

Religiosity and Spirituality as Resiliency Resources:

Moderation, Mediation, or Moderated Mediation?

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Abstract

A growing body of literature indicates a modestly positive association between religiosity and spirituality as predictors of psychological health (anxiety and depression), suggesting they serve as personal resiliency factors. The purpose of this study was to expand our understanding of the relationships among these constructs. Using Lazarus' Transactional Model of Stress as a theoretical framework, we examined a) the extent to which spirituality and religiosity mediated and/or moderated the association between perceived stress and psychological health, and b) whether there was a moderated (religiosity) mediation (spirituality) between stress and health. The Perceived Stress Scale, Daily Spiritual Experiences Scale, Religious Commitment Inventory, and Hospital Anxiety and Depression Scale were administered to measure the following constructs: stress, spirituality, religiosity, and psychological health. This study utilized a non-experimental, quantitative, correlational, cross-sectional, moderated-mediation design, and included a convenience sample of 331 research participants. Both spirituality and religiosity moderated stress and health. However, only spirituality (not religiosity) partially mediated the relationship. In addition, religiosity did not moderate the mediating effects of spirituality. Overall, this study confirmed the role of both religiosity and spirituality as effective resiliency resources.

Introduction

Over the past several decades, a growing body of evidence suggests a modest association between religiosity / spirituality and psychological health, which in the current study was conceptualized as symptoms of anxiety and depression (e.g., Koenig, McCullough, & Larson, 2001). This premise is consistent with Lazarus' Transactional Model of Stress, in which various resources mitigate the relationship between stress and negative outcome. However, the bulk of this research has focused on the traditional construct of religiosity rather than the emergent construct of spirituality. In the present study we operationally define spirituality as ordinary, everyday spiritual experiences which transcend specific religious traditions, orientations, or denominations, and we measure this construct with the Daily Spiritual Experiences Scale. We further define religiosity as the degree to which a person adheres to religious values, beliefs, and practices, and we measure this construct with the Religious Commitment Inventory. Under these definitions and within these measures, spirituality is conceptualized as an internal, personal, subjective and private experience that can be present at all levels of religiosity, while religiosity is conceptualized in terms of collective, institutional, visible and public factors; thus, not all religious individuals are spiritual, and not all spiritual individuals are religious. It is currently unknown to what extent the traditional research regarding religiosity and psychological health applies to spirituality. This breach in the empirical record is especially relevant for a growing segment of society which describes itself as spiritual but not religious (Zinnbauer & Pargament, 2005).

In addition, little research has been conducted which examines the role of religiosity within the relationship between spirituality and psychological health. It is not clearly understood

how spirituality characterized by high levels of religiosity relates to stress in comparison to spirituality characterized by low levels of religiosity. For example, if spirituality in general is associated with psychological health, then what can be expected from spiritual and highly religious individuals?

Thus, the purpose of this cross-sectional, correlational study was to examine the extent to which spirituality partially mediates the association between perceived stress and psychological health, and to further examine the extent to which religiosity interacts with spirituality.

Stress and Psychological Health

There are myriad studies examining the effects of stress on psychological health. Although many studies focus on specific significant stressors, such as war or illness, the general population is more likely to be accurately assessed with measures of perceived stress. Lazarus and Folkman (1984) defined psychological stress as “a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources” (p. 19). Thus, subjective appraisal/perception plays a primary role in the experience of stress. Although stress is distinct from anxiety and depression (i.e., psychological health in this study), stress may lead to these symptoms if the individual is unable to effectively deal with the stressor.

Depression and anxiety symptoms involve a spectrum of affective, cognitive, and somatic components. Anxiety is experienced as prolonged and unmanageable apprehension which is highly disproportionate to the actual probability or impact of that which is feared. Depression is experienced as “loss of interest or pleasure in nearly all activities” (APA, 2000, p. 349). Furthermore, these symptoms are sufficiently severe to provoke “clinically significant distress” (APA, 2000, p. 476) or impairment in major domains of basic life functioning, such as

vocational or academic pursuits. The present study focuses on symptoms of both anxiety and depression and their relationship to stress, religiosity and spirituality.

Religiosity and Spirituality as Resiliency Resources

Decades of research now suggest the relationship between stress and psychological health is not linear. Rather, beginning with Lazarus and Folkman (1984), the presence or absence of resources is shown to play an important role in determining the ultimate outcomes of stress. Numerous studies indicate religiosity in particular may act as a resiliency resource precisely due to the social support systems associated with active participation in a religious community. For example, Mann, Mannan, Quiñones, Palmer, and Torres (2010) found both social support and religiosity moderately correlated (r 's = .30 to .45) with the perceived stress of pregnant and postpartum individuals, while Hass and Walter (2007) reported comparable outcomes among grieving parents in their qualitative study. Commerford and Reznikoff (1996) found in their sample of nursing home residents that those who attended church weekly scored higher on family social support than those who did not, and that regular church attendees were less likely to be depressed than irregular attendees. These investigators further reported that church attendance predicted 18% of the variance in symptoms of depression, yet private religious activity accounted for only 6%.

Similarly, Hayward, Owen, Koenig, Steffens, and Payne (2012) found that greater frequency of church attendance was associated with a lower likelihood of symptoms of depression (OR = 0.67), but private religious activity was related to a higher likelihood (OR = 1.21). When social support was added to the model, frequency of church attendance was dropped, suggesting it is the social support associated with the church attendance that serves as a protective factor. In a meta-analysis of the relationship between religiosity and symptoms of

depression, Smith, McCullough and Poll (2003) found that this association between religiosity and social support was stronger among individuals who were undergoing stress (weighted mean r 's = -.0.71 for minimal stress, -.141 for mild to moderate, and -.152 for severe stress), further supporting the role of religiosity as a resiliency factor in times of stress.

More recently, Gall, Charbonneau, Clarke, Grant, Joseph and Shouldice (2005) utilized Lazarus' Transactional Theory and decades of research to conceptualize spirituality as yet another distinct resource. For example, spiritual causal attributions have been associated with more efficient coping and adjustment to negative life events (e.g, Pargament, 1997). Carlson, Bacaseta, and Simanton (1998) found in a randomized controlled trial spiritually-oriented meditation was more efficacious in reducing levels of anger, anxiety, and tension than non-spiritual relaxation techniques.

Spiritual attachments have been particularly recognized as an efficacious resource for stress. For example, Maton (1989) found perceived support from divinity was associated with fewer symptoms of depression ($r = -.33$) and greater self-esteem ($r = .42$) among individuals experiencing high levels of stress. In addition, Rowatt and Kirkpatrick (2002) found an anxious attachment to God was a significant predictor of positive affect ($\beta = -.14$) and negative affect ($\beta = 0.17$). Similarly, in qualitative studies, relationships with divinity have been associated with elevations in comfort, social support, sense of belonging, empowerment, and control—as well as reductions in emotional distress and specific fears (e.g., Gall & Cornblat, 2002; Siegel & Schrinshaw, 2002). Finally, relationships with divinity have also been associated with increased optimism, hope, inner strength, and self-actualization (e.g., Gall, Miguez de Renart, & Boonstra, 2000; Gaskins & Forte, 1995; Highfield, 1992; Park & Cohen, 1993).

In general, the relationship between spirituality and psychological health has been stronger than the relationship between religiosity and psychological health (see Nelson et al., 2009). Nelson, Jacobson, Weinberger, Bhaskaran, Rosenfeld, Breitbart and Roth (2009) attempted to understand these findings in their study of men with prostate cancer. These investigators hypothesized spirituality would mediate the relationship between religiosity and symptoms of depression. In addition, they further hypothesized this mediation would explain the consistently stronger relationship between spirituality and symptoms of depression versus the relationship between religiosity and symptoms of depression, as found in the literature. Their findings were supported by a meaning subscale of spirituality ($\beta = -.29$); they concluded holding strong religious beliefs was only helpful in reducing symptoms of depression among those who find meaning in their religion.

Our question, alternatively, is the following: “Does having a structure (religion) where to place one’s spirituality enhance its effects as a resiliency resource?” Essentially, given the findings that both spirituality and religiosity relate to psychological health, that they are especially useful in times of stress, and that they can be considered distinct constructs, we sought to determine how these two resources work together to protect individuals from the effects of stress. The following flowchart depicts the hypothesized relationship among stress, spirituality, religiosity, and psychological health (Figure 1).

[Figure 1 goes here]

First, and in accordance with the literature, it was hypothesized spirituality would partially mediate the relationship between stress and psychological health. Secondly, it was further hypothesized religiosity would moderate the relationship between spirituality and psychological health—a novel assumption not yet tested in the literature. In other words,

differential levels of religiosity would determine the specific strength of the relationship between spirituality and psychological health. More specifically, it was hypothesized higher levels of religiosity would result in a more robust association between spirituality and psychological health than lower levels of religiosity.

The moderating effect of religiosity on spirituality may have both theoretical and practical implications, especially during an age in which interest in spirituality has increased while religiosity is in a state of decline (Zimbauer & Pargament, 2005).

Methods

Participants

Prospective participants were identified from the following three sources: the staff directory of a residential treatment facility for delinquent and troubled youth; various congregational directories from a conservative Protestant denomination; and personal email and social-networking listings. Contacts from each of these sources were emailed a brief description of this research, including an invitation to participate. This description comprised references to the purpose, procedures, and potential risks / benefits of this research, as well as explanations of the anonymous and voluntary nature of any potential participation. In addition, the invitation included two separate internet links: one link for potential participants to access the research study, and another link to decline participation and remove their email address from the contact list. The participation link directed the viewer to a 61-question survey which included the following items: Informed Consent; Perceived Stress Scale; Daily Spiritual Experiences Scale; Hospital Anxiety and Depression Scales; Religious Commitment Scale; and Demographic Questionnaire. Since participation in this study was anonymous, it was not necessary for the respondents to sign or return the informed consent documents. The university Institutional

Ethics Review Board approved of this project prior to the commencement of any research proceedings.

A total of 343 respondents entered the online survey and selected the consent screen, with 331 subjects completing the survey from 25 different states within the U.S., in addition to the Republic of China. Since all of the Chinese participants were college students pursuing English-language studies, it was not necessary to translate any of the scales. Thus, the entire survey was administered in English to all respondents. Consistent with Lazarus' Transactional Model of Stress, multiple regression analyses were utilized to assess the extent to which spirituality mediated the relationship between perceived stress and psychological health, and to further assess the extent to which religiosity moderated this relationship.

Measures

Daily Spiritual Experiences Scale. The Daily Spiritual Scale (DSES) was developed to provide a measure of ordinary, everyday spiritual experiences which transcend specific religious traditions, orientations, or denominations. The DSES consists of 16 items; scores range from 16 to 92, with higher scores indicating higher levels of spirituality. Underwood and Teresi (2002) reported test-retest reliability = .85; intra-class correlation coefficient for internal reliability = .73; Cronbach's alpha estimate of internal reliability = .91 - .95; and inter-rater reliability = .64 - .78. Underwood and Teresi (2002) confirmed the concurrent validity of the DSES with a number of instruments, including the State-Trait Anxiety Inventory, Cohen Perceived Stress Scale, Scheirer's Optimism Scale, Berkman's Scale of Perceived Social Support, and the Watson and Clark Positive and Negative Affect Scale. Within this current study, the DSES demonstrated high internal consistency (Cronbach's alpha = .95).

Religious Commitment Inventory. The Religious Commitment Inventory (RCI) was

developed by Worthington (1988) to measure “the degree to which a person adheres to his or her religious values, beliefs, and practices.” The RCI consists of 10 items; scores range from 10 to 50, with higher scores indicating higher levels of religious commitment. These researchers reported the RCI’s internal consistency across various populations, with Cronbach’s alpha coefficients as high as .95 and .98, and further confirmed the RCI’s construct and criterion validity. Worthington, Wade, Hight, Ripley, McCullough, Berry et al. (2003) also demonstrated the RCI’s reliability across groups both inside and outside of the Judeo-Christian tradition (i.e., Judaism, Buddhism, Hinduism, Islam, and Christianity), with consistent internal consistencies across all five populations, as reflected by Cronbach’s alpha coefficients ranging from .92 to .98, with a mean of .95. Within this current study, the RCI demonstrated high internal consistency (Cronbach’s alpha = .94).

The Perceived Stress Scale. The Perceived Stress Scale (PSS) consists of 10 items; scores range from 10 to 50, with higher scores indicating higher levels of stress. The PSS was originally developed by Cohen in 1983 to address several major limitations of more objective measures of stress. For example, contemporary research suggests the cognitive and affective interpretations of life events are better predictors of experiential stress than the particular event itself (e.g., Lazarus & Folkman, 1984). Thus, Cohen created a more subjective measure based on the following three appraisals: unpredictability, uncontrollability, and overloading. Several studies have documented various psychometric properties of the PSS. For example, Roberti, Harrington, and Storch (2006) reported a Cronbach’s alpha coefficient of .89; a Pearson product-moment correlation between the PSS and the State-Trait Anxiety Inventory of .73; and negligible Pearson product-moment correlations between the PSS and various unrelated measures. Within this current study, the PSS demonstrated reasonable internal consistency (Cronbach’s alpha =

.75). Although this instrument correlates highly with assessments for depression, it has been found to measure a distinct construct (Cohen et al., 1983).

Hospital Anxiety and Depression Scale. The Hospital Anxiety and Depression Scale (HADS) was developed by Zigmond and Snaith (1983). Since the HADS was specifically designed for use within hospital settings, this instrument is highly regarded for its diagnostic clarity (Bjelland, Dahl, Haug, & Neckelmann, 2002), yet has demonstrated usefulness in general and community settings. The HADS contains two sub-scales, each of which includes seven items: The first sub-scale addresses symptoms of anxiety while the second sub-scale comprises symptoms of depression. The possible scores range from 14 to 56, with higher scores indicating higher levels of psychological discomfort. Numerous studies have documented various psychometric properties of the HADS. For example, Bjelland et al. (2002) noted 747 scholarly articles in their psychometric review of this instrument. In particular, these researchers reported good internal consistencies throughout the literature, with Cronbach's alpha coefficients ranging from .68 to .93 ($M = .83$) for the Anxiety Sub-Scale, and with the same coefficients ranging from .67 to .90 ($M = .82$) for the Depression Sub-Scale. In terms of concurrent validity, these researchers reported correlation coefficients with comparable instrumentation ranging between .67 and .73. Furthermore, these researchers found that factorial analysis discriminated between both sub-scales across age, sex, and marital status—which is psychometrically significant, since symptoms of anxiety and depression are highly interrelated and often difficult to differentiate (e.g., APA, 2000). The HADS has also been validated across the lifespan, with a number of studies focusing specifically on both adolescent and geriatric populations (e.g., Leach, White, Sims, & Cottrell, 2000). Within this current study, the HADS demonstrated satisfactory internal consistency (Cronbach's alpha = .85).

Data Analysis Procedures

MODMED, a specialized program to compute moderated-mediation analysis, calculates the conditional indirect effect of an independent variable (e.g., perceived stress) upon the dependent variable (e.g., psychological health) through a mediating variable (e.g., daily spiritual experiences) as conditioned by a moderating variable (e.g., levels of religiosity). The influence of the moderating variable can be assessed in terms of the path from independent variable to mediator (e.g., the relationship between stress and spirituality) and/or the path from mediator to dependent variable (e.g., the relationship between spirituality and psychological health). Since the latter relationship was more germane to this design, only the moderating effect of religiosity upon the path between spirituality and psychological health was evaluated in this analysis. The MODMED program utilizes the Sobel test to calculate the conditional indirect effect as well as percentile-based, bias-corrected, and accelerated bootstrap confidence intervals for the conditional indirect effect. While the Sobel test can be considered conservative since it assumes a symmetrical distribution, this procedure remains well-utilized as a test for mediation (MacKinnon, Warsi, & Dwyer, 1995).

Results

Demographic Overview

A total of 1,077 individuals were invited to participate in this research through vocational, congregational, and social-networking directories. Within this potential participant pool, 343 individuals responded to the research survey by entering the site and proceeding with the informed consent agreement. Of these individuals, 331 completed the survey, resulting in a 30.7% response rate. Consistent with comparable research noted in the literature (e.g., Young, Cashwell & Shcherbakova, 2000), this study was a sample of convenience. The 331 respondents represented a wide variety of demographic backgrounds, which included diversity in age,

relationship status, income, academic attainment, and geographic location. See Table 1 for detailed demographic information.

[Table 1 goes here.]

The ages of the respondents ranged from 18 to 85 years, with a mean age of 39. Almost twice as many females participated in this research as males. Respondents hailed from 25 different states (Arizona, California, Connecticut, Colorado, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New York, Ohio, Oregon, Pennsylvania, Tennessee, Texas, Vermont, and Wisconsin) in addition to the Republic of China. A significant proportion of the respondents (18%) identified themselves as racial and/or ethnic minorities (i.e., of African, Asian, Hispanic, or Indigenous descent). While 58% of the participants identified themselves as Protestant Christian, the following backgrounds were additionally reported: Agnostic, Atheist, Buddhist, Hindu, Islam, Jewish, and Pagan. The following Christian affiliations were also identified in addition to Protestantism: Anabaptist, Eastern Orthodox, Christian Gnostic, Roman Catholic, and non-denominational. The majority of the respondents identified themselves as married (65%), Caucasian (78%), Protestant (58%), and college-educated (78%), with high religious attendance.

In this study, low religious attendance was defined as corporate worship which occurred once per month or less, while high religious attendance was defined as corporate worship which occurred at least once per week.

Data Cleaning

Because data were collected through an online questionnaire with forced response options, it was not necessary to examine data for out of range values or other data entry errors.

Participants were required to answer all items, with the available option of “prefer not to respond.” Therefore, there is no missing data; however, there were instances in which participants chose this final selection instead of providing a response to one of the test options. The number of times this option was selected ranged from 0 to 36, with the highest number on the DSES item “I experience a connection to all life.” Two outliers (scores greater than 3.5 standard deviations from the mean) were identified in the dataset for the HADS, and one for the PSS; in these three cases, the scores were replaced with a score 1 point higher than the highest, non-outlier score. This procedure preserved the participants’ data and maintained their place at the highest point of the distribution. After this substitution, skewness was PSS (.285), HADS (1.02), DSE (-1.02) and RCI (-1.13), while kurtosis was PSS (.552), HADS (1.03), DSE (.698) and RCI (.331). As a whole, participants scored high on spirituality and religiosity and low on symptoms of depression and anxiety.

Descriptive Analyses

Based on HADS cutoff scores, more participants reported moderate levels of symptoms of anxiety (60.76%) than mild (18.40%) or severe (20.84%). In addition, more participants reported mild levels of symptoms of depression (48.67%) than moderate (30.67%) or severe (20.66%). The means and standard deviations of perceived stress, psychological health, spirituality and religiosity were calculated for the following sub-groupings: gender, race, age, academic attainment, relationship status, religious affiliation, and frequency of attendance (Table 2).

[Table 2 goes here]

Hypothesis Testing

Pearson product-moment correlation coefficients indicated a moderate, positive correlation between the PSS and the HADS (Full Scale: $r = .43, p < .001$; Depression subscale: $r = .21, p < .001$; Anxiety subscale: $r = .48, p < .001$); a modest, negative correlation between the DSES and the HADS (Full Scale: $r = -.33, p < .001$; Depression subscale: $r = -.25, p < .001$; Anxiety subscale: $r = -.34, p < .001$); and a modest, negative correlation between the RCI and the HADS (Full Scale: $r = -.27, p < .001$; Depression subscale: $r = -.19, p < .001$; Anxiety subscale: $r = -.29, p < .001$). The correlation between the DSES and RCI was high ($r = .76, p < .001$). The correlation between the Depression and Anxiety subscales of the HADS was moderate ($r = .45, p < .001$); therefore, we ran all analyses with the full scale HADS first and then the two subscales.

Mediation

The mediation macro INDIRECT was selected for this procedure (Preacher & Hayes, 2008), which estimates the total, direct, and indirect effects of the independent variable (i.e., perceived stress) on the dependent variables (HADS full scale, Depression subscale, and Anxiety subscale) through a proposed mediator (i.e., daily spiritual experiences). This macro further calculates the Sobel test for the total and specific indirect effects, as well as percentile-based and bias-corrected bootstrap confidence intervals. Finally, this macro also computes estimates of all possible paths utilizing ordinary least squares regression.

According to Baron and Kenny (1986), mediation occurs when the following four conditions are met. First, variation within the independent variable must account for variation within the proposed mediator (i.e., path *a*). Second, variation within the proposed mediator must account for variation within the dependent variable (i.e., path *b*). Third, variation within the independent variable must account for variation within the dependent variable (i.e., path *c*). Fourth, the relationship between the independent and dependent variables must decrease after

controlling for the mediator (i.e., path c'). Furthermore, if all four conditions are met, and the relationship between the independent and dependent variables becomes zero when controlling for the mediator, then a full mediation occurs. However, if the first four conditions are met, but the relationship between the independent variable and dependent variable does not become zero, then a partial mediation occurs. Finally, according to Frazier, Tiz, and Baron (2004), if the z -score of the Sobel test is greater than 1.96, then the mediating effect is significant at the level of .05.

For the full scale HADS, as well as for each of the two subscales, the outcomes yielded by the INDIRECT macro indicate that spirituality acted as a partial mediator according to these parameters. First, in each analysis all four regressions yielded standardized regression coefficients. Since the c' paths did *not* result in zero, and yet were lower than the c paths, these mediations can be considered partial rather than complete. Second, the Sobel Tests yielded z -scores higher than 1.96. These coefficients confirm partial mediations (Figure 2). The full mediation model predicted 23.39% of the variance for the full scale HADS, 8.65% for the Depression subscale, and 28.36% for the Anxiety subscale ($ps < .001$).

[Figure 2 goes here]

Moderated Mediation

The statistical macro MODMED was utilized to calculate the moderating effect of religiosity upon the mediating effect of spirituality (Preacher, Rucker & Hayes, 2007). Based on this procedure, the conditional indirect effects were calculated at three different levels of religiosity (i.e., the sample mean, one standard deviation above the mean, and one standard deviation below the mean). According to these results (Table 3), incrementally higher levels of religiosity corresponded modestly and concomitantly with the strength of the mediating effect of

spirituality for all three outcomes examined (HADS total, Depression and Anxiety subscales). However, these results were not significant ($p > .05$).

[Table 3 goes here]

Additional Analyses

Additional analyses were conducted to further examine the relationships among psychological health, perceived stress, spirituality and religiosity. First, the INDIRECT macro was utilized to determine if religiosity can also be considered a mediator between perceived stress and psychological health. According to this analysis, religiosity does not mediate stress and psychological health (either full or partial) for the full scale HADS or either of the subscales. In each analysis all four regressions yielded standardized regression coefficients. However, the Sobel Tests yielded z -scores lower than 1.96. These coefficients demonstrate no significant mediations (Figure 3). The full mediation model predicted 22.11% of the variance for the full scale HADS, 7.5% for the Depression subscale, and 27.65% for the Anxiety subscale ($ps < .001$).

[Figure 3 goes here]

A second analysis was conducted to determine if spirituality and/or religiosity acted as moderators between perceived stress and psychological symptoms. The following procedure was utilized to evaluate the potential moderation of spirituality and religiosity (Frazier, Tix & Baron, 2004). First, values for perceived stress, spirituality and religiosity were standardized into z -scores to neutralize the effects of high collinearity. Next, interaction terms were created from the product of the independent variable (i.e., perceived stress) and the proposed moderators (i.e, spirituality and religiosity). Finally, multiple linear regressions were conducted by first entering the predictor and moderator, and subsequently adding the interaction term.

In the analyses of the total HADS as outcome, both spirituality ($\beta = -.178$ $p = .0013$) and religiosity ($\beta = -.151$ $p = .004$) acted as moderators between perceived stress and psychological symptoms. In the analysis of the depression subscale as outcome, spirituality moderated the relationship ($\beta = -.160$ $p = .006$) but not religiosity. When the anxiety subscale was the outcome, both religiosity ($\beta = -.134$ $p = .007$) and spirituality ($\beta = -.151$ $p = .003$) moderated the relationship.

In addition, our sample included a significant number of participants from China ($n = 31$), who might be expected to differ because of religious and/or cultural backgrounds. However, when all of the above analyses were conducted excluding these participants, the findings remained the same. Therefore, according to these analyses, both spirituality and religiosity can be considered modest moderators between perceived stress and psychological health. Table 4 displays both the standardized / unstandardized coefficients as well as the corresponding variance for these regressions.

[Table 4 goes here]

Discussion

Consistent with Lazarus' Transactional Model of Stress, the existing literature demonstrates a modestly positive association between religiosity and psychological health. However, the role that spirituality plays in psychological health relative to both high and low levels of religiosity is not well known. Thus, the purpose of this study was to examine the extent to which spirituality mediates the association between perceived stress and psychological health, and to further examine the extent to which religiosity moderates this relationship. This study utilized a non-experimental, quantitative, correlational, cross-sectional, moderated-mediation design and included 331 research participants self-selected from a sample of convenience.

Overall, this study confirmed the role of both religiosity and spirituality as effective resiliency resources. In particular, this research contributes to existing literature supporting the role of spirituality as a mediator (e.g., Edwards, Ramisch, Dahnka, & Turner, 2008; Wallace & Lahti, 2004).

Both spirituality and religiosity correlated with psychological health and modestly moderated the relationship between perceived stress and psychological functioning. Thus, while stress relates to psychological symptoms, both spirituality and religiosity seem to buffer this relationship. In addition, spirituality partially mediates the relationship between perceived stress and psychological health. In particular, higher spirituality seems to be associated with lower perceived stress levels *and* better psychological health. In practical terms, this finding seems to suggest spirituality may relate to both the stimulus and response, i.e. more positive appraisals of life stressors (stimulus) as well as less psychological distress (response). On the other hand, religiosity did not act as a mediator between stress and psychological health (either full or partial), nor did it moderate the mediating effects of spirituality, as hypothesized.

However, the overall effect of religiosity was far from negligible in this study. Not only was religiosity correlated with psychological health, but acted as a buffer between perceived stress and psychological health. For example, stress was associated with fewer psychological symptoms among those who reported higher levels of religiosity, and vice versa. In summary, both spirituality and religiosity seem to act as resiliency factors in the relationship between perceived stress and psychological health. Interestingly, and in contrast to some findings in the literature, religiosity in our sample had effects similar to spirituality.

The findings in the literature for the weaker role of religiosity may reflect decades of research and conceptualization in which pathological forms of religiosity partially cancel out the

benefits of salubrious forms. For example, Allport extensively discriminated between intrinsic and extrinsic religiosity, in which intrinsic religiosity is pursued for supreme, altruistic ideals while extrinsic religiosity is utilized for temporal, self-serving ends. According to Allport's (1950) observations, intrinsic religiosity resulted in healthy outcomes while extrinsic religiosity did not. Similarly, Zinnbauer and Pargament (2005) extensively researched religiosity and found not all forms of religiosity were equally beneficial; in fact, some forms were actually deleterious. Despite these differences in efficacy, however, these researchers still found the combined, overall effect of religiosity to be modestly positive, as did a recent meta-analysis (Smith, McCullough & Poll, 2003).

In spite of the similarities and the high correlation between spirituality and religiosity, the two constructs assessed distinct aspects of beliefs. In particular, our instruments were selected to measure different aspects of belief in a higher power. Our findings, although similar, were not identical. Recent research continues to corroborate the differentiation between religiosity and spirituality. For example, Waldron-Perrine, Rapport, Hanks, Lumley, Meachen, and Hubbarth (2011) examined the effects of religious and spiritual factors on the rehabilitation outcomes of adults with traumatic brain injuries. These researchers found self-reported connectivity to a higher power was a predictor for both life satisfaction (subjective) and functional ability (objective), while public religious activities were not.

Studies of this nature seem to suggest that spirituality plays the primary role in psychological wellbeing, while religiosity plays a secondary role. For example, spirituality may provide the "efficacious agent" by which religiosity also becomes ameliorative. In addition, it is possible that both spirituality and religiosity may mutually amplify the effect of one upon the other in terms of a positive feedback loop. Since this study found that spirituality acts as both a

moderator and mediator while religiosity acts as a moderator, it seems plausible that the effect of spirituality may help to facilitate the effect of religiosity (and perhaps vice versa as well). Of course, studies of this nature may also be compromised by the confounding fact that spirituality is (by definition) far more accessible than religiosity. For example, it is quite possible that any medical rehabilitation process may inhibit some expressions of religiosity (e.g., public service attendance) without impeding comparable manifestations of spirituality (e.g., solitary devotions).

While correlational studies abound (e.g., Koenig, McCullough, and Larson, 2001), research which explores the role of religiosity / spirituality as moderators / mediators is ostensibly scarce. With regards to moderation, Fabricatore, Handal, and Fenzel (2000) found personal spirituality moderated the relationship between stress and subjective well-being; Young, Cashwell and Schcherbakova (2000) found spirituality moderated the relationship between negative life events and psychological health; and Kim and Seidlitz (2002) found spirituality moderated the relationship between stress and emotional health. With regards to mediation, Wallace and Lahti (2004) found spirituality mediated between perceived stress and life satisfaction, while Edwards, Ramish, Dahnka and Turner (2008) found spiritual support mediated positive meaning and symptoms of depression in caregivers of clients with dementia.

However, in contrast to previous research, the present study found spirituality to act as both moderator and mediator. This finding seems to suggest that not only does spirituality contribute a pivotal link between stress and psychological adjustment, but also continues to facilitate this relationship once it has emerged. It does not seem that stressful life circumstances would result in improved psychological functioning without the presence of mediating factors such as spirituality. However, once present, it seems that spirituality continues to foster ongoing

psychological improvement. Thus, perhaps it is reasonable to speculate that spirituality both initiates and enhances psychological wellbeing—even in light of adverse conditions.

Limitations

There were several weaknesses in the present study. First, as in other studies that include both spirituality and religiosity, there may be problems with differentiation of the constructs. Although we selected measures that provided very little overlap, and the correlation was acceptable (high but not excessive), individuals who score high on religiosity also tend to score high in spirituality, and vice versa. Thus, any interpretation of the findings must take this reality into account, as have we. It is also noteworthy how highly correlated religiosity and spirituality were in this sample ($r = .76$), which is higher than other studies that examine these constructs, albeit with varying instruments (e.g., $r = .53$ in Gullatte, Brawley, Kinney, Powe, & Mooney, 2010). However, this potential limitation did not adversely impact our main analyses since z -scores were utilized for the moderated mediation. Regardless, results must be interpreted with caution given the overlap between the religiosity and spirituality in this sample.

The predictor variable, the Perceived Stress Scale, correlated moderately with the outcome variables HADS and subscales ($r = .21$ to $r = .48$). Although these correlations are not so high to preclude the analyses, it may suggest caution when interpreting the findings.

In addition, since the research participants were derived from a self-selected, volunteer sample of convenience, it is possible individuals who regarded themselves as more religiously or spiritually inclined were also more likely to volunteer for a study of this nature. This may explain why our sample was highly religious and spiritual. Similarly, these same individuals may also have felt the need to “demonstrate” the efficacy of their resources by over-reporting religious / spiritual factors or under-reporting symptoms of stress, anxiety, and depression.

With regards to external validity, this study may also be subject to limited generalizability in various forms. For example, the majority of the potential research participants self-reported a conservative Protestant orientation (58%), which is slightly higher than the proportion found by the Pew Foundation in their survey of 35,000 adults in the U.S. (2007). In addition, 9% of our sample consisted of young Chinese students. Thus, the results of this study may not adequately represent the general public in the U.S. Furthermore, our sample does not include a sufficient number of spiritual but not religious individuals for a separate examination of this population. Therefore, an important subgroup of the potential combinations of religiosity and spirituality is missing. Future research should attempt to replicate these findings with a stratified sample that more closely represents the general U.S. population.

Finally, our sample also produced a lower internal consistency for the Perceived Stress Scale than what has been reported in the literature ($\alpha = .75$ versus $\alpha = .89$)—which, although acceptable, suggests the scale did not perform as well in our sample as in other published works (e.g., Roberti, Harrington, & Storch, 2006).

Recommendations for Future Research

Despite these weaknesses, a number of recommendations for future research flow logically from the outcomes of this study. Future research should continue to investigate complex moderation and mediation of religiosity and spirituality, and focus on various outcomes in addition to psychological health. According to Frazier, Tix, and Baron (2004), a particular research domain becomes empirically “mature” when moderation / mediation analyses are utilized to explain and/or describe the correlational relationship between any given constructs. The present study, as well as a handful of others we mention here, have begun to examine these complex relationships. Focusing on components of spirituality and religiosity, instead of

examining them holistically as was done here, may provide more nuanced understanding of these constructs and their effects as resiliency factors.

The sample in the present study scored relatively low on symptoms of anxiety and depression. It may be useful to examine the relationships tested here among those who have diagnosed mood disorders. One recent cross-national analysis examined the prevalence of clinical depression in 18 countries (Bromet, Andrade, Hwang, Sampson, Alonso, et al. 2011). These researchers found American respondents reported the highest percentage of major depressive episodes both in terms of 12-month and lifetime prevalence among the 10 wealthiest nations of the world. Thus, it is both theoretically and clinically germane to explore the enigma presented by this and other studies on this topic: If Americans are highly religious and spiritual, and if religiosity and spirituality provide effective resiliency resources, then why are so many Americans clinically depressed? Does the efficacy of religiosity and spirituality vary as a function of other factors which have not received empirical scrutiny? Furthermore, does the role of religiosity / spirituality differ across different faith-based traditions? To approach a response to some of these questions, it may be relevant to further examine the moderating and/or mediating roles of religiosity / spirituality across specific sub-populations.

Finally, a number of practical applications flow logically from this study. Perhaps most fundamentally, mental health practitioners need to be conversant with extant research which consistently indicates the role of both religiosity and spirituality as efficacious coping resources. For example, psychotherapists need to know the correlation between religiosity / spirituality and psychological adjustment, as well as the mediating and moderating role of these variables. This information is particularly imperative for a field characterized by a deeply entrenched, prolonged history of anti-religious bias, extending back to Freud himself (e.g., Aten & Leach, 2008). Even

more importantly, however, this information needs to be integrated into actual practice.

Numerous studies indicate that religious / spiritual clients benefit from religious / spiritual interventions (e.g., Tan & Johnson, 2004). However, research further indicates that religious / spiritual approaches to psychotherapy require specialized training, which does not currently exist at adequate levels (e.g., Bartoli, 2007). Thus, the current knowledge base regarding religious and spiritual resources should be incorporated into graduate coursework, and specific skill sets involving religious / spiritual approaches should be included in clinical internships (e.g., Walker, Gorsuch & Tan, 2005).

Table 1*Demographic Characteristics of Sample (n = 331)*

Subgroup	Number	Percentage
Male	112	35.1%
Female	206	64.6%
Married	224	65.3%
Single	96	28.0%
Low Attendance*	75	27.9%
High Attendance	244	71.1%
Under Forty	108	37.5%
Forty to Sixty	88	25.7%
Over Sixty	30	8.7%
US Residents (Non-Minority)	270	78.1%
US Residents (Minority)	31	9.0%
Residents of China	31	9.0%
Protestant Christian	200	58.3%
Other Christian	82	23.9%
Non-Christian	42	12.2%
High School Diploma	70	20.4%
College Degree	166	48.4%
Graduate Training	75	27.9%

* High attendance: 'at least once per week'; low attendance: 'at least once per month' 'at least once per six months' 'at least once per year' 'never or almost never'

Table 2*Study Variables by Demographic Group*

Sub-Grouping	PSS		DSES		HADS		RCI	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
All Responses	31.5	3.1	68.0	14.7	23.6	5.6	37.7	10.3
Male	31.1	3.1	67.9	14.8	23.3	5.0	39.1	10.5
Female	31.7	3.2	68.5	14.7	23.6	5.8	36.7	10.7
Married	31.5	3.2	71.1	11.8	23.0	5.4	39.8	8.6
Single	31.6	3.2	60.6	18.3	25.0	6.5	31.9	12.9
High Attendance	31.3	3.1	72.6	9.9	23.0	5.0	41.8	5.9
Low Attendance	32.0	3.2	51.0	17.5	25.3	6.6	21.9	9.9
Under 40	31.6	3.1	61.0	16.8	24.6	6.0	34.1	11.8
Forty to Sixty	31.3	3.2	73.6	12.2	23.1	6.1	39.7	8.8
Over Sixty	30.2	3.4	77.0	8.9	21.1	3.9	42.6	5.5
Protestant Christians	31.4	3.3	71.4	11.2	23.2	5.4	41.0	7.4
Other Christians	31.8	3.1	70.1	12.7	24.1	6.0	36.5	10.3
Non Christians	31.6	2.8	43.0	15.1	24.8	5.5	19.1	8.5
US Residents (Non-Minority)	31.5	3.1	69.6	13.2	23.1	5.1	38.9	9.8
US Residents (Minority)	32.1	3.7	65.1	16.3	26.5	8.1	32.8	10.1
Residents of China	31.0	3.1	50.2	19.4	25.9	5.4	24.3	11.4
High School	31.8	3.8	74.9	10.7	23.4	6.1	40.3	8.6
College	31.4	2.9	67.0	14.6	23.9	5.5	36.8	10.3
Graduate	31.4	3.1	64.7	15.8	26.9	4.1	36.6	12.6

Note: PSS = Perceived Stress Scale; DSES = Daily Spiritual Experiences Scale; HADS = Hospital Anxiety and Depression Scale; RCI = Religious Commitment Inventory

Table 3

The Conditional Effect of Religiosity upon Spiritual Mediation

	RCI Value	Indirect Effect of DSES	<i>p</i> value
HADS TOTAL SCORE			
1 <i>SD</i> > Sample <i>M</i>	27.4	.046	.15
Sample <i>M</i>	37.7	.060	.11
1 <i>SD</i> < Sample <i>M</i>	48.0	.073	.12
HADS DEPRESSION SUBSCALE			
1 <i>SD</i> > Sample <i>M</i>	27.4	.024	.18
Sample <i>M</i>	37.7	.027	.15
1 <i>SD</i> < Sample <i>M</i>	48.0	.031	.18
HADS ANXIETY SUBSCALE			
1 <i>SD</i> > Sample <i>M</i>	27.5	.026	.15
Sample <i>M</i>	37.8	.038	.09
1 <i>SD</i> < Sample <i>M</i>	48.1	.051	.09

Table 4

Moderating Effects of Spirituality and Religiosity

Variables	<i>B</i>	<i>p</i> value	<i>R</i> ²	<i>R</i> ² change	<i>p</i> value
HADS TOTAL					
Step 1					
PSS	.44	.000			
DSES	-.27	.000	.28	.28	.000
Step 2					
PSS x DSES	-.18	.001	.31	.03	.001
Step 1					
PSS	.40	.000			
RCI	-.23	.000	.24	.24	.000
Step 2					
PSS x RCI	-.15	.004	.26	.02	.004
DEPRESSION					
Step 1					
PSS	.23	.000			
DSES	-.22	.000	.11	.11	.000
Step 2					
PSS x DSES	-.16	.006	.14	.03	.000
Step 1					
PSS	.18	.002			
RCI	-.16	.005	.07	.07	.000
Step 2					
PSS x RCI	-.08	.164	.07	.006	.164
ANXIETY					
Step 1					
PSS	.46	.000			
DSES	-.26	.000	.32	.32	.000
Step 2					
PSS x DSES	-.15	.003	.34	.02	.003
Step 1					
PSS	.47	.000			
RCI	-.23	.000	.30	.30	.000
Step 2					
PSS x RCI	-.13	.007	.32	.02	.007

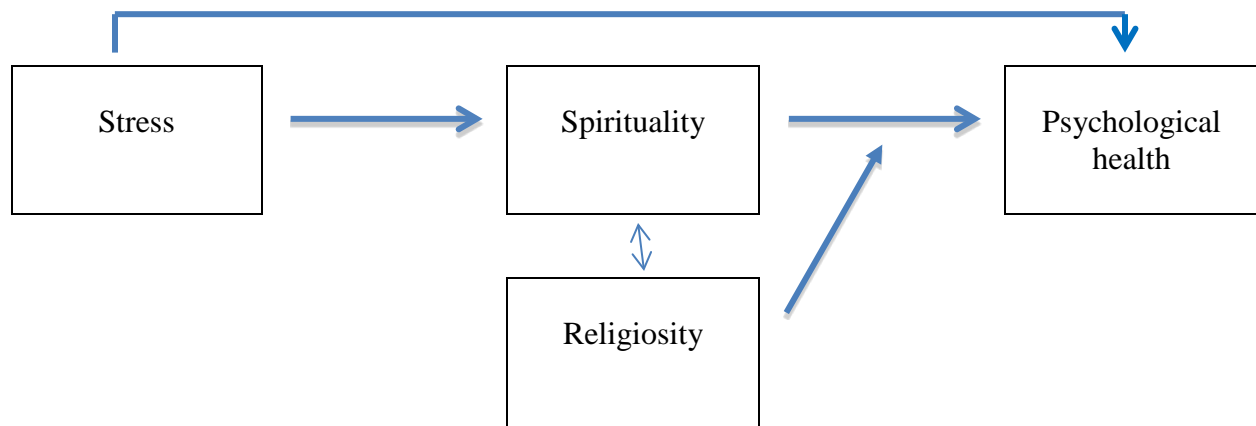
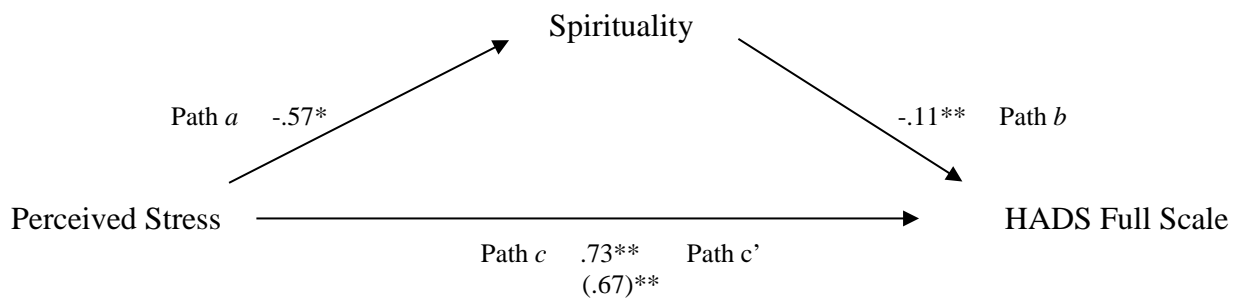
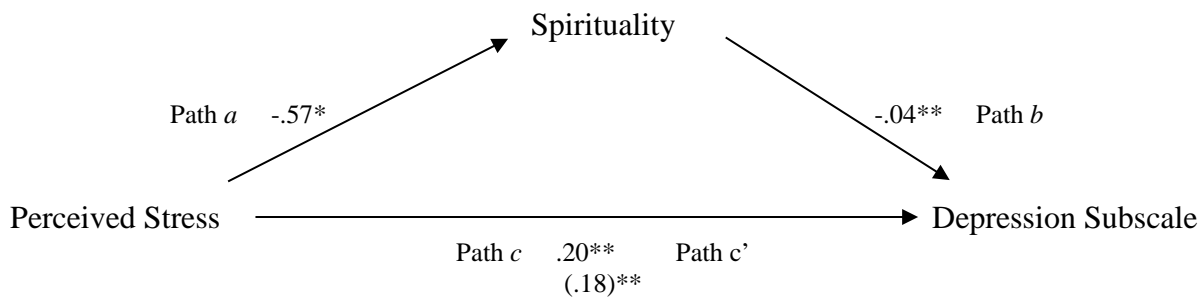


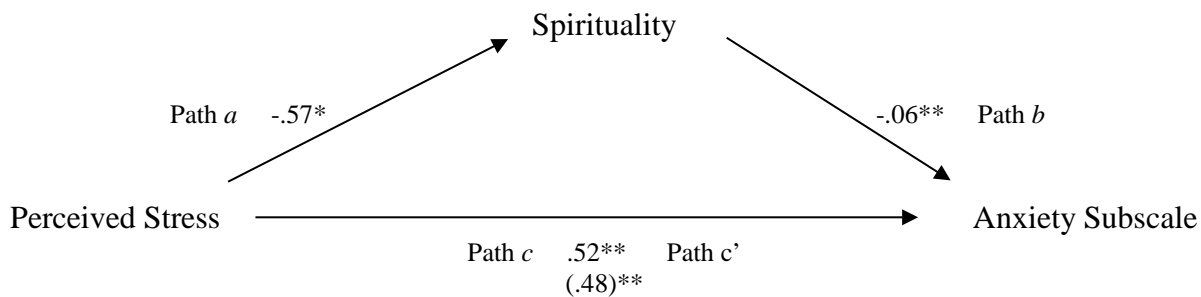
Figure 1. The mediating effect of spirituality on the association between perceived stress and psychological health, and the moderating effect of religiosity on this relationship.



HADS Sobel Z-score = 2.23, $p = .026$

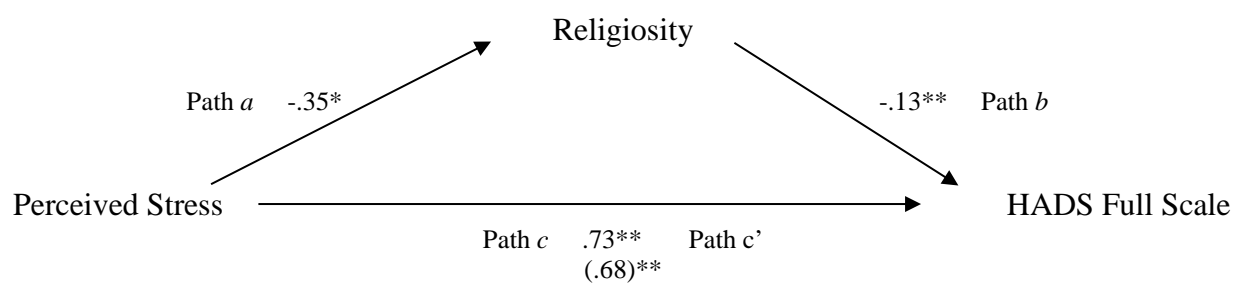


Depression Sobel Z-score = 2.05, $p = .026$

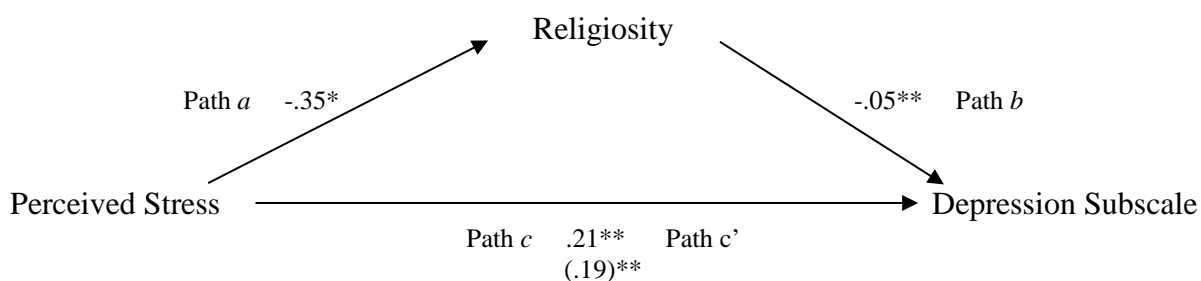


Anxiety Sobel Z-score = 2.23, $p = .026$

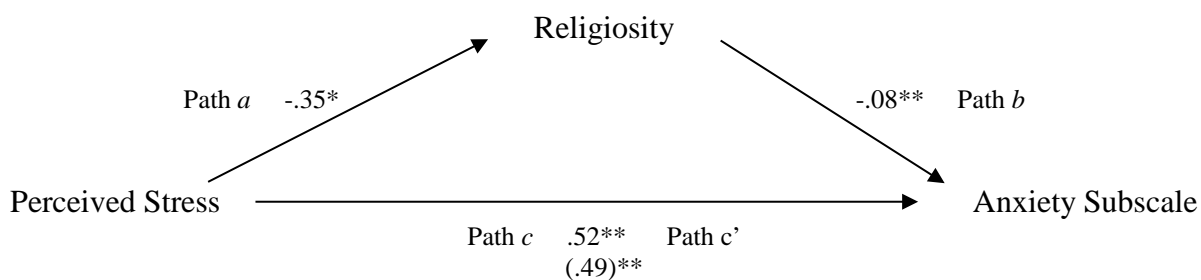
Figure 2. Standardized regression coefficients for the relationship between perceived stress and psychological health, as mediated by spirituality. The standardized regression coefficients between perceived stress and symptoms of anxiety and depression (while controlling for daily spiritual experiences) have been parenthesized.



HADS Sobel Z-score = 1.84, $p = .066$



Depression Sobel Z-score = 1.68, $p = .092$



Anxiety Sobel Z-score = 1.85, $p = .064$

Figure 3. Standardized regression coefficients for the relationship between perceived stress and psychological health, as mediated by religiosity. The standardized regression coefficients between perceived stress and symptoms of anxiety and depression (while controlling for religious commitment) have been parenthesized.

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