction intervention and control group, after controlling for demographic variables,
global religiousness variables, and other control indices (life stressors and neuroticism).

**Intervention Designs**

*Spiritual Struggles Intervention*

**Rationale of SSI**

The goal of the Spiritual Struggles Intervention (SSI) called *Seeking Your Center* is to help incoming freshmen address their spiritual questioning and doubts through education and resource provision. *Seeking Your Center* aimed to normalize the experience of spiritual struggles, educate students about the triggers and possible correlates of spiritual struggles, and provide alternative resources for coping in a more healthy and adaptive way (e.g., seeking social support, addressing emotional issues directly through counseling or other resources). It is important to note that the focus of the SSI is not to decrease or eliminate spiritual struggles, but to normalize this process, edify students about its effects, and provide resources to develop more adaptive coping strategies for dealing with the struggle.

**Intervention Design**

For the development of *Seeking Your Center*, material was drawn from research and experience with other spiritually sensitive interventions. Specifically, the SSI was modified from an existing nine-week spiritually sensitive small group intervention, *Winding Road* (Pargament et al., 2008), already referred to in this document. The *Winding Road* team, including the current author, created this intervention based on Pargament’s (2007) model of spirituality that conceptualizes spiritual struggles as a normal part of development. The content of the intervention was based on information gleaned from qualitative interviews. Twenty-seven undergraduates at a medium-sized state university completed a spiritual narrative regarding a recent spiritual struggle. These qualitative accounts were then analyzed yielding three themes of
spiritual struggles (interpersonal, intrapersonal, and divine). Focus groups, involving the same participants, explored the student’s perspectives regarding possible goals, benefits, and barriers to participating in a spiritually sensitive small group intervention for these struggles. The information gained from these focus groups informed the structure and content of Winding Road.

Components of Winding Road were integrated into Seeking Your Center. Like Winding Road, Seeking Your Center is a non-denominational, individualized spiritual path. Furthermore, the goals of articulating and normalizing spiritual struggles, providing coping strategies, and resources for psycho-spiritual self-care utilized in Winding Road were integrated in Seeking Your Center. Due to limited opportunities for individual processing and feedback sessions, Seeking Your Center does not directly target the goals of developing a personal spiritual identity, broadening concepts of God and the sacred, facilitating acceptance and forgiveness, as was the case in Winding Road. The hope for the current project is that students who connect with the psycho-spiritual resources provided in Seeking Your Center naturally gravitated towards these larger spiritual goals. Furthermore, some of the components regarding coping with spiritual struggles were taken or modified from another colleague’s intervention for treating spiritual struggles and depression (see Gibbel & Pargament, 2008). Lastly, an expert in the field of psychology of religion and intervention development reviewed Seeking Your Center and approved its content.

The SSI is a 30-40 minutes computer-based power point presentation that the student can watch on his or her own. It involves a short quiz after the intervention that the student must complete with 80% correct answers in order to receive extra credit; they were also be encouraged to print out the information for future reference. The content of the online psychoeducation
module involves many components, including education, etiology, normalization, outcomes, coping, and resources.

**Education.** To begin, *Seeking Your Center* clarified that spiritual struggles are not specific to particular religious traditions, or even to religion at all. Non-theists, atheists, monotheists, and polytheists can all experience spiritual struggles, and each person’s struggle can look different. The SSI educated people about the three types of spiritual struggles (divine, intrapersonal, interpersonal) and describe each using an example. The program emphasized that struggles are not “bad” – they can promote personal growth and deepening of values during these stages of exploration and tension. However, the process of struggling can be distressing and lead to difficulties.

Participants were informed that the purpose of *Seeking Your Center* is not to eliminate the struggle, but to provide information for addressing this important topic. Participants were told that questioning and exploring personal beliefs and values are an important part of life, yet one that is oftentimes not discussed during college. Therefore, the purpose of this program is to provide information and resources on this process.

**Etiology.** Plausible triggers for spiritual struggles were presented, including transitional times (e.g., moving, college, etc.), exposure to other religious/spiritual ideas, personal identity development, differentiation from parents, and traumatic events that shake an individual’s spiritual/religious orientation. Participants who have a limited spiritual/religious orientation (e.g., limited spiritual/religious education and background) may also be particularly vulnerable due to having limited resources from which to draw.

**Normalization.** *Seeking Your Center* informed students that spiritual searching and struggling are a normal process in life, regardless of the individual’s religious heritage or beliefs.
Prevalence data were presented and quotes were outlined from some of the most prominent people - including exemplary religious figures (e.g., Mother Teresa) as well as individuals in popular culture who have experienced similar struggles. This normalization may help decrease the “struggle” when the individual encounters spiritual and religious tension. Letting students know that they are not “alone” in this process may buffer the feelings of abandonment and isolation common to those struggling.

**Outcomes.** Information drawn from empirical data on the relationship between spiritual struggles and health and well-being were presented. Specifically, *Seeking Your Center* educated students on what one might expect if s/he is experiencing a spiritual struggle, particularly during the college years. According to research, some common correlates of struggle include anxiety, feelings of depression, isolation, guilt, fear, and a drive towards addictive behaviors. Additionally, evidence suggests that spiritual struggles can be a catalyst to positive change and personal growth (Pargament, Desai, & McConnell, 2006).

**Coping.** Strugglers have a tendency to utilize unhealthy patterns (e.g., addictive behaviors) as a way of coping with their spiritual questioning (Faigin & Pargament, 2008). Therefore, the SSI alerted students to these risks and provide them with training on more adaptive and functional coping techniques, such as prayer/meditation, seeking healthy social support, and self-care techniques.

**Resources.** Lastly, campus and personal resources related to spiritual growth, exploration, balance, and deepening of one's personal spiritual framework was provided. *Seeking Your Center* provided general contact information for campus ministries, non-theistic organizations, spiritually sensitive counselors on campus, spiritual directors in the area as well as literary resources for independent reading.
College Stress Intervention Design

To determine whether the SSI is effective in decreasing the negative impact of spiritual struggles above and beyond that of any intervention, it is important to compare it to a general intervention for college students. In this case, I chose to compare the SSI to a college stress intervention (CSI), called College Coping. Although I conducted a thorough search for a validated computerized single session college stress intervention, I was not able to locate one. Therefore, I decided to design one for the purposes of this study. College Coping was designed to mirror Seeking Your Center, but without emphasis on religious and spiritual resources or specific techniques.

The CSI was developed as a psychoeducational module that integrated research information on stress (e.g., Ross, Neibling, & Heckert, 1999; Moorison & O’Connor, 2005; Friedlander, Reid, Shupak, & Cribbie, 2007) and prominent medical association websites, such as the Mayo Clinic (www.mayoclinic.com/health/stress-relief), the American Institute of Stress (www.stress.org/americas.htm), Campus Blues (www.campusblues.com/stress.asp), and the Department of Veteran’s Affairs National Center for Health Promotion and Disease Prevention (www.nhcpdp.med.va.gov). These sources were selected for the credentials of those reporting and the reliability of the content.

The first criterion for consideration in this project was for all information to be provided by a medical doctor (M.D.) or psychologist (Ph.D.) from a reputable source, due to the physical and psychological nature of stress and the stress reaction. Information provided by these sources was compiled and reviewed for content over the following areas: definition, normalization, etiology, signs/symptoms, coping, and resources. Only information that was reliable across settings and resources was considered for inclusion in the current intervention. Lastly, a
behavioral psychologist and expert in the field of stress reviewed and approved the intervention for content and design.

Rationale for the CSI

The freshman year of college is a unique period of time when students are expected to adjust to many new possible life stressors, such as leaving home, new living arrangements, increased academic load, navigating on a college campus, developing new friendships. This transitional time can create many sources of stress that can impact academic and personal adjustment to college life.

Research has identified common sources of stress for college students. For example, Ross, Niebling, and Heckert (1999) investigated major sources of stress across four domains (environmental, academic, intrapersonal, and interpersonal) using the Student Stress Survey (SSS; Ross, Niebling, and Heckert, 1999). A sample of 100 undergraduate college fraternity students were asked during the spring semester to review this 40-item scale and check off items they had experienced during the current academic year.

Findings indicate that the majority of the stressors were interpersonal in nature (38%), such as changes in social activities, conflicts with roommate, working with new people, relationship difficulties, and trouble with parents. Environmental stressors made up 28% of the responses and included items such as vacations/breaks, waiting in long lines, computer problems, unfamiliar situations, messy living conditions, changes in living environment, and car trouble, to name a few. Intrapersonal stressors accounted for 19% of the total responses and refer to issues such as changes in sleeping and eating habits, new responsibilities, financial difficulties, speaking in public, and changes in alcohol and drug use. Lastly academic stressors were
identified in 15% of the total responses and include concerns regarding increased class load, lower grades than anticipated, changes in major, and missing too many classes, to name a few.

Overall it seems that interpersonal and environmental factors were the most frequent sources of stress for college students in this sample. Ross and colleagues (1999) suggest that this information could be used in designing a stress intervention for college students; specifically they recommend informing and discussing these common sources of stress with incoming freshman students during orientation to prepare them for the years ahead.

Furthermore, these sources of stress and one’s resources for coping have been shown to impact various aspects of college adjustment. Specifically, Friedlander and colleagues (2007) investigated the impact of student’s perceived stress, social support, and self-esteem on student’s adjustment to college. Adjustment to university was explored in terms of social, academic, and personal-emotional adjustment as well as overall attachment using the Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1989). Perceived stress level was measured by the short form of the Perceived Stress Scale (PSS), a validated 10-item survey assessing how stressful events are perceived as uncontrollable, overloading, unpredictable, and generally stressful (Cohen & Kamarck, & Mermelstein, 1983). Social support was assessed with the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1998). This scale is a validated 12-item survey that queries students on perceived availability of support from family and friends. Lastly, three out of 13 domains of the Self-Perception Profile for College Students (Neemann & Harter, 1986) were used to assess student’s self esteem for social acceptance, scholastic competence, and global self-worth.

In this study, 115 undergraduate students were queried during their first semester and 10 weeks later during their second semester of college using the above measurements. Findings
indicate that decreased perceived stress over the 10 weeks predicted improved personal-emotional (β = -.66, p<.001), academic (β = -.27, p<.01), social (β = -.25, p<.01) and overall adjustment (β = -.55, p<.001) to university. Additionally, increased social support from friends predicted better personal-emotional (β = .19, p<.05), social (β = .20, p<.05) and overall adjustment (β = .19, p<.05). Interestingly, social support from family showed no statistically significant affects on college adjustment. Not surprisingly, increased social self-esteem predicted increased social adjustment (β = .43, p<.001) increased academic self-esteem predicted increased academic adjustment (β = .26, p<.05). Therefore, results indicate that perceived stress, social support, and self-esteem are critical factors in the adjustment of first-year students to collegiate life (Friedlander, Reid, Shupak, & Cribbie, 2007).

**Intervention Design**

The goal of the College Stress Intervention (CSI), called *College Coping*, is to educate incoming freshmen about the common stressors related to transition to college and provide support resources for coping. Similar to the SSI, the CSI was a 30-40 minutes computer-based power point presentation that the student can watch at their own pace; a link for printouts of the information was provided. The content of the psychoeducation module involved many components, including education, etiology, normalization, outcomes, coping, and resources. It is important to note that the *College Coping* intervention did not address spiritual struggles.

*Education.* The CSI educated student on the definition of stress, especially related to the transition to college life. It acknowledged that multiple aspects of the individual’s life have been affected by moving to the university. It used examples to describe some student’s transitional experiences and emphasized that change is not necessarily “bad.” It explored how change can
promote personal growth and widening of experiences during freshman year. However, the stress of the transition can also bring difficulties that should be addressed.

**Etiology.** Information drawn from empirical data on common and most frequent college stressors, such as interpersonal and environmental factors, were outlined and briefly explored.

**Normalization.** *College Coping* informed students on the prevalence data on college stress for freshmen. This normalization may help decrease the “stress” when students encounter transitional tension. Letting students know that they are not “alone” in this process may buffer the feelings of isolation and promote social connections with others.

**Outcomes.** The relationship between stress and health and well-being were presented. Specifically, *College Coping* explored how common experiences of specific college stressors can affect students’ emotions, thoughts, and behaviors. According to research, stress is a predictor of increased anxiety, insomnia (Morrison & O’Connor, 2005) and may also lead to increased depression, homesickness, and difficulties with school work. Examples of stress related growth were also noted and shared.

**Coping.** The CSI drew on empirical data to provide students with training on more adaptive and functional coping techniques for college transition, such as self-care (exercise, nutrition, sleep, relaxation), meditation, social support from peers, involvement in social groups and community, and bolstering positive coping strategies with perceived levels of stress (i.e., reframing of stress, dealing with emotions).

**Resources.** Lastly, campus and personal resources related to academic effectiveness, self-esteem, and decreasing perceived stress was presented. The CSI provided general contact information for campus organizations, athletics, counseling center, stress clinics on campus area as well as literary resources for independent reading related to college transition.
METHOD

Measures

Independent Variable

*Spiritual Struggles*

Spiritual struggles were assessed through the Negative Religious Coping subscales of the RCOPE. The Negative Religious Coping subscales assess multiple facets of spiritual struggles. In a prior study of a college sample, the subscales demonstrated good reliability on seven subscales: Interpersonal Religious Discontent (5 items; Cronbach’s alpha=.82), Spiritual Discontent (6 items; Cronbach’s alpha=.88), Pleading for Direct Intercession (5 items; Cronbach’s alpha=.84), Passive Religious Deferral (5 items; Cronbach’s alpha=.83), Reappraisal of God’s Powers (4 items; Cronbach’s alpha=.78), Demonic Reappraisal (5 items; Cronbach’s alpha=.90), and Punishing God Reappraisal (5 items; Cronbach’s alpha=.92) (Pargament, Koenig & Perez, 2000).

A modified version of the Negative Religious Coping subscale was included in this study. Three subscales were used: Divine Spiritual Struggles (e.g., “Feeling punished by God for my lack of devotion”); Intrapersonal Spiritual Struggles (e.g., “Wondering if God really exists”); and Interpersonal Spiritual Struggles (e.g., “Arguing with my parents because of our religious beliefs”). These subscales were chosen as they are particularly appropriate to the college student sample and the issues associated with addiction, psychological distress, and stigma related to spiritual struggles. Previous research with college students has found acceptable reliability for each subscale (Cronbach’s alpha = .89, .90, .74 respectively; Desai, 2006).

*Potential Covariates*

Life stressors and neuroticism were selected as potential covariates because of their
potential influence on the development of addictive behaviors beyond that of spiritual struggles alone. Since I am studying students during their transition to college, there are many potential life stressors that may contribute to addictive behaviors (e.g., the transition to college, demands of coursework, social stress). Specifically, I am investigating whether spiritual struggles are merely a reflection of the stress of being a college freshman or whether struggles have a unique predictive power above and beyond that of perceived stress level. The objective measurement of stress (e.g., external attribution of a major life event) is not as important a predictor of distress as is the individual’s perception and attributions of that stress. Therefore, I have included a measure of perceived stress level.

Neuroticism is also included as a control variable because of its potentially confounding effects on the research question. Specifically, neuroticism is a personality feature that is characterized by a tendency to have increased emotional reactivity to life events and experience more negative emotions such as depression, anger, and anxiety. These characteristics can diminish one’s ability to cope effectively with stress, think clearly, and make decisions. A person who is categorized as high on a scale of neuroticism may also have a greater tendency to develop addictive behaviors and experience psychological distress, due to this decreased ability to cope and make decisions. Therefore, neuroticism is assessed to determine if spiritual struggles were predictive of the development of addictive behaviors and psychological distress beyond that of the effect of neuroticism alone.

**Outcome Variables**

To determine the efficacy of these interventions, I measured change across on three potentially deleterious outcomes: addictive behaviors, psychological distress, and stigma related to spiritual struggles; spiritual growth or decline was also evaluated.
Addiction

Addiction was chosen as an outcome for this study because of previous work identifying spiritual struggles as a risk factor for the development of addictive behaviors in college freshmen (Faigin & Pargament, 2008). Additionally, addictive behaviors, such as alcohol abuse, drug use, gambling, and tobacco use can have obvious costs on health and well-being, not to mention financial strain. Arguably, entering college freshmen are at an impressionable age (18 years old) for transforming teenage exploration into a detrimental addictive pattern that can become a lifetime habit. It is critical to better understand possible risks or protective resources to intervene in this potentially harmful pattern during this developmental window period.

Addiction has been defined as “an attachment to an appetitive activity, so strong that a person finds it difficult to moderate the activity despite the fact that it is causing harm” (Orford, 2001, p. 18). This model of addiction (Orford, 2000) as excessive appetite encompasses all forms of addiction across all levels of severity. At the core of the addiction process is conflict about the attachment, regardless of the form of behavior (e.g., gardening, etc). These conflicts, Orford explains, can take many forms, including demoralization (e.g., self-criticism, guilt, remorse, shame, tension, confusion, panic, depression); non-objective thinking (e.g., justifications, indecision, defensiveness), struggle to control (e.g., compulsion, restraint, taking risks, relapse), pressure to change (e.g., contemplate change, confession, resolution), and dissocialization (keeping behavior secret, blaming others, changing social group). The conflict created by the excessive appetite can create a destructive cycle whereby the individual experiences pain or discomfort from the conflict, which further fuels the desire to escape from the anxiety through engaging in the excessive appetite, thus strengthening the attachment (Orford, 2001). This cyclical theory is supported by others (Eysenck, 1997) who have found that addictive behavior is
used as a “resource” and provides particular benefits to a person, thus perpetuating the cycle of engagement despite unwanted consequences. Using this definition, people become addicted not to a particular chemical or substance, but to the experience of the behavior, within his or her life context.

However, there is controversy in the field regarding the use of the term “addiction.” The Diagnostic and Statistical Manual (DSM-IV-TR; American Psychiatric Association, 2000) does not include “addiction,” but instead uses the term “dependence” for various substances or behaviors. Dependence is defined as having maladaptive use (of a substance, for example) leading to clinically significant distress or impairment during a 12-month period. According to the DSM-IV, one must exhibit three of the following seven criteria to be diagnosed: 1) tolerance; 2.) withdrawal; 3.) taking the substance for a longer time and in larger amounts than intended; 4.) unsuccessful efforts or a persistent desire to control or cut down on use; 5.) time devoted to obtaining, using, or recovering from the substance is substantial; 6.) other important activities (social, recreational, occupational) are reduced or given up because of use; 7.) use continues despite continued knowledge of persistent psychological or physical problems caused or exacerbated by the substance.

It has been documented that the committee members deliberated over whether to use the term “dependence” or “addiction” in the DSM-III-R. Addiction was perceived as a pejorative term and one that could cause harm to clients from social stigma; therefore, the committee intentionally (but narrowly – the motion won by just one vote) chose “dependence” as a euphemism for “addiction,” which some see as a mistake (O’Brien, Volkow, & Li, 2006). The DSM-IV definition has been criticized for its inability to differentiate between “normal physiological adaptation to repeated dosing of a medication” (dependence) and compulsive drug-
seeking behaviors (addiction), the intent of the definition of dependence used in the DSM-IV (O’Brien, Volkow, & Li, 2006, p. 764). This lack of differentiation has caused confusion for clinicians and the general public. Orford (2001) asserts, “no definition of addiction or dependence, however arbitrary, will serve all people, in all places, at all times” and he further claims that the system of classification employed by the DSM may “in fact be standing in the way of scientific progress by leading us to believe that such absolutes might exist” (p. 29). The importance of finding a workable definition of dependence, and communicating that information to the public has been underscored by some researchers as of the “utmost importance” (Etter, 2008, p. 1225). Despite concerns about pejorative connotation of the word “addiction,” the term appears to be more descriptive and workable than the term “dependence”. Therefore, in light of this information, and for the purposes of this study, I use the term “addiction.”

The scale I used in this study to measure addiction (Shorter PROMIS Questionnaire (SPQ) described in detail below) reflects similar criteria as outlined in the DSM-IV, including seven characteristics of addictive behavior (increased capacity for tolerance, preoccupation, using more than planned, protection of supply, use as a medicine, use for effect, use alone, and preoccupation; Lefever, 1988 as cited in Christo et al., 2004). Considering that this study is interested in a maladaptive relationship with a substance/behavior, this scale, and the term “addiction” meets the needs of this study.

Additionally, the best way to understand addiction, some posit (Etter, 2008; Helzer, Bucholz, & Gossop, 2008) is to view it on a continuum because it cannot fit in a “neatly defined dichotomy” (Etter, 2008, p. 1224). For the current study, I measured addiction across a continuum (0=not like me to 5=like me) using the Shorter PROMIS Questionnaire (SPQ; Christo et al., 2004). Likewise, scoring was interpreted on a continuum. Christo and colleagues (2004)
standardized their scale using a score distribution of the normative (non-clinical) sample and clinical (admitted to residential treatment facilities for dependency among various forms of addiction). Comparing healthy norms (n=508) to this clinical sample, they generated a scoring grid for the 10th, 50th, 70th, 80th, 90th, 95th, 97.5, and 99th percentiles across each domain of addiction. Christo and colleagues designated the 90th percentile score as the clinical cut-off because this produced the fewest false-negative and false-positive classifications when differentiating between clinical and normative groups; the 90th percentile range correctly identified 90% or more of all of the clinical groups. Therefore, the classifications for behaviors were designated as: an Extreme Problem if the score falls in <97.5th percentile range; Serious Problem at 95%; Significant Problem at 90%; Cause of Concern at 80%; High Range at 70%; Average at 50%; No Behavior Concern at 10th percentile (Christo et al., 2004). All findings in the current study were likewise compared to this scoring grid to determine the level of addictive behavior concern. Therefore, in this study I used the term “addiction” and measure it using the SPQ, which largely overlaps with criteria used in the DSM-IV’s definition of dependence, and adequately operationalizes and interprets data on a continuum, as recommended by experts in the field.

**Measuring Addiction**

Eight domains of addiction were measured using three different validated scales. The domains include: alcohol, food bingeing, food starving, gambling, tobacco, sex, recreational drugs, and prescription drug use. These domains were measured using the SPQ.

**The SPQ.** The Shorter PROMIS Questionnaire (SPQ) is a 160-item survey, grouped into 16 separate subscales that assess a wide range of addictive patterns, including alcohol, prescription drugs, recreational drugs, nicotine, caffeine, sex, gambling, food starving, food
bingeing, work, exercise, shopping, dominant and submissive relationships, and dominant and submissive compulsive helping. The SPQ measures both individual attitudes (e.g., “I have used alcohol as both a comfort and a strength”) and behaviors (e.g., “I have often avoided meal times by claiming that I have already eaten when it is not true”). Subscale items are administered in random order and scored on a 0 (“Not like me”) to 5 (“Like me”) Likert scale, for a total subscale score ranging from 0-50 (overall SPQ score ranging from 0 to 800). In the current study, the dominant and submissive relationships dominant and submissive compulsive helping, caffeine, exercise, work, and shopping subscales (80 items) were eliminated to reduce participant fatigue. Therefore, there was a total of 80 SPQ questions included for this project (See Appendix B).

The SPQ was tested in both clinical and non-clinical samples. The clinical sample consisted of 497 participants (53% male, mean age = 35.2 years) admitted to the PROMIS Recovery Centre between 1995 and 1999. Primary diagnosis, as reported by client and recorded by the nursing staff, included: alcohol use (34%), drug use (22%), bulimia (9%), alcohol and drug abuse (8%), gambling (1%), with the remaining 13% of participants reporting a combination of alcohol/drug use and/or eating disorders.

Participants in the clinical sample were asked to complete the SPQ as well as multiple previously validated measures of clinical drinking problems (CAGE; Mayfield, MacLeod & Hall, 1974; and Short Michigan Alcohol Screening Test (SMAST); Selzer, Vinokur & Van Rooijen, 1975), alcohol consumption and dependence (Severity of Alcohol Dependency Questionnaire (SADQ); Stockwell, Hodgson, Edwards, Taylor & Rankin, 1979; Stockwell, Murphy & Hodgson, 1983), opiate dependency (Severity of Opiate Dependency Questionnaire (SODQ), Sutherland et al., 1986), dependence severity for heroin, cocaine, amphetamines
(Severity of Dependence Scale (SDS); Gossop et al., 1995), binge eating symptoms and severity (Bulimic Investigatory Test, Edinburgh (BITE); Henderson & Freeman, 1987), bulimia and anorexia behaviors and beliefs (Eating Disorder Inventory (EDI); Garner, Olmstead & Polivy, 1993), and a screening tool of pathologic gamblers in clinical populations (South Oaks Gambling Screen (SOGS), Lesieur & Blume, 1987). These questionnaires were used to validate the SPQ for various addictive thoughts and behavioral patterns.

The non-clinical sample consisted of 508 participants (39% male, mean age = 30.1 years) and were recruited from a university, general medical clinic, and through a ‘pyramid’ sampling method whereby participants identified five names to the researchers as potential participants. This convenience sample was matched with the clinical sample in terms of sex, age, and social background. Participants were not actively involved in treatment for any addictive behavior and were asked to complete only the SPQ.

Six SPQ subscales were correlated with answers from the eight validated scales measuring addictive patterns and beliefs. Ten SPQ subscales were eliminated due to an inability to directly compare with archival data from the other measures. Findings indicate that the SPQ alcohol subscale correlated most strongly with the alcohol measures (CAGE, $r=.78, p<.001$; SADQ, $r=.73, p<.001$; SMAST, $r=.74, p<.001$). Additionally, the SPQ recreational drugs subscale was correlated with the drug dependency scales (SODQ, $r=.64, p<.001$; SDS, $r=.76, p<.001$) but with no other scales. Furthermore, as expected, the SPQ gambling subscale was most strongly correlated with the SOGS ($r=.50, p<.001$) but it was also significantly related with two alcohol-related measures (SODQ, $r=.26, p<.001$; SDS, $r=.31, p<.001$). Lastly, the SPQ food bingeing subscale was correlated with the EDI ($r=.74, p<.001$) and the BITE ($r=.73, p<.001$), as was the SPQ food starving subscale (EDI, $r=.61, p<.001$; BITE, $r=.64, p<.001$).
Eight of the sixteen subscales did not demonstrate convergent and discriminant validity. Due to the small number of participants who reported problems with caffeine, tobacco, sex, compulsive helping, work, relationships, shopping, or exercise, the corresponding subscales on the SPQ could not be tested in comparison with the clinical sample. However, each scale demonstrated adequate face validity [exact numbers are not reported in the paper] and therefore was not eliminated from the current study.

Lastly, the internal consistency between the clinical sample’s scores and the 16 SPQ subscales indicate that Cronbach’s alpha coefficient scores for each subscale were adequate (mean Cronbach’s alpha=.89, S.D=.05, range .82-.98) as was the test-retest reliability over a mean of 18.9 days (Cronbach’s alpha=.80; Christo et al., 2004).

Self-Harm. Self-harm is the intentional injuring of oneself without suicidal attempt and can include a range of behaviors (cutting, scratching, burning, etc). Researchers and clinicians have argued that patterns of self-mutilation should be categorized as an addictive behavior (Faye, 1995; Karwautz, Resch, Wöber-Bingöl, & Schuch, 1996). The prevalence of self-harm has been estimated between 16.9% (Nixon, Cloutier, & Jansson, 2008) and 20% (Croyle & Waltz, 2007) in samples of adolescents.

In this study, self-harm was measured by using a modified version of the Deliberate Self-Harm Inventory (DSHI; Gratz, 2001). The 17-item DSHI measures indicators of various aspects of intentional self-harm (e.g., cutting, burning, scratching, etc) and the age of onset, frequency, intensity, and longevity of this behavior. It has adequate internal consistency (Cronbach’s alpha=.82). However, for the purposes of this study, I am interested in the presence of self-harm in general and not the specific method of self-harm; therefore, I modified this survey by collapsing the major categories of self-harm from the DSHI into one overall question: “Have you
ever intentionally (i.e., on purpose) cut, burned, scratched, bit, or otherwise harmed yourself on any part of your body (without intending to kill yourself)?” If the answer is yes, then participants were asked the same open-ended questions as are on the DSHI, “How old were you when you first did this?”, “How many times have you done this?”, “When was the last time you did this?”, “How many years have you been doing this (If you are no longer doing this, how many years did you do this before you stopped?)”, “Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment?” Additionally, in order to address the addiction component, I added three items: “Have you ever felt a sense of tension and excitement when you are about to harm yourself?”, “Have you ever felt disappointed in yourself or guilty afterwards?”, “Have you ever tried to stop but couldn’t?” (See Appendix C).

Psychological Distress

As previously mentioned, spiritual struggles are consistently linked with negative psychological outcomes such as increased depression and anxiety. In a recent study of a national cross-sectional sample of people with and without a personal illness, spiritual struggles were associated with a wide range of psychopathology (McConnell, Pargament, Ellison & Flannelly, 2006). Specifically, spiritual struggles as measured by negative religious coping, significantly predicted greater levels of anxiety ($R^{2}=.23$, $p<.001$), greater phobic anxiety ($R^{2}=.14$, $p<.001$), interpersonal sensitivity ($R^{2}=.31$, $p<.001$), depression ($R^{2}=.33$, $p<.001$), paranoid ideation ($R^{2}=.30$, $p<.001$), hostility ($R^{2}=.20$, $p<.001$), obsessive-compulsiveness ($R^{2}=.17$, $p<.001$), and somatization ($R^{2}=.15$, $p<.001$) even after controlling for demographic and religious variables. Furthermore, spiritually sensitive interventions have demonstrated efficacy in decreasing negative psychological outcomes, such as overall psychological distress (Oemig et al., 2008) and depression (Tarakeshwar, Pearce, & Sikkema, 2005). Furthermore, Oemig and
colleagues (2008) found that *Winding Road*, the nine-week spiritually sensitive small-group intervention for spiritual struggles, significantly decreased overall psychological distress. Therefore, we investigated if a computer-based intervention for spiritual struggles also has an impact on psychological distress.

In this study psychological distress was measured using the Brief Symptom Inventory-18 (BSI-18; Dergatis, 2000). This 18-item self-report measure queries participants on their level of distress over the past week using a five point Likert scale (0=not at all to 4=extremely) across three domains: depression, anxiety, and somatization. A global severity (GSI) index is calculated through summing the three subscale scores, with higher scores indicating greater psychological distress. All subscales demonstrated acceptable internal consistency (Depression: Cronbach’s alpha=.84, Anxiety: Cronbach alpha=.79; Somatization: Cronbach’s alpha=.74), as did the GSI (Cronbach alpha=.89). Items on the BSI-18 were taken from the 53-item BSI (Dergatis, 1993), which was derived from the 90-item Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1994).

**Stigma Related to Spiritual Struggles**

Stigma is defined in the Webster’s Dictionary as “a sign or moral blemish; stain or reproach caused by dishonorable conduct; reproachful characterization.” Considering the nature of this definition, spiritual struggles may uniquely intersect with stigma because it embodies tension regarding the ultimate or the divine, which may lead to feelings of being “blemished” or “dishonorable,” as is the case with stigma. Research on stigma demonstrates its negative impact on various outcomes, including decreased self-esteem and self-efficacy (Corrigan & Watson, 2002), reluctance among mentally ill individuals to pursue health services (Rusch, Angermeyer, & Corrigan, 2005), and perhaps suicidal behaviors (Pompili, Girardi, Lester & Tatrelli, 2007).
One of the primary goals of the current study is to normalize one’s struggle as an inoculation to stigma (Cross, 2006). Prior research (Oemig et al., 2008) has demonstrated the efficacy of a spiritually sensitive intervention in decreasing stigma related to spiritual struggles over nine-weeks of small-group meetings. Therefore, the current study measured if this one-session psychoeducational computer-based intervention also impacted stigma related to spiritual struggles.

Stigma related to spiritual struggles was measured using a modified version of the Negative Self-Image subscale from the HIV Stigma Scale (Berger, Ferrans, & Lashley, 2001). This 9-item subscale asks questions related to feelings of isolation or being “set apart” from others due to the spiritual struggle. Participants answer items using a four-point Likert scale (1=Strongly Disagree to 4=Strongly Agree) with higher scores indicating more negative self-image due to stigma. In a sample of 318 HIV patients, this subscale demonstrated adequate reliability (Cronbach’s alpha=.91; See Appendix E)

**Spiritual Growth and Decline**

Although resolving a spiritual struggle is not a goal of the intervention, it is reasonable to expect that obtaining psychoeducational information regarding spiritual struggles could affect one’s growth in this area. Other studies have demonstrated that spiritually sensitive interventions have a positive impact on promoting spiritual growth (see Oemig et al., 2008). Therefore, in this study spiritual growth and decline was measured using a 40-item Spiritual Transformation Scale (STS; Cole, Hopkins, Tisak, Steel, & Carr, 2008). This 40-item scale asks participants to answer questions related to self-perceptions of spiritual growth or decline (e.g., “I have a stronger spiritual connection to nature,” “In some ways I am more spiritually withdrawn from other people”) on a 7-point Likert scale (1=It is not at all true for you to 7=It is true for you a great
deal). Both the spiritual growth and spiritual decline subscales demonstrated good internal consistency (Cronbach’s alpha=.98 and .86 respectively; See Appendix F).

**Resource Utilization**

To determine if students who participated in the intervention groups utilized the resources recommended, participants were queried at Time 2 regarding their resource utilization. Specifically, students who completed the SSI were asked, “I have used the following coping strategies or resources since coming to BGSU (on a yes/no scale): self reflection (journaling, quietly thinking about struggle, etc.), prayer &/or meditation, talking with others about spiritual issues, reading or watching movies related to struggle, spiritual visualization, connected with my religious community, participated in a religious group on campus, connected with diversity-centered resources on campus, pursued counseling, pursued spiritual direction, went on a spiritual retreat.” In order to determine participant-rated effectiveness of this strategy, participants were asked, “Did this help you? (Yes/No) If so, how?”

Participants in the CSI answered the following question “I have used the following coping strategies or resources since coming to BGSU (on a yes/no scale): watched for signs that I am stressed, talked with others about stress, tried to take good care of myself (eating well, exercising, sleeping more, etc.), tried to change the way I think about things (e.g., careful about catastrophizing, tried to stop mind-reading, tried to go easy on myself/give myself the benefit of the doubt, tried to be more grateful, etc.), relaxed/meditated, read or watched movies related to something that stresses me, practiced positive visualizations, deep breathing, participated in a academic/community service/social (sorority/fraternity) group on campus, connected with diversity-centered resources on campus, tried to get help for classes from the writing lab, librarians, math lab, etc; attended a Stress Clinic; pursued counseling, attended a fun event on
campus to decrease my stress.” Again, in order to determine participant-rated effectiveness of this strategy, students were asked, “Did this help you? (Yes/No) If so, how?” (See Appendix G).

**Potential Covariates**

**Perceived Stress**

The Perceived Stress Scale (PSS) is designed to assess an individual’s appraisal of an event as stressful (Cohen, Kamarck & Mermelstein, 1983) and is the most widely used measure of perceived stress in the psychological literature (Mind Garden, Inc., 1994). This fourteen-item scale measures how uncontrollable, overloaded, and unpredictable participants find their lives (See Appendix H). Respondents are asked about the frequency of certain thoughts and feelings over the past month using a five-point scale (0=never; 1=almost never; 2=sometimes; 3=fairly often; 4=very often). The PSS is scored by reversing four items and then summing the total responses. This scale demonstrated adequate reliability in two college samples of 322 and 114 participants (Cronbach’s alpha=.84 and .85, respectively; Cohen, Kamarck & Mermelstein, 1983).

**Personality**

To control for individual personality traits that might influence a participant’s propensity towards addictive behaviors unrelated to spiritual struggles, a neuroticism index was used in this study. The Neuroticism Index is part of the Big Five personality trait classification system, which groups personality into five broad descriptive domains. These empirically supported factors include: openness to experience, conscientiousness, extroversion, agreeableness, and neuroticism (Goldberg, 1993). The neuroticism index contains 20 items that ask a broad range of questions regarding one’s feelings and behaviors (e.g., “I have frequent mood swings,” “I am filled with doubts about things,” “I remain calm under pressure,” “I am relaxed most of the time”) (see
Appendix I). Participants are asked how true each statement is for them during the last month, using a five-point Likert scale ranging from Very Inaccurate to Very Accurate. This scale is widely used and has demonstrated strong reliability (Cronbach’s alpha=.91; IPIP, 2006).

**Demographic Variables**

Items assessing global religiousness are part of the customary battery in psychology of religion research. Therefore, in this study, five questions assessed self-rated religiousness, self-rated spirituality, frequency of church attendance, and frequency of prayer. In addition, standard demographic variables such as gender, ethnicity, and year in school were included in the online surveys (see Appendix J).

**Participants and Procedures**

The current sample consisted of 64 students who were recruited from a mid-sized Midwest University after the study was approved by the institution’s internal review board. All participants were college freshmen who volunteered to complete this longitudinal study for a total of 2-3 extra credit points that were applied to their psychology class grade. Students were informed of the voluntary nature of participation and the confidentiality of their information. Each individual accessed the study online, where he/she signed the Informed Consent form electronically and then completed the computer-based project online. All information was stored in a secure electronic data file without identifying information attached; only the Principal Investigator had access to the data.

One hundred and eighty-nine students completed surveys at Time 1 and were subsequently randomly assigned to one of three groups (Spiritual, Secular, or Control). Participants assigned to the Spiritual or Secular groups were emailed an invitation to complete the computer-based intervention. Thirty-two percent (n=20) of students in the Spiritual group
and 29% (n=18) of students in the Secular group completed the intervention. A total of 74 students out of the 126 total (59%) that were invited to participate in the online intervention accessed the intervention. However, due to the technical limitations of the software used, it is unclear how many of these students actually viewed the material within intervention versus simply opening the system. Out of the 74 who accessed the intervention, a total of 52 (70%) students completed the required quiz, indicated that they had successfully reviewed the content of the intervention. The 52 students who completed the intervention and those assigned to the Control group (n=63) were then invited to complete the final surveys for Time 2.

A total of 20 students assigned to the Spiritual group, 18 students assigned to the Secular group, and 26 students assigned to the Control group completed the final surveys and thus a total of 64 of the original 189 participants (34%) participated in this project and were used in subsequent data analysis (see Table 1). Furthermore, it is important to note that, because the intervention was designed for spiritual strugglers, I eliminated non-strugglers from the analysis. Therefore, anyone with a score of 23 (no endorsement of any of the spiritual struggles items) on the N-RCOPE was eliminated from the study. Four participants who completed the project did not endorse any spiritual struggle at any time point and thus were dropped from the analyses. An analyses of variance (ANOVA) was also conducted to examine selective attrition within this sample. Results demonstrate that there were no significant differences on demographic variables (Gender, Ethnicity, Religious Affiliation) between those students who completed only Time 1 (n=125) and those who completed the full requirements of the study (n=64).
RESULTS

In the following section, descriptive statistics of the demographic and the outcome measures are presented. The reliability analyses of all measures used in the study are then described. Next, correlations between the potential covariates and the outcome measures are reported to identify covariates to be used in subsequent data analysis. Additionally, a series of 2 x 3 (time x treatment group) analyses of variance (ANOVA) and analyses of covariance (ANCOVA) were conducted to assess if there were differences among the three treatment groups on the outcome variables over the course of the study. Lastly, qualitative comments provided by those participants who completed either the secular or spiritual intervention are presented and described.

Preliminary Analyses

Descriptive Statistics

As presented in Table 1, 52 (81%) of the 64 total participants were female and the majority of the sample (94%) identified themselves as Caucasian, while 5% of the participants were African-American (n=3) and the remaining one participant identified herself as Latina (1%). Nearly one-third of participants (n=20) endorsed affiliation with Catholicism, 27% (n=17) identified themselves as Protestant, and 14 participants indicated they were “Other Christian,” one participant indicated she was Muslim (2%). The remaining 11 participants (17%) indicated that they have no religious affiliation (e.g., atheist, agnostic) and one person indicated that she was “not sure” of her religious affiliation (2%).

Descriptive statistics (mean, standard deviation, range) for each potential covariate (Global Religiousness, Neuroticism, and Perceived Stress) and outcome measures (NRCOPE, Stigma, Distress, STS, Self-Harm, and SPQ) are presented in Table 2. This sample appears to be
in the extremely high range on Global Religiousness, indicating high affinity with believing in God, and viewing oneself as a spiritual or religious person. Furthermore, results from this sample reveal a high propensity for neuroticism. In terms of outcome variables, the mean scores on the N-RCOPE indicate that participants are experiencing spiritual struggles at a mild level. Additionally, participants on average reported feeling stigma and emotions of guilt and shame with regards to experiencing a spiritual struggle. Similarly, students in this sample reported mild and consistent distress throughout the course of the study. Furthermore, there was evidence of low frequency of intentional self-harm within this sample.

Additionally, this sample reported significant amount of addictive behavior. Specifically, according to research on the addiction measure, the SPQ, the absolute levels of the average of each of these subscale scores can be categorized in a level of behavioral concern (None, Average, High Range, Cause of Concern, Significant Problem, Serious Problem, or Extreme Problem) (Christo et al., 2004). Therefore, the behavioral concerns for Time 1 scores on the SPQ subscales were categorized as follows: Alcohol (Average Range); Food Bingeing (Cause of Concern); Food Starving (Cause of Concern); Gambling (Significant Problem); Prescription Drugs (Significant Problem); Recreational Drugs (Cause of Concern); Sex (Cause of Concern); and Tobacco (Average Range). Therefore, it appears that this sample was struggling with average to above average concerns related to addictive behavior.

*Reliability and Covariate Analyses*

Internal consistency estimates (Cronbach’s alpha) were conducted on all measures in the current sample to ensure they were comparable with the data presented in the validation articles. Findings indicated that the scales used in this study demonstrated excellent reliability (α ranging from .87 to.98).
Additionally, to investigate if there were differences on the demographic variables (gender, ethnicity, religious preference) between the three groups, Chi-square analyses were conducted for these nominal variables. Results demonstrated that there were no statistically significant differences among groups at Time 1 in relation to gender, ethnicity, and religious preference (See Table 1). ANOVAs were conducted to test for significant differences among groups at Time 1 for interval variables (Neuroticism, Global Religiousness, NRCOPE, Distress, Stigma, STS, Self-Harm, Total SPQ, Alcohol Use, Food Bingeing, Food Starving, Gambling, Prescription Drugs, Recreational Drugs, Sex, Tobacco Use). Results indicated that there were no significant differences among groups for any of the potential covariates and dependent variables at Time 1 (p>.05), with the exception of the Spiritual Transformation Scale (STS; $F(2,107)=3.41, p=.037$), which demonstrated statistically significantly higher baseline scores in the control group.

**Correlations**

To identify covariates, correlations were calculated between all potential covariates (Global Religiousness, Neuroticism, and Perceived Stress) and change scores between Time 1 and Time 2 for all criterion measures (NRCOPE, SPQ, Distress, Stigma, and STS). Results are presented in Table 3. The following relationships between change scores and potential covariates were found: Spiritual Struggles were significantly correlated with Neuroticism ($r=.26, p=.05$); Distress was significantly correlated with Perceived Stress ($r=.26, p=.05$); Stigma was significantly correlated with Global Religiousness ($r=.30, p=.05$); Alcohol was significantly correlated with Global Religiousness; Food Bingeing was significantly correlated with Perceived Stress ($r=.18, p=.05$) and Neuroticism ($r=.28, p=.01$); Food Starving was significantly correlated with Perceived Stress ($r=.25, p=.01$) and Neuroticism ($r=.18, p=.05$); and Tobacco was
significantly correlated with Global Religiousness ($r=-.25$, $p=.01$). Therefore, Neuroticism, Perceived Stress, and Global Religiousness were selectively used as covariates in the corresponding statistical analyses for Spiritual Struggles, Distress, Stigma, Food Bingeing, Food Starving, and Tobacco, respectively.

**Outcome Analyses**

First, a series of 2 x 3 (time x treatment group) analyses of variance (ANOVA) were conducted for all outcome variables to determine whether members of the three groups reported different patterns of change in these variables over the course of the study. Then, a series of 2 x 3 (time x treatment group) analyses of covariance (ANCOVA) were selectively completed for the Spiritual Struggles, Distress, Stigma, Alcohol, Food Bingeing, Food Starving, and Tobacco to determine whether members of the three groups reported different patterns of change in the dependent variables over time, after accounting for the corresponding covariates of Neuroticism, Perceived Stress, Global Religiousness, Ethnicity, and Gender as appropriate.

**Spiritual Struggles**

ANOVA results demonstrated no significant interactions between time and group related to spiritual struggles ($F(2,127) = .10$, $p=NS$). Additionally, there were no significant main effects for time ($F(2,127) = .12$, $p=NS$) or group ($F(2,127) = .85$, $p=NS$; see Table 4). These findings remained consistent after controlling for Neuroticism using the ANCOVA analysis. Specifically, there were no significant interactions between time and group related to spiritual struggles ($F(3,127) = .06$, $p=NS$). Additionally, there were no significant main effects for time ($F(3,127) = .11$, $p=NS$) or group ($F(3,127) = 1.15$, $p=NS$; see Table 4).

**Distress**
Analyses revealed that there was not a significant interaction between time and group with respect to psychological distress ($F(2,127) = .31, p=NS$) and no significant main effects for time ($F(2,127) = .25, p=NS$) or for group ($F(2,127) = .98, p=NS$). These findings remained consistent after controlling for Perceived Stress using an ANCOVA analysis. Specifically, there were no significant interactions between time and group ($F(3,127) = .15, p=NS$). Additionally, there were no significant main effects for time ($F(3,127) = .08, p=NS$) or group ($F(3,127) = .84, p=NS$; see Table 4).

**Stigma**

Results revealed no significant interactions between time and group related to stigma ($F(2,127) = 1.74, p=.18$). Additionally, there were no significant main effects for time ($F(2,127) = .81, p=NS$) or group ($F(2,127) = .78, p=NS$). These findings remained consistent after controlling for Global Religiousness using an ANCOVA analysis. Specifically, there were no significant interactions between time and group ($F(3,127) = 1.7, p=NS$). Additionally, there were no significant main effects for time ($F(3,127) = .70, p=NS$) or group ($F(3,127) = .72, p=NS$; see Table 4).

**Spiritual Growth and Decline**

Analyses did not yield a significant group x time interaction for spiritual transformation ($F(2,127) = .22, p=NS$) and there was no main effect for time ($F(2,127) = .12, p=NS$). However, a significant main effect for group emerged ($F(2,127) = 3.47, p=.035$, partial $\eta^2=.064$). Pairwise comparisons using the Bonferroni adjustment suggested that the significant main effect for group was driven by differences in self-reported experience of a spiritual transformation between the Control and Spiritual Intervention groups averaged over both times. Adjusted group means suggest that participants in the Control group reported higher levels of spiritual
transformation than participants in the Spiritual Intervention group over both times (see Table 4). However, these initial differences in spiritual transformation scores were identified in the preliminary analysis and highlight a limitation of randomization.

**Intentional Self-Harm**

Analyses demonstrated that there was not a group x time interaction in relation to intentional self-harm ($F(2,127) = .08, p=NS$) and there was no main effect for time ($F(2,127) = .03, p=NS$) or group ($F(2,127) = .10, p=NS$).

**Overall Addiction**

Analyses demonstrated that there was not a group x time interaction in relation to overall addiction ($F(2,127) = .19, p=NS$) and there was no main effect for time ($F(2,127) = .11, p=NS$) or group ($F(2,127) = .41, p=NS$).

**Alcohol**

Analyses demonstrated that there was not a group x time interaction in relation to alcohol use ($F(2,127) = 1.34, p=NS$) and there was no main effect for time ($F(2,127) = .40, p=NS$) or group ($F(2,127) = .11, p=NS$). These findings remained consistent after controlling for Global Religiousness using an ANCOVA analysis. Specifically, there were no significant interactions between time and group ($F(3,127) = 1.4, p=NS$). Additionally, there were no significant main effects for time ($F(3,127) = .52, p=NS$) or group ($F(3,127) = .63, p=NS$; see Table 4).

**Food Bingeing**

Analyses demonstrated that there was not a group x time interaction in relation to food bingeing ($F(2,127) = .08, p=NS$) and there was no main effect for time ($F(2,127) = .54, p=NS$) or group ($F(2,127) = 1.07, p=NS$). These findings remained consistent after controlling for Perceived Stress and Neuroticism using an ANCOVA analysis. Specifically, there were no
significant interactions between time and group ($F(3,127) = .03, p=NS$). Additionally, there were no significant main effects for time ($F(3,127) = .00, p=NS$) or group ($F(3,127) = 1.70, p=NS$; see Table 4).

**Food Starving**

Analyses demonstrated that there was not a group x time interaction in relation to food starving ($F(2,127) = .22, p=NS$) and there was no main effect for time ($F(2,127) = .01, p=NS$) or group ($F(2,127) = .34, p=NS$). These findings remained consistent after controlling for Perceived Stress and Neuroticism using an ANCOVA analysis. Specifically, there were no significant interactions between time and group ($F(3,127) = .32, p=NS$). Additionally, there were no significant main effects for time ($F(3,127) = .30, p=NS$) or group ($F(3,127) = .60, p=NS$; see Table 4).

**Gambling**

Analyses demonstrated that there was not a group x time interaction in relation to gambling ($F(2,127) = .02, p=NS$) and there was no main effect for time ($F(2,127) = .28, p=NS$) or group ($F(2,127) = .26, p=NS$).

**Recreational Drugs**

Analyses demonstrated that there was not a group x time interaction in relation to recreational drug use ($F(2,127) = .01, p=NS$) and there was no main effect for time ($F(2,127) = .03, p=NS$) or group ($F(2,127) = .66, p=NS$).

**Prescription Drugs**

Analyses demonstrated that there was not a group x time interaction in relation to prescription drug use ($F(2,127) = .08, p=NS$) and there was no main effect for time ($F(2,127) = .01, p=NS$) or group ($F(2,127) = .83, p=NS$).
Sex

Analyses demonstrated that there was not a group x time interaction in relation to sex \((F(2,127) = .21, p=NS)\) and there was no main effect for time \((F(2,127) = .16, p=NS)\) or group \((F(2,127) = .18, p=NS)\).

Tobacco

Analyses demonstrated that there was not a group x time interaction in relation to tobacco use \((F(2,127) = .62, p=NS)\) and there was no main effect for time \((F(2,127) = .02, p=NS)\) or group \((F(2,127) = .65, p=NS)\). These findings remained consistent after controlling for Global Religiousness using an ANCOVA analysis. Specifically, there were no significant interactions between time and group \((F(3,127) = .56, p=NS)\). Additionally, there were no significant main effects for time \((F(3,127) = .00, p=NS)\) or group \((F(3,127) = .80, p=NS)\; \text{see Table 5}\).

Qualitative Data

As part of the second survey, participants were asked to rate their use of, experience with, and comments on the computer-based interventions.

Secular Intervention

The majority of participants who completed the Secular Intervention (CSI) found it helpful (61%) perceived it as helpful. Resource utilization was assessed using multiple-choice questions. The majority of CSI participants utilized techniques of self-care (78%), changing cognitive distortions (67%), and talking with others about stress (56%). The following qualitative data were collected from individual participants, articulating how he/she found the CSI helpful:

- “By having fun, it made me happier and influenced me to do my work in a non-stressful way. Having fun makes me relax.”
- “[The CSI] distracted me from what I was worried about, made the stress feel less
important.”

- “[The CSI] got my mind off the things that stressed me out!”
- “I have been wanting to get in shape, so I have been trying to eat better. I also have been trying to stay more relaxed. It has helped me in my relationships.”
- “I was able to stop thinking about the stressors for a little while and some of them were forgotten, which helped because then I had less to worry about.”
- “It does help but I have been doing both of these basically my whole life…it was nothing new to me.”
- “It helped me to better manage my stress.”
- “It made me less stressed out.”
- “It was just nice to get away from everything.”
- “It’s relaxing.”
- “Just being able to put my worries behind me for a little while allowed me a mini retreat from the stressors of college life and allowed me to focus on myself.”
- “The information provided was helpful, in regards to the techniques discussed and finding out about the resources available to me.”

**Spiritual Intervention**

Almost all of the participants (90%) who completed the Spiritual Struggles Intervention (SSI) found it helpful. In terms of resource utilization, participants in the SSI most commonly engaged self-reflection (journal, quietly thinking about struggle, etc) (95%), prayer and/or meditation (90%), and talking with others about spiritual issues (55%). Students also provided detailed comments on how the spiritual intervention was helpful to them. Some of these include:
• “I felt closer with Jesus during those moments, however when I got away from that environment I felt somewhat isolated.”
• “I have not only gotten much closer with my friends, but I also have a deeper understanding of what it is I believe and what that has to do with how I live my life.”
• “I thought about my feelings toward God and how He can help me.”
• “I was able to dig deeper into my faith.”
• “I was able to stop thinking about myself and instead I was able to put myself in other's shoes and it gave me a different perspective on my life compared to other's.”
• “It helped me get through the stress of college.”
• “It opened my eyes, I learned a lot and I was surrounded by people that think the same why I do.”
• “[The SSI] made me feel like I wasn't truly alone, helped express my feelings, made me feel like someone understands.”
• “My friends really helped me feel better about this because they respect my religion, even if theirs is different. Also prayer always helps me because I believe God receives all prayers and listens to them and will help everyone when the time is right.”
• “[The SSI] relaxed me and made things less stressful.”
• “Relaxing.”
• “I was able to see that I really have nothing to worry about because I read my bible and realized that God is always here for me no matter what.”
• “I found it very interesting; however, the surveys were long and repeated many questions. I feel that repeating questions is unnecessary because it did not help me answer better, it only confused me.”
• “[The SSI] was very informative.”

These illustrative comments highlight individual participants’ perceptions of both the CSI and SSI in their own words. This information was not otherwise gathered in quantitative form and provides insight regarding the experiences of participants in this study.
DISCUSSION

The purpose of the current study was to examine whether a one-time, spiritually sensitive, computer-based psychoeducational intervention was: 1.) Effective in protecting freshman college students from the negative impact of spiritual struggles (reported addictive behaviors, psychological distress, and stigma related to spiritual struggles); and 2.) If this design was more effective than a secular stress reduction intervention or no intervention. In this section I review and offer interpretations of the findings. I then consider the limitations of the study. Lastly, I discuss the practical implications of these results and suggest directions for future research.

Findings

*Impact of Spiritually Sensitive Intervention on Outcome Variables*

The goal for this project was to determine if a spiritually sensitive psychoeducational intervention, designed in a format for large-scale implementation, protects students from the risks of spiritual struggles above and beyond that of a stress reduction intervention or no intervention. As hypothesized, the secular and control groups did not demonstrate a statistically significant reduction in the outcome variables. However, contrary to the proposed hypothesis, the spiritually sensitive computer-based intervention also did not protect participants from the negative impact of spiritual struggles in their first year of college. There are many potential reasons for these results.

First, although research has demonstrated success from other such computer-based interventions, most of these were administered at multiple time points (Orbach, Lindsay, & Grey, 2007; Low et al., 2006). Nevertheless, one study by Braithwaite and Fincham (2007) utilized a one-time computer-based administration and found that this was sufficient for stimulating
changes in participants’ psychological and behavioral outcomes. The current study, which was modeled upon the aforementioned project, was very similar to this project in its design and administration in that it took about the same amount of time (approximately an hour), was composed of pictures and written text (no video or audio clips), was individually administered so the participants controlled the pace of the information flow, skills were taught and participant mastery was assessed by their completion of a quiz, and participants were instructed to implement the skills they had learned for maximum benefits. However, the current study differed in one significant way: no follow-up emails encouraging utilization of these skills and resources were given on a weekly basis, as in the Braithwaite and Fincham study. This major difference may have been enough to limit the impact of the spiritually sensitive intervention due to lack of engagement in the material.

Individuals need to significantly interact with the material in order to promote learning and skill acquisition (see Johnson, 2008). Perhaps the current study, which was longitudinal in design, demonstrated no significant impact because participants were not reminded throughout the study period to utilize the skills learned in the intervention. As a result, the participants may have not retained the skills taught and/or overlooked the need to utilize these resources due to the fast pace of their first year of college combined with lack of skill retention. Weekly email reminders summarizing the skills taught in this intervention could have proved enough to help participants retain and apply the information learned.

This possibility is further supported by the disparity between the results of the current study and those of other studies utilizing similar content, but which were taught in a different format. For example, the recent project designed by Oemig and colleagues (2008) titled *Winding Road*, utilized a similar content involving psychoeducation on spiritual struggles. The current
materials were adapted from components of the Oemig study (in which the current author was involved), including modules on normalization, prevalence, education, meditation, resources, community involvement, and outlets for expression of tension regarding spiritual struggles. However, the current study: 1.) Was psychoeducational in nature as opposed to experiential as in the *Winding Road* intervention; 2.) Did not ask participants to engage in the materials through journaling, worksheets, and weekly homework; 3.) Did not involve modules addressing family spiritual genograming, images of God, spiritual self, lamentation, and the important role of forgiveness; and 4.) Was not taught in a group environment with facilitators and other like peers, as the *Winding Road* participants experienced. Therefore, the impact of the current study may have been limited by these important differences.

As noted, research has identified the importance of level of engagement to promote information retention (see Johnson, 2008). First, consideration should be given to the level of struggles in the sample at baseline. Specifically, participants in the *Winding Road* endorsed significantly higher level of spiritual struggles ($\bar{x}=56.9$, $SD=14.45$) than the current sample ($\bar{x}=31.5$, $SD=7.9$), corresponding to moderate versus mild struggle. The higher level of struggle reported for the *Winding Road* participants may have provided an internal motivation to attempt to resolve or cope with the struggle, whereas participants in the current study who report a mild struggle may have experienced less motivation to engage in resources. Therefore, differences in the baseline levels of spiritual struggle may have predicted an increase in commitment to learning or engagement in material.

However, perhaps the current study did not promote enough *engagement* in the materials to facilitate effective learning. As noted above, the lack of weekly reminders could have contributed to the lack of engagement; however, the psychoeducational nature of the information
could have also contributed to a lack of engagement. Some research has questioned the efficacy of psychoeducation (Zaretsky, Lancee, Miller, Harris, & Parikh, 2008) as compared to deeper levels of experiential involvement, such as cognitive therapy. Perhaps, the materials on spiritual struggle needed to be presented in a non-psychoeducational format, requiring deeper engagement in the material.

This idea is supported by a similar study of the impact of a computer-based experiential intervention, utilizing spirituality in the bout against depression (Reist Gibbel, 2009). In the Reist Gibbel study, participants were asked to complete a computer-based intervention regarding spiritual components of healing, and which addressed spiritual struggles. However, participants engaged in the materials across a four-week period utilizing five separate interventions, and were asked to journal and complete weekly assignments regarding the information presented. Findings demonstrate that participants showed a clinically significant (though non-statistically significant) decrease in symptoms of depression after participating in this five-week spiritually sensitive experiential intervention. Therefore, it is likely that the current study did not demonstrate efficacy due to the psychoeducational nature of the materials and perhaps a more experiential approach, promoting engagement and thus application and retainment of the materials would have proved more effective.

Secondly, the current study may have overlooked important content areas in the discussion of spiritual struggles. For example, in the Winding Road project, modules including family spiritual genograming, images of God, spiritual self, lamentation, and the important role of forgiveness were not included in the current study. The content in these areas, most significantly the role of images of God and forgiveness, could have added an important dimension of education for participants. Specifically, research demonstrates that negative images
of God, such as viewing God as detached, passive, or a harsh judge, are associated with more personality pathology (Schaap-Jonker, Eurelings-Bontekoe, Verhagen, & Zock, 2002) and potentially negative outcomes. Furthermore, there is a large fund of data exacting the powerful impact of forgiveness on diminishing negative affect, improving self-esteem and positive affect (Lundahl, Taylor, Stevenson, & Roberts, 2008), decreasing depression, anxiety, increasing ability to find meaning in times of suffering (Reed & Enright, 2006), and lowering levels of guilt and shame (Webb, Colburn, Heisler, Call, & Chickering, 2008). It may have been beneficial to include these critical domains in the spiritually sensitive intervention for the current study.

Additionally, self-compassion is surfacing as a domain of interest and one that might significantly impact spiritual struggles. For instance, research has demonstrated that self-compassion is related to diminished feelings of isolation (Wood, Saltzberg, Neale, & Stone, 1990), decreased self-consciousness, self-rumination, and anger, and increased sense of happiness, positive affect, and optimism (Neff & Vonk, 2009). There is a paucity of research on spiritual struggles and this emerging construct of compassionate self-concept. However, one such study identified compassionate self-concept as a mediator in the relationship between spiritual struggles and substance use. This study, which investigated longitudinal data of 14,527 students from 136 colleges within the United States, demonstrated that the domain of compassionate self-concept buffered the negative effects of spiritual struggles on substance use (Faigin, 2009). These findings suggest that struggles may produce their own unique effects on outcomes (Pargament, Magyar-Russell, & Murray-Swank, 2005), in this case through self-condemnation and guilt that often accompanies struggles. Therefore, interventions that promote a compassionate view of oneself could combat stigma related to struggle, guilt, self-blame, self-rumination, anger, and isolation. Overall, there is reason to believe that the outcomes of the
current study might have demonstrated positive change if the intervention included content areas regarding images of God, forgiveness, and compassionate self-concept.

Furthermore, research in the area of spiritually sensitive interventions has demonstrated statistically significant changes in behavior and cognitive attributions related to spiritual struggles (Oemig et al., 2008; Tarakeshwar, Pearce, and Sikkema, 2005; Avants et al., 2005; Murray-Swank & Pargament, 2005). However, the majority of these studies differed from the current project in that the information was presented in a group setting. Literature on group therapy has identified group cohesiveness as a curative factor (Yalom & Leszcz, 2005). The ability of group members to relate to and rely upon other group members, and build an alliance with the therapist/group facilitator, can provide normalization and foster a healthy environment in which to navigate a shared struggle (Yalom & Leszcz, 2005). The benefits of a group environment were not available in the current study. Therefore, participants were potentially impacted by the isolative nature of the individually administered psychoeducational module and they might have benefitted more from participating in a group process.

This might be particularly true for those who are grappling with existential tension and spiritual doubts and questioning. Spiritual struggles are typically marked by isolation from God, self, and/or others and involve topics and/or questioning that are not perceived as socially acceptable. For instance, social and religious cultures generally dissuade individuals from questioning the divine; and open disagreement or struggling with ultimate issues is usually not promoted or widely accepted. Therefore, individuals who are undergoing a spiritual struggle may feel isolated from others, self and the divine, as well as guilt or shame about their struggle or questioning. Research has demonstrated that online learning can create a sense of isolation as compared to in-person learning (Rabe-Hemp, Woollen, & Humiston, 2009). The act of
completing this intervention alone may have exacerbated this isolative quality of spiritual struggles and, as a result, mitigated the impact of the intervention.

In sum, although this study aimed to develop a cost-effective, time-efficient, effective intervention for college students, the potential impact of the intervention may have been limited by one or more of several factors: 1.) The intervention was administered at one-time with no follow-up reminders, which could have limited skill acquisition and retainment; 2.) Was psychoeducational in nature and did not ask participants to engage in the materials through journaling, worksheets, and weekly homework; 3.) Did not include modules addressing images of God, forgiveness, and self-compassion; and 4.) Was not taught in a group environment with facilitators and other like peers and an accessible group facilitator. The combination of these factors could have proved powerful enough to limit the impact of the spiritually sensitive intervention in promoting positive outcomes.

**Qualitative Comments**

The current study also queried participants on their perception of the spiritually sensitive intervention. These comments illustrate the participants’ perception that the intervention was helpful and promoted positive change. Although a formal analysis was not conducted on the qualitative data from this study, a few trends emerged.

Out of the 14 comments, 13 (93%) reflected a positive experience while one comment noted the length and repetition of the surveys. Of the positive comments, the most prominent themes involved the feeling of increased perception of closeness with others, with God, and a deeper sense of faith. Other comments indicated that the intervention was informative, diminished stress, and promoted relaxation. It is important to note that only 14 of the 20 participants utilized the qualitative comment field, as this field was not required, therefore this is
not a representative of the total experience of all participants. However, it appears that despite the lack of quantitative findings, these qualitative data indicate that several participants in the spiritually sensitive intervention experienced a sense of feeling connected with others, God, and a deeper sense of faith and relaxation.

This disparity between the quantitative findings, which did not demonstrate positive influence on psychological distress, stigma related to struggle, and addictive behaviors, and the positive trends in the qualitative findings could be due many reasons. First, based on prior research, the current study utilized the outcome variables of psychological distress, stigma related to struggle, and addictive behaviors as negative outcomes of spiritual struggles. However, as these qualitative comments highlight, the spiritually sensitive intervention may have promoted change on outcomes not measured here such as comfort, understanding, and connection with others and God. Second, perhaps the quantitative statistics would have demonstrated change with longer-term outcomes, such as querying participants after 6- or 12-months post-intervention. Participants may apply the skills learned from the intervention well after this project ended; therefore, significant changes in outcome measures may not have been immediately detected. The lack of findings in the quantitative statistics, contrasted with these positive qualitative comments, may point to potential limitations in the study design.

Study Limitations

Data from the current study demonstrated no statistically significant impact of a spiritually sensitive computer-based psychoeducational intervention on the negative outcomes commonly related to spiritual struggles. These findings may have been sensitive to limitations in the study design, which should be noted and addressed in future investigations.
First, this study utilized a small, ethnically and religiously homogenous sample from a single medium-sized Midwest university. Therefore, this study was limited in its sample size, power, and generalizability. Future research should attempt to extend these findings to a larger and more diverse sample of freshmen students at multiple universities.

Second, this study employed retrospective self-report measures and therefore may have reflected biases due to response subjectivity and recall difficulties. Diverse data collection methods are needed, including ecological momentary assessment strategies such as daily diaries on Palm Pilots to collect real-time data and decrease retrospective recall biases. Additionally, more advanced qualitative data collection are needed, as research on computer-based spiritually sensitive interventions is in its beginning stages. The current project utilized very limited qualitative data collection methods (a comment box), and therefore important information regarding the participants' experiences may have been overlooked. Furthermore, although there was no evidence in this study of underreporting, researchers should remain sensitive to anonymity in all sampling procedures, as participants may be hesitant to report use of illicit substances or perceived socially unacceptable behaviors in their surveys.

Furthermore, participation in this study was voluntary; therefore, there may have been a self-selection effect where students who were either comfortable answering questions related to spirituality or those who wanted a forum for expressing their doubts or dissatisfaction with religion may have opted in, or opted out of participation in this project. Therefore, these selection effects must be considered when interpreting the results.

Lastly, different time periods of assessment (response sets include “how do you currently feel” versus “how true are the followings statements over the past month”) were used in the questionnaires. These varying time periods could have diluted significant outcomes due to
averaging one’s experience over such a long time-period and confounded differences among various measures in this study. Future studies should utilize more distinct and consistent time periods so that all measures involve changes across the same time period, ideally the past one- to two-weeks. Additionally, the study design should also include longer longitudinal follow-up periods (3-, 6-, and 12-months post-intervention) to truly account for changes across time.

Practical Implications and Future Direction

The freshman year of college has been described as a developmental window period when students explore their own identities, grapple with questions of the meaning of their lives, and learn how to handle multiple stressors as they move toward greater autonomy (Astin & Astin, 2004). However, many students encounter spiritual struggles as they deal with these developmental tasks. Moreover, literature in the field provides robust findings connecting spiritual struggles to negative psychological, behavioral, and health outcomes. The current study investigated an efficient, cost-effective, flexible, and versatile approach to educating a wide range of students, using a one-time computer-based psychoeducational module. However, findings indicate that in order to make a significant impact in participants’ lives, changes in design appear warranted. Several practical implications follow.

Results from the current study suggest three important points: 1.) In order to make a significant impact in reducing the negative effects of spiritual struggles, one needs to deeply engage in the information in order to apply and retain it over time; 2.) It might prove beneficial to include topics such as assessment and education regarding images of God, the notion of forgiveness, and the promotion of self-compassion in spiritually sensitive interventions; 3.) The exploration and application of the information in these interventions might be enhanced by the involvement of a facilitator and peer group.
Additionally, previous research on spiritual struggles suggests that students are utilizing unhealthy patterns (e.g., addictive behaviors) as a way to cope with their spiritual questioning and other life stressors. Therefore, universities and clinicians may consider providing students with training on more adaptive and functional coping techniques. However, researchers need to better understand the agents of change in previous studies demonstrating efficacy of spiritually sensitive interventions. Therefore, future researchers could consider deconstructing current effective spiritually sensitive interventions (e.g., Oemig et al., 2008; Tarakeshwar, Pearce, and Sikkema, 2005; Avants et al., 2005; Murray-Swank & Pargament, 2005) to delineate the individual components of efficacy. For example, based on others’ research, individual components could include: meditation, promoting forgiveness, addressing more problematic images of God to transform them to more adaptive perspectives, level of engagement in material, promoting feelings of acceptance of struggles, social support, group setting, and having social/mentor support that provides outlets for discussing and processing spiritual struggles. Findings from these deconstructed modules could inform the development of future interventions to include the most effective components of spiritual healing and growth for those experiencing a spiritual struggle.

Additionally, future independent research could employ more sophisticated statistical analyses to identify potential mediators and moderators between spiritual struggles and negative psychological, behavioral, and health outcomes. Understanding the possible mediators and moderators of the connection between struggles and negative outcomes would contribute to a deeper understanding of both spirituality and its associated features. Moreover, it would set the stage for the development of targeted interventions to help people cope with and possibly even resolve spiritual struggles in an adaptive and healthy way. Evaluative studies of these spiritually
integrated interventions for coping could be most informative to researchers, clinicians, clergy, and university administrators interested in facilitating the development of college students, not only educationally, psychologically, and socially, but spiritually as well.

Despite the current results, we should not abandon efforts to employ flexible and novel approaches to computer-based intervention design, which can be cost-effective and accessible route to educate students. For example, future researchers could design a spiritually sensitive computer-based intervention to integrate the following points: 1.) Include practice exercises and practice scenarios to help deepen participants’ understanding and application of the material, 2.) Employ a multiple time point training or include regular (weekly) emails reminding students to utilize materials learned to promote application and retention; 3.) Query participants on domains of connection with others, God, and the impact of relaxation/ stress reduction on outcomes; 4.) Utilize more in-depth qualitative methodology to gain a deeper understanding of participants’ experiences; 5.) Include modules of images of God, forgiveness, and self-compassion (as well as other findings from deconstruction and mediator/moderator research); 6.) Utilize an on-line chat room where participants’ can converse with peers regarding issues of spirituality, with facilitation by a group leader; 7.) Assess outcomes immediately post-intervention as well as 6- and 12-months later to investigate the long-lasting utilization of these skills. These advances in the current design represent important additional steps in this research.

Given the detrimental impact of spiritual struggles on psychological, behavioral, and physical well-being and the power of effective psychological interventions, future research in this area is clearly needed. The field of Psychology of Religion and Spirituality should continue to devote time and energy into the development of new, creative, and flexible interventions to better promote healthy components of spirituality and limit problematic patterns of spiritual
coping. Maintaining focus and dedication to this important component of the human psyche is critical in the pursuit of greater health and well-being for all college students.
REFERENCES


Cunningham, A.J., Edmonds, C.V.I., & Williams, D (1999). Delivering a very brief psychoeducational program to cancer patients and family members in a large group format. *Psycho-oncology, 8*, 177-192.


International Personality Item Pool [IPIP]: A Scientific Collaboratory for the Development of Advanced Measures of Personality Traits and Other Individual Differences (http://ipip.ori.org/). Internet Web Site.


APPENDIX A
Modified Negative RCOPE

The following items deal with feelings that individuals may experience concerning their faith, their relationship with God, and their relationship with other people. Using the scale below, please circle the number that best describes how much you are currently experiencing each item.

*I am currently...*

<table>
<thead>
<tr>
<th>Item</th>
<th>Not At All</th>
<th>Somewhat</th>
<th>Quite A Bit</th>
<th>A Great Deal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Wondering whether God has abandoned me. <strong>D</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. Feeling punished by God for my lack of devotion. <strong>D</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. Wondering what I did for God to punish me. <strong>D</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. Questioning God’s love for me. <strong>D</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. Questioning the power of God. <strong>D</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. Wondering if God really exists. <strong>I</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. Feeling angry that God is not there for me. <strong>D</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. Questioning if religious scriptures are really the inspired word of God. <strong>I</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. Questioning the teachings of my faith. <strong>I</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. Doubting the religious scriptures of my faith. <strong>I</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. Questioning core beliefs of my church (synagogue or temple). <strong>I</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. Confused about my relationship with God. <strong>D</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. Frustrated with God. <strong>D</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14. Feeling secluded from God. <strong>D</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15. Feeling isolated from God. <strong>D</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16. Wishing that God was here for me. <strong>D</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17. Shaky and nervous when thinking about God. <strong>D</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>18. Become tense when thinking about God. *D</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19. Arguing with my parents because of our religious beliefs. *P</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20. Having problems with my friends because our religious beliefs are different. *P</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>21. Feeling isolated from members of my religious community (including congregation members, prayer groups, etc). *P</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>22. Being judged by people that I care about because of my religious beliefs. *P</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>23. Experiencing tension in my relationships with my friends and family because of differences in religious opinions. *P</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

**Notes.**
- * indicates items added to the NRCOPE
- I = intrapersonal
- D = divine
- P = interpersonal

Add items for total NRCOPE score (range 23-92)
APPENDIX B
The Shorter PROMIS Questionnaire (SPQ)

In this questionnaire certain terms are used which have general meaning attached to them. For example, “drugs” should be taken to mean cannabis, heroin, cocaine, LSD, magic mushrooms, ‘designer drugs,’ amphetamines, and other stimulants. Similarly, “alcohol” should be taken to mean beer, wine, hard liquor (e.g., vodka), mixed drinks, etc.

Each question is on a six-point scale. Please read each question carefully before answering. Circle a number on the scale to indicate the extent to which the statement is ‘Like’ you or ‘Not like’ you.

For example: Circling a ‘6’ would indicate that the statement is definitely like you. Circling a ‘1’ would indicate that the statement is definitely not like you. Circling a number between the two extremes indicates more or less agreement with one extreme. E.g., if you felt that ‘Like me’ is more appropriate than ‘Not like me’ you would circle a ‘4’ or a ‘5’.

If you think that a question is just not applicable or incomprehensible to you please answer ‘Not like me’ (‘1’).

Alcohol

4 I find that feeling light-headed is often irrelevant in deciding when to stop drinking alcohol.
18 I find that having one drink tends not to satisfy me but makes me want more.
37 After drinking alcohol, I have had a complete blank of ten minutes or more in my memory when I try to recall what I was doing on the previous day or night.
43 I use alcohol as both a comfort and a strength.
51 I tend to gulp down the first (alcoholic) drink fairly fast.
74 In my prime (or even now) I had a good head for alcohol so that others appeared to get drunk more readily than me.
82 I would find it strange to leave half a glass of (alcoholic) drink.
134 I get irritable and impatient if there is more than ten minutes conversation at a meal or social function before my host offers me an alcoholic drink.
136 I would have an alcoholic drink before going out for the evening to somewhere alcohol may not be available.
140 I often drink significantly more alcohol than I intend to.

Food Bingeing

10 I tend to think of food not so much as a satisfier of hunger but as a reward for all the stress I endure.
23 I tend to use food as both a comfort and a strength even when I am not hungry.
44 I find that being full is often irrelevant in deciding when to stop eating.
50 I find that I sometimes put on weight even when I am trying to diet.
71 Others have expressed repeated serious concern about my excessive eating.
85 I prefer to eat alone rather than in company.
95 When I have definitely eaten too much I tend to feel defiant as well as disappointed in myself.
113 I prefer to graze like a cow throughout the day rather than ever allowing myself to get hungry.
116 I have had three or more different sizes of clothes in my adult, (non-pregnant if female), wardrobe.
138 I am aware that once I have consumed certain foods I find it difficult to control further eating.
**Food Starving**

13 In a restaurant or even at home I often try to persuade others to choose dishes that I know I would like even though I would probably refuse to eat them.

34 When I eat in company I like to be with special friends or family members I can rely on to finish off some foods for me.

53 I have had a list of so many things that I dare not eat, so that there is very little left that I can eat.

57 I often chew something and then take it out of my mouth and throw it away.

100 I particularly enjoy eating raw vegetables and also salty or sour things.

109 When I am eating in company I tend to time my eating as a form of strategy so that others are not really aware of just how little I am eating.

139 I get irritable and impatient at meal times if someone tries to persuade me to eat something.

144 I often avoid meal times by claiming that I have already eaten when it is not true.

152 Some food makes me wish I could eat it like other people do but I nonetheless find that I cannot bring myself to do so.

119 When I eat something reasonably substantial I tend to feel disappointed or even angry with myself as well as slightly relieved.

**Gambling**

7 I find that the amount that I have won or lost is often irrelevant in deciding when to stop gambling or risk taking.

65 I have stolen/embezzled to cover gambling losses or to cover my losses in risky ventures.

77 It would be more painful for me to give up gambling and risk taking than it would be for me to give up a close friendship.

89 Others have expressed repeated serious concern over my gambling or risk taking.

94 I tend to accept opportunities for further gambling or risk taking despite having just completed a session or a project.

108 I prefer to gamble or to take risks in one way or another throughout the day rather than at particular times.

120 I tend to use gambling or risk-taking as a form of comfort and strength even when I do not feel that I particularly want to gamble or take further risks.

135 I would gamble or take a risk at the first opportunity in case I did not get the chance later on.

137 If my favourite form of gambling or risk taking was unavailable I would gamble on something else I normally disliked.

147 I get irritable and impatient if my prescribed medication is delayed for ten minutes in a gambling session.

**Prescription Drugs**

15 I feel an increased tension or awareness when it is coming to the time when I normally take my medication.

38 Others have expressed repeated serious concern about my use of prescription medicines.

42 I take more than the prescribed dose of my medication as and when I feel it necessary.

92 If my medical supply was being strictly controlled I would hang onto some old tablets even if they were definitely beyond their expiry date.

99 Others (e.g. Doctors) have commented that he/she would be knocked out by a fraction of the medication that I regularly take.

112 I find that my previous doses of medication are no longer successful in controlling my symptoms.

121 I continue to take medication because I find that it helps me, even though the original stresses for which the original medication was prescribed, have been resolved.

125 If I had run out of my prescribed medication I would take an alternative even if I was not sure of its effects.

153 I get irritable and impatient if my prescribed medication is delayed for ten minutes.

157 I often find myself taking more prescribed medication than I intend to.
**Recreational Drugs**

9 I particularly enjoy getting a really strong effect from recreational drugs.

24 I feel a sense of increased tension and excitement when I know that I have the opportunity to get some drugs.

41 Others have expressed repeated serious concern about aspects of my drug use.

66 I find that getting high tends to relax me so that I go on to take more drugs if they are available.

76 I tend to use drugs as both a comfort and a strength.

88 I often find that I use all of the drugs in my possession even though I had intended to spread them out over several occasions.

98 I tend to make sure that I have the drugs or the money for drugs before concentrating on other things.

141 I get irritable and impatient if my supply of drugs is delayed for ten minutes or so for no good reason.

143 I tend to use more drugs if I have got more.

159 I would use drugs before going out for an evening if I felt there might not be the opportunity to use them later.

**Sex**

2 I find it difficult to pass over an opportunity for casual or illicit sex.

20 Others have expressed repeated serious concern over my sexual behaviour.

30 I pride myself on the speed with which I can get to have sex with someone and find that sex with a complete stranger is stimulating.

70 I would take an opportunity to have sex despite having just had it with somebody else.

75 I find making a sexual conquest causes me to lose interest in that partner and leads me to begin looking for another.

90 I tend to ensure that I have sex of one kind or another rather than wait for my regular partner to be available again after an illness or absence.

110 I have had repeated affairs even though I had a regular relationship.

114 I have had three or more regular sexual partners at the same time.

128 I have had voluntary sex with someone that I dislike.

148 I tend to change partners if sex becomes repetitive.

**Tobacco**

6 I prefer to use tobacco throughout the day rather than only at specific times.

21 I tend to use tobacco as both a comfort and strength even when I feel that I don't want any.

47 I am afraid that I will put on excessive amounts of weight or become particularly irritable or depressed if I gave up using tobacco altogether.

64 I often find that having my first use of tobacco in any day tends not to satisfy me, but to make me want more.

83 I have continued to use tobacco even when I have had a bad cold or even more serious respiratory problem.

104 I find that my tobacco consumption goes up or down when I am off alcohol or drugs or when I am on a diet.

131 I would use tobacco before going out somewhere for the evening where I may not be able to use it.

132 If I ran out of my favourite tobacco, I would accept the offer of an alternative that I do not particularly like.

146 I often smoke to calm my nerves.

151 I often use tobacco significantly more than I intend to.
APPENDIX C
Deliberate Self-Harm Inventory (DSHI)

1. Have you ever intentionally (i.e., on purpose) cut, burned, scratched, bit, or otherwise harmed yourself on any part of your body (without intending to kill yourself)? YES/NO

2. If yes, then:
   a. How old were you when you first did this? ____
   b. How many times have you done this? ___
   c. When was the last time you did this? _________
   d. How many years have you been doing this (If you are no longer doing this, how many years did you do this before you stopped? ________)
   e. Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment? ___________
   f. Have you ever felt a sense of tension and excitement when you are about to harm yourself? _________
   g. Have you ever felt disappointed in yourself or guilty afterwards? __________
   h. Have you ever tried to stop but couldn’t? __________
APPENDIX D
Brief Symptom Inventory (BSI-18)
This is a list of problems people sometimes have. Please read carefully and select the answer that best describes how much that problem has distressed or bothered you during the PAST 7 DAYS INCLUDING TODAY.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Not at all</th>
<th>A little bit</th>
<th>Moderately</th>
<th>Quite a bit</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>How much were you bothered by faintness or dizziness?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>How much were you bothered by feeling no interest in things?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>How much were you bothered by nervousness or shakiness inside?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>How much were you bothered by pains in your heart or chest?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>How much were you bothered by feeling lonely?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>How much were you bothered by feeling tense or keyed up inside?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7.</td>
<td>How much were you bothered by nausea or upset stomach?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8.</td>
<td>How much were you bothered by feeling blue?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9.</td>
<td>How much were you bothered by feeling suddenly scared for no reason?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10.</td>
<td>How much were you bothered by trouble getting your breath?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11.</td>
<td>How much were you bothered by feelings of worthlessness?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12.</td>
<td>How much were you bothered by spells of terror or panic?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13.</td>
<td>How much were you bothered by numbness or tingling in parts of your body?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14.</td>
<td>How much were you bothered by feeling hopeless about the future?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15.</td>
<td>How much were you bothered by feeling so restless you couldn’t sit still?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16.</td>
<td>How much were you bothered by feeling weak in parts of your body?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17.</td>
<td>How much were you bothered by thoughts of ending your life?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18.</td>
<td>How much were you bothered by feeling fearful?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
APPENDIX E
SPIRITUAL STRUGGLES STIGMA SCALE

Please rate to what extent each of the following statements is true for you. Again, **spiritual struggles** refer to anything related to doubts or conflict with the divine, questions about your life purpose or faith tradition, or tension related to others regarding religious or spiritual issues.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I feel set apart and isolated from the rest of the world because of my spiritual struggles</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>As a rule, telling others that I experience spiritual struggles is a mistake</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>I work hard to keep my spiritual struggles a secret</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>Having spiritual struggles makes me feel that I'm a bad person</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>I feel I'm not as good as others because I experience spiritual struggles</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>Having spiritual struggles makes me feel unfaithful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7.</td>
<td>People's attitudes about spiritual struggles make me feel worse about myself</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8.</td>
<td>I feel guilty because I have spiritual struggles</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9.</td>
<td><em>I never feel ashamed of having spiritual struggles</em></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

* Reverse coded. Higher scores = more stigma
## APPENDIX F
### SPIRITUAL TRANSFORMATION SCALE

**Spiritual Transformation Scale**

Whether you are or are not spiritual or religious, please indicate the extent to which these statements are true for you as a result of your most recent experience of spiritual struggle. Again, *spiritual struggles refer to anything related to doubts or conflict with the divine, questions about your life purpose or faith tradition, or tension related to others regarding religious or spiritual issues.* Think about how you were before you experienced this spiritual struggle and how you are now. Circle the number that best describes any changes that have occurred using the following scale.

<p>| | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>It is not at all true for you</td>
<td>It is true for you a great deal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. *Spirituality has become more important to me.*
2. *My way of looking at life has changed to be more spiritual.*
3. In some ways I am more spiritually withdrawn from other people.
4. *Because of spiritual changes I’ve been through I’ve changed my priorities.*
5. *I pay more attention to things that are spiritually important and forget about the little things that used to bother me.*
6. My faith has been shaken and I am not sure what I believe.
7. *I spend more time taking care of my spiritual needs.*
8. *I pray or meditate more often.*
9. *I more often experience life around me as spiritual.*
10. I more often think that I have failed in my faith.
11. *I more often see my own life as sacred.*
12. *I have a stronger spiritual connection to other people.*
13. Spirituality seems less important to me now.
14. I am less interested in organized religion.
15. *I have a stronger spiritual connection to nature.*
16. *Spiritually I am like a new person.*
17. In some ways I have shut down spiritually.
18. *Taking care of my body has taken on spiritual meaning.*
19. *My relationships with other people have taken on more spiritual meaning.*
20. *I have a stronger sense of the Sacred (God, Higher Power, Allah, Adonai, etc.) directing my life now.*
21. *I act more compassionately towards other people since my spiritual struggle experience.*
22. In some ways I think I am spiritually lost.
23. *I see people in a more positive light.*
24. *I more often express my spirituality.*
25. *I spend more time thinking about spiritual questions.*
26. *I am more humble since my spiritual struggle experience.*
27. I feel I’ve lost some important spiritual meaning that I had before.
28. *I more often think about how blessed I am.*
29. *I have grown spiritually.
30. *I am more spiritually present in the moment.
31. *I take part in spiritual rituals more often.
32. My relationships with other people have lost spiritual meaning.
33. *I more often have a sense of gratitude.
34. *I more often pray for other people.
35. I am more spiritually wounded.
36. *My spirituality is now more deeply imbedded in my whole being.
37. *I am more receptive to spiritual care from others (e.g., prayer, healing practices, etc.)
38. *I more often look for a spiritual purpose for my life.
39. In some ways I am off my spiritual path.
40. *I’m finding it more important to participate in a spiritual community.

* Reverse coded. Higher scores = less growth
APPENDIX G
RESOURCE UTILIZATION (Specific per Intervention)

AT TIME 2, STUDENTS WHO HAVE COMPLETED THE SSI WERE ASKED:

Please answer the following question:

1. I have used the following coping strategies or resources since coming to BGSU (indicate all that apply):
   a. Self-reflection (journaling, quietly thinking about struggle, etc.)
   b. Prayer &/or meditation
   c. Talking with others about spiritual issues
   d. Reading or watching movies related to struggle
   e. Spiritual visualization
   f. Connected with my religious community
   g. Participated in a religious group on campus
   h. Connected with diversity-centered resources on campus
   i. Pursued counseling
   j. Pursued spiritual direction
   k. Went on a spiritual retreat

2. Did this help you?
   a. Yes
   b. No

3. If so, how? ______________________________________________________________

4. Any other comments about participating in this project? _________________________

AT TIME 2, STUDENTS WHO HAVE COMPLETED THE CSI WERE ASKED:

Please answer the following question:

1. I have used the following coping strategies or resources since coming to BGSU (indicate all that apply):
   a. Watched for signs that I am stressed
   b. Talked with others about stress
   c. Tried to take good care of myself (eating well, exercising, sleeping more, etc.)
   d. Tried to change the way I think about things (e.g., careful about catastrophizing, tried to stop mind-reading, tried to go easy on myself/give myself the benefit of the doubt, tried to be more grateful, etc.)
   e. Relaxed/meditated
   f. Read or watched movies related to something that stresses me
   g. Practiced positive visualizations
   h. Practiced deep breathing
   i. Participated in a academic/community service/social (sorority/fraternity) group on campus
   j. Connected with diversity-centered resources on campus
   k. Tried to get help for classes from the writing lab, librarians, math lab, etc
   l. Attended a Stress Clinic
   m. Pursued counseling
n. Attended a fun event on campus to decrease my stress

2. Did this help you?
   a. Yes
   b. No

3. If so, how? ________________________________________________________________

4. Any other comments about participating in this project? __________________________
APPENDIX H  
Perceived Stress Scale

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 circling how often you felt or thought a certain way.

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Fairly Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>In the last month, how often have you been upset because of something that happened unexpectedly?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>In the last month, how often have you felt that you were unable to control the important things in your life?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>In the last month, how often have you felt nervous and “stressed?”</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>*In the last month, how often have you felt confident about your ability to handle your personal problems?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>*In the last month, how often have you felt that things were going your way?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>In the last month, how often have you found that you could not cope with all the things that you had to do?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7.</td>
<td>*In the last month, how often have you been able to control irritations in your life?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8.</td>
<td>*In the last month, how often have you felt that you were on top of things?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9.</td>
<td>In the last month, how often have you been angered because of things that were outside of your control?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10.</td>
<td>In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

* Reverse coded. Higher scores = more stress
APPENDIX I
Neuroticism Index

The following items describe people's behaviors. Please use the rating scale below to indicate how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age. So that you can describe yourself in an honest manner, your responses will be kept in absolute confidence. Please read each item carefully!

<table>
<thead>
<tr>
<th>How accurately does this statement describe you right now?</th>
<th>Very Inaccurate</th>
<th>Moderately Inaccurate</th>
<th>Neither Inaccurate nor Accurate</th>
<th>Moderately Accurate</th>
<th>Very Accurate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Often feel blue.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. Dislike myself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Am often down in the dumps.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. Have frequent mood swings.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. Panic easily.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Am filled with doubts about things.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. Feel threatened easily.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. Get stressed out easily.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. Fear for the worst.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. Worry about things.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Very Accurate</th>
<th>Moderately Accurate</th>
<th>Neither Inaccurate nor Accurate</th>
<th>Moderately Inaccurate</th>
<th>Very Inaccurate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Seldom feel blue.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. Feel comfortable with myself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. Rarely get irritated.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. Am not easily bothered by things.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. Am very pleased with myself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. Am relaxed most of the time.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. Seldom get mad.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. Am not easily frustrated.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. Remain calm under pressure.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. Rarely lose my composure.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
APPENDIX J
GLOBAL RELIGIOUSNESS

To what extent do you agree with the following statements?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I believe in God.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>2. I believe in life after death.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>3. The Bible is God's word and everything will happen exactly as it says.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>4. The Bible is the answer to all important human problems.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>5. I see myself as a religious person.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>6. I see myself as a spiritual person.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>

1. What is your religious preference?
   - _____ Christian/Protestant
   - _____ Jewish
   - _____ Christian/Catholic
   - _____ Hindu
   - _____ Non-denominational Christian
   - _____ None
   - _____ Muslim
   - _____ Other (specify): _______________________

2. How often do you attend religious services?
   - _____ Several times a week
   - _____ Never
   - _____ Every week
   - _____ Several times a year
   - _____ About once or twice a year
   - _____ About once per month
   - _____ Less than once per year
   - _____ A few times a month
   - _____ Never

3. How often do you pray privately in places other than church or synagogue or temple?
   - _____ More than once per day
   - _____ Once a day
   - _____ A few times a week
   - _____ Once per month
   - _____ Once a week
   - _____ A few times a month
   - _____ Never
Table 1

Demographic Characteristics of Participants who Completed Time 1 Only, Complete Cases, and by Group (Spiritual, Secular, Control)

<table>
<thead>
<tr>
<th>Sample</th>
<th>Completed T1 Only</th>
<th>Complete Cases†</th>
<th>Spiritual Group</th>
<th>Secular Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=125</td>
<td>n=65</td>
<td>n=20</td>
<td>n=18</td>
<td>n=26</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>62 (79%)</td>
<td>52 (81%)</td>
<td>16 (80%)</td>
<td>12 (67%)</td>
<td>24 (92%)</td>
</tr>
<tr>
<td>Male</td>
<td>16 (21%)</td>
<td>12 (19%)</td>
<td>4 (20%)</td>
<td>6 (33%)</td>
<td>2 (8%)</td>
</tr>
<tr>
<td>Unknown††</td>
<td>47</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>110 (88%)</td>
<td>60 (94%)</td>
<td>19 (95%)</td>
<td>18 (100%)</td>
<td>23 (88%)</td>
</tr>
<tr>
<td>African American</td>
<td>12 (10%)</td>
<td>3 (5%)</td>
<td>1 (5%)</td>
<td>0 (0%)</td>
<td>2 (8%)</td>
</tr>
<tr>
<td>Latino/ Hispanic</td>
<td>1 (1%)</td>
<td>1 (1%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>1 (4%)</td>
</tr>
<tr>
<td>Asian</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Other</td>
<td>2 (2%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Religious Affiliation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buddhist</td>
<td>1 (1%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Christian/Catholic</td>
<td>49 (39%)</td>
<td>20 (32%)</td>
<td>7 (35%)</td>
<td>6 (33%)</td>
<td>7 (27%)</td>
</tr>
<tr>
<td>Christian/Protestant</td>
<td>26 (21%)</td>
<td>17 (27%)</td>
<td>5 (25%)</td>
<td>5 (28%)</td>
<td>7 (27%)</td>
</tr>
<tr>
<td>Christian - Other</td>
<td>28 (22%)</td>
<td>14 (22%)</td>
<td>3 (15%)</td>
<td>2 (11%)</td>
<td>9 (35%)</td>
</tr>
<tr>
<td>Hindu</td>
<td>1 (1%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Jewish</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Muslim</td>
<td>0 (0%)</td>
<td>1 (2%)</td>
<td>0 (0%)</td>
<td>1 (6%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>None</td>
<td>18 (14%)</td>
<td>11 (17%)</td>
<td>4 (20%)</td>
<td>4 (22%)</td>
<td>3 (12%)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (1%)</td>
<td>1 (2%)</td>
<td>1 (5%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

† Complete cases refer to participants who completed all study requirements and included in the final analysis
†† Due to technical difficulties, gender was not a required field on the Time 1 survey but was changed to a required field in the Time 2 survey, therefore Time 1 Only participants who skipped this question comprise of the “unknown” category. This was excluded from total percentages for this category in Time 1 Only.
Table 2.

Descriptive Data for All Measures in Total Sample (Complete Cases) and by Treatment Group (Spiritual, Secular, Control)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Range</th>
<th>Total Sample (n=65)</th>
<th>Spiritual Group (n=20)</th>
<th>Secular Group (n=16)</th>
<th>Control Group (n=26)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Time 1</td>
<td>Time 2</td>
<td>Time 1</td>
<td>Time 2</td>
</tr>
<tr>
<td>Global Religiousness</td>
<td>6-24</td>
<td>16.9 (2.8)</td>
<td>16.7 (0.9)</td>
<td>17.9 (1.6)</td>
<td>16.7 (0.5)</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>20-100</td>
<td>55.8 (25.3)</td>
<td>59.6 (29.4)</td>
<td>54.5 (25.8)</td>
<td>58.7 (30.2)</td>
</tr>
<tr>
<td>Perceived Stress</td>
<td>0-36</td>
<td>2.1 (.60)</td>
<td>2.3 (0.5)</td>
<td>2.1 (0.4)</td>
<td>2.0 (0.6)</td>
</tr>
<tr>
<td>NRCOPE</td>
<td>23-92</td>
<td>31.6 (8.1)</td>
<td>30.7 (9.0)</td>
<td>31.9 (11.2)</td>
<td>33.6 (12.4)</td>
</tr>
<tr>
<td>Stigma</td>
<td>9-36</td>
<td>14.1 (4.2)</td>
<td>12.8 (3.7)</td>
<td>15.4 (0.5)</td>
<td>14.7 (0.9)</td>
</tr>
<tr>
<td>Distress</td>
<td>0-72</td>
<td>13.8 (4.4)</td>
<td>16.2 (1.3)</td>
<td>12.0 (2.8)</td>
<td>13.3 (1.9)</td>
</tr>
<tr>
<td>STS</td>
<td>40-280</td>
<td>128.8 (77.0)</td>
<td>119.3 (71.6)</td>
<td>131.5 (81.7)</td>
<td>123.5 (76.0)</td>
</tr>
<tr>
<td>Self-Harm</td>
<td>0-3</td>
<td>0.19 (.30)</td>
<td>0.20 (.31)</td>
<td>0.15 (.27)</td>
<td>0.19 (.28)</td>
</tr>
<tr>
<td>SPQ (Total)</td>
<td>96-576</td>
<td>123.4 (73.0)</td>
<td>126.6 (76.8)</td>
<td>128.6 (79.6)</td>
<td>130.0 (80.6)</td>
</tr>
<tr>
<td>Alcohol</td>
<td>12-72</td>
<td>18.4 (3.0)</td>
<td>21.4 (2.4)</td>
<td>16.9 (0.6)</td>
<td>19.6 (2.5)</td>
</tr>
<tr>
<td>Food Bingeing</td>
<td>12-72</td>
<td>20.0 (3.0)</td>
<td>19.6 (1.1)</td>
<td>21.5 (3.9)</td>
<td>21.3 (3.8)</td>
</tr>
<tr>
<td>Food Starving</td>
<td>12-72</td>
<td>17.7 (3.0)</td>
<td>17.9 (0.0)</td>
<td>19.2 (2.3)</td>
<td>18.9 (2.1)</td>
</tr>
<tr>
<td>Gambling</td>
<td>12-72</td>
<td>12.2 (5.5)</td>
<td>12.3 (4.0)</td>
<td>11.4 (3.3)</td>
<td>12.3 (2.6)</td>
</tr>
<tr>
<td>Prescription Drugs</td>
<td>12-72</td>
<td>13.3 (4.8)</td>
<td>14.6 (2.4)</td>
<td>13.3 (1.9)</td>
<td>13.0 (2.1)</td>
</tr>
<tr>
<td>Recreational Drugs</td>
<td>12-72</td>
<td>13.7 (4.4)</td>
<td>12.2 (4.1)</td>
<td>15.4 (0.4)</td>
<td>14.4 (1.1)</td>
</tr>
<tr>
<td>Sex</td>
<td>12-72</td>
<td>13.8 (4.4)</td>
<td>14.8 (2.3)</td>
<td>14.7 (0.9)</td>
<td>14.3 (1.2)</td>
</tr>
<tr>
<td>Tobacco</td>
<td>12-72</td>
<td>14.4 (4.1)</td>
<td>13.8 (3.0)</td>
<td>16.2 (0.1)</td>
<td>16.1 (0.1)</td>
</tr>
</tbody>
</table>

Note: Negative Religious Coping scale (NRCOPE) measured spiritual struggles; the Spiritual Transformation Scale (STS) measures perceived spiritual growth; the Shorter PROMIS Questionnaire (SPQ) measured overall addiction. Numbers in parenthesis represent the standard deviation.
Table 3

*Pearson r Correlations Between Δ Scores in Potential Covariates and Dependent Variables in Sample*

<table>
<thead>
<tr>
<th>Scale</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Global Religiousness †</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2. Neuroticism †</td>
<td>.06</td>
<td>-</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>3. Perceived Stress †</td>
<td>-.02</td>
<td>-.09</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4. NRCOPE</td>
<td>.02</td>
<td>.26*</td>
<td>.14</td>
<td>-</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>5. Stigma</td>
<td>.30*</td>
<td>.25</td>
<td>.12</td>
<td>.33*</td>
<td>-</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>6. Distress</td>
<td>-.01</td>
<td>.06</td>
<td>.26**</td>
<td>.17</td>
<td>.04</td>
<td>-</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7. STS</td>
<td>.03</td>
<td>.05</td>
<td>.12</td>
<td>.08</td>
<td>.05</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Self-Harm</td>
<td>.17</td>
<td>-.10</td>
<td>.08</td>
<td>-.09</td>
<td>-.12</td>
<td>.10</td>
<td>.04</td>
<td>-</td>
<td></td>
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<tr>
<td>9. SPQ</td>
<td>.21</td>
<td>.03</td>
<td>.11</td>
<td>.25</td>
<td>.16</td>
<td>.43**</td>
<td>.38**</td>
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<td>10. Alcohol</td>
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<td>.20</td>
<td>.14</td>
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<td>.11</td>
<td>.31*</td>
<td>.17</td>
<td>.02</td>
<td>.67**</td>
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<tr>
<td>11. Food Bingeing</td>
<td>.02</td>
<td>.04</td>
<td>.11</td>
<td>.29*</td>
<td>.30*</td>
<td>.42*</td>
<td>.13</td>
<td>-.12</td>
<td>.69**</td>
<td>.25</td>
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<tr>
<td>12. Food Starving</td>
<td>-.03</td>
<td>-.09</td>
<td>.26**</td>
<td>.20</td>
<td>.05</td>
<td>.26*</td>
<td>.33**</td>
<td>.02</td>
<td>.69**</td>
<td>.17</td>
<td>.43**</td>
<td>-</td>
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<td>13. Gambling</td>
<td>-.03</td>
<td>-.22</td>
<td>.12</td>
<td>.05</td>
<td>.05</td>
<td>.31*</td>
<td>.28*</td>
<td>.01</td>
<td>.66**</td>
<td>.33*</td>
<td>.16</td>
<td>.04</td>
<td>-</td>
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<td>14. Prescription Drugs</td>
<td>.17</td>
<td>-.11</td>
<td>.12</td>
<td>.19</td>
<td>.01</td>
<td>.38*</td>
<td>.35*</td>
<td>-.02</td>
<td>.71**</td>
<td>.08</td>
<td>.38**</td>
<td>.10</td>
<td>.05</td>
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<tr>
<td>15. Recreational Drugs</td>
<td>.10</td>
<td>.24</td>
<td>-.09</td>
<td>.21</td>
<td>.19</td>
<td>.17</td>
<td>.21</td>
<td>.19</td>
<td>.61**</td>
<td>.26*</td>
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<td>.06</td>
<td>.25</td>
<td>.05</td>
<td>-</td>
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<td>16. Sex</td>
<td>.06</td>
<td>.21</td>
<td>-.02</td>
<td>.17</td>
<td>.12</td>
<td>.45*</td>
<td>.37**</td>
<td>-.04</td>
<td>.82**</td>
<td>.02</td>
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<td>.057</td>
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<td>17. Tobacco</td>
<td>.12</td>
<td>-.24</td>
<td>.00</td>
<td>.17</td>
<td>.03</td>
<td>.00</td>
<td>.27*</td>
<td>.28</td>
<td>.54**</td>
<td>.08</td>
<td>.01</td>
<td>.03</td>
<td>-.18</td>
<td>.05</td>
<td>.12</td>
<td>-.08</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: Negative Religious Coping scale (NRCOPE) measured spiritual struggles; the Spiritual Transformation Scale (STS) measures perceived spiritual growth; the Shorter PROMIS Questionnaire (SPQ) measured overall addiction.

†Variables used as covariates in subsequent ANCOVA analyses

*p < .05. **p < .01
Table 4

Analysis of Variance (ANOVA) for Outcome Measures as a Function of Group and Time

<table>
<thead>
<tr>
<th>Scale</th>
<th>Group Main Effect</th>
<th>Time Main Effect</th>
<th>Group X Time Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRCOPE</td>
<td>$F(2,127) = .84, p=NS$</td>
<td>$F(2,127) = .12, p=NS$</td>
<td>$F(3,127) = .10, p=NS$</td>
</tr>
<tr>
<td>Distress</td>
<td>$F(2,127) = .98, p=NS$</td>
<td>$F(2,127) = .25, p=NS$</td>
<td>$F(3,127) = .31, p=NS$</td>
</tr>
<tr>
<td>Stigma</td>
<td>$F(2,127) = .78, p=NS$</td>
<td>$F(2,127) = .81, p=NS$</td>
<td>$F(3,127) = 1.74, p=NS$</td>
</tr>
<tr>
<td>STS</td>
<td>$F(2,127) = 3.47, p=.035$</td>
<td>$F(2,127) = .12, p=NS$</td>
<td>$F(3,127) = .22, p=NS$</td>
</tr>
<tr>
<td>Self-Harm</td>
<td>$F(2,127) = .10, p=NS$</td>
<td>$F(2,127) = .03, p=NS$</td>
<td>$F(3,127) = .08, p=NS$</td>
</tr>
<tr>
<td>SPQ</td>
<td>$F(2,127) = .41, p=NS$</td>
<td>$F(2,127) = .11, p=NS$</td>
<td>$F(3,127) = .19, p=NS$</td>
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<tr>
<td>Alcohol</td>
<td>$F(2,127) = .11, p=NS$</td>
<td>$F(2,127) = .40, p=NS$</td>
<td>$F(3,127) = 1.34, p=NS$</td>
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<tr>
<td>Food Binge</td>
<td>$F(2,127) = .1.1, p=NS$</td>
<td>$F(2,127) = .54, p=NS$</td>
<td>$F(3,127) = .08, p=NS$</td>
</tr>
<tr>
<td>Food Starve</td>
<td>$F(2,127) = .35, p=NS$</td>
<td>$F(2,127) = .01, p=NS$</td>
<td>$F(3,127) = .22, p=NS$</td>
</tr>
<tr>
<td>Gambling</td>
<td>$F(2,127) = .26, p=NS$</td>
<td>$F(2,127) = .28, p=NS$</td>
<td>$F(3,127) = .02, p=NS$</td>
</tr>
<tr>
<td>Prescription</td>
<td>$F(2,127) = .66, p=NS$</td>
<td>$F(2,127) = .03, p=NS$</td>
<td>$F(3,127) = .01 p=NS$</td>
</tr>
<tr>
<td>Drugs</td>
<td>$F(2,127) = .83, p=NS$</td>
<td>$F(2,127) = .01, p=NS$</td>
<td>$F(3,127) = .08, p=NS$</td>
</tr>
<tr>
<td>Recreational</td>
<td>$F(2,127) = .18, p=NS$</td>
<td>$F(2,127) = .16, p=NS$</td>
<td>$F(3,127) = .21, p=NS$</td>
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<tr>
<td>Drugs</td>
<td>$F(2,127) = .65, p=NS$</td>
<td>$F(2,127) = .02, p=NS$</td>
<td>$F(3,127) = .62, p=NS$</td>
</tr>
</tbody>
</table>

Note: Negative Religious Coping scale (NRCOPE) measured spiritual struggles; the Spiritual Transformation Scale (STS) measures perceived spiritual growth; the Shorter PROMIS Questionnaire (SPQ) measured overall addiction.
Table 5

*Analysis of Covariance (ANCOVA) for Outcome Measures as a Function of Group and Time*

<table>
<thead>
<tr>
<th>Scale</th>
<th>Group Main Effect</th>
<th>Time Main Effect</th>
<th>Group X Time Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRCOPE†</td>
<td>(F(2,127) = 1.15, p=NS)</td>
<td>(F(2,127) = .11, p=NS)</td>
<td>(F(3,127) = .06, p=NS)</td>
</tr>
<tr>
<td>Distress§</td>
<td>(F(2,127) = .98, p=NS)</td>
<td>(F(2,127) = .25, p=NS)</td>
<td>(F(3,127) = .31, p=NS)</td>
</tr>
<tr>
<td>Stigma €</td>
<td>(F(2,127) = .72, p=NS)</td>
<td>(F(2,127) = .71, p=NS)</td>
<td>(F(3,127) = 1.65, p=NS)</td>
</tr>
<tr>
<td>Alcohol €</td>
<td>(F(2,127) = .63, p=NS)</td>
<td>(F(2,127) = .52, p=NS)</td>
<td>(F(3,127) = 1.40, p=NS)</td>
</tr>
<tr>
<td>Food Bingeing‡§</td>
<td>(F(2,127) = 1.70, p=NS)</td>
<td>(F(2,127) = .00, p=NS)</td>
<td>(F(3,127) = .03, p=NS)</td>
</tr>
<tr>
<td>Food Starving‡§</td>
<td>(F(2,127) = .60, p=NS)</td>
<td>(F(2,127) = .30, p=NS)</td>
<td>(F(3,127) = .32, p=NS)</td>
</tr>
<tr>
<td>Tobacco€</td>
<td>(F(2,127) = .80, p=NS)</td>
<td>(F(2,127) = .00, p=NS)</td>
<td>(F(3,127) = .56, p=NS)</td>
</tr>
</tbody>
</table>

*Note: Negative Religious Coping scale (NRCOPE) measured spiritual struggles*

† Covariate: Neuroticism

€ Covariate: Global Religiousness

§ Covariate: Perceived Stress