LOCUS OF CONTROL AND SPIRITUAL MEANING AS MEDIATORS OF RELATIONS AMONG RELIGIOUS ORIENTATION AND ANXIOUS SYMPTOMATOLOGY AND DEPRESSIVE SYMPTOMATOLOGY

A Dissertation

by

ELIZABETH STIRLING WILEY

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2006

Major Subject: Psychology

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ABSTRACT

Locus of Control and Spiritual Meaning as Mediators of Relations

Among Religious Orientation and Anxious Symptomatology

and Depressive Symptomatology. (August 2006)

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Growth in research on the psychology of religion is contributing to a greater understanding of the impact of religious variables on mental health. The purpose of the current project was to examine how religious orientation (RO), locus of control (LOC), and spiritual meaning (SM) relate to anxious symptoms (AS) and depressive symptoms (DS) in a college sample. Specifically, locus of control (LOC) and spiritual meaning (SM) were hypothesized to mediate the relations between RO and AS and DS. The sample analyzed consisted of 401 undergraduate students who were primarily Caucasian and Christian. Correlational analyses, mediated regression analyses, and moderated regression analyses were used to examine the hypotheses.

Because gender differences are noted in the literature when examining the relations between RO and mental health variables and were also found in the present study, gender was controlled in all analyses. In the current study, females had lower levels of internal LOC (ILOC) and chance LOC (CLOC) and higher levels of God LOC (GLOC), AS, and SM than males.

Many mediational hypotheses were supported. SM mediated the relations between intrinsic religiousness (IRO) and AS and between IRO and DS. SM partially mediated the relation between extrinsic religious orientation (ERO) and AS. ILOC was not found to mediate the relations between RO and AS or between RO and DS. Powerful others LOC (PO LOC) mediated the relation between IRO and AS. PO LOC partially mediated the relations between ERO and AS, between quest religiousness (QRO) and AS, between IRO and DS, and between QRO and DS. CLOC mediated the relations between IRO and AS, between ERO and AS, between QRO and AS, and between QRO and DS. CLOC partially mediated the relation between IRO and DS. GLOC partially mediated the relation between QRO and DS.

Social desirability was examined as moderating the relations between RO and AS and between RO and DS. Social desirability was found to moderate the relation between ERO and DS.

In sum, LOC and SM were found to mediate relations between RO and AS and DS. Social desirability moderated the relation between ERO and DS.

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INTRODUCTION

While many psychologists de-emphasize religion in their work, a majority of Americans claim to be religious in some way. Psychologists tend to be the least religious social scientists and mental health professionals and are significantly less religious as a whole than is the U.S. population (Bergin & Jensen, 1990). A growing interest in research on the psychology of religion, however, is a welcomed trend considering the importance many people claim religion has in their lives. Seminal writings on the psychology of religion include those of William James (1985), Carl Jung (1938; 1947), and Gordon Allport (1950). Their works still provide a basis for research today. More recently, McCullough and Larson (1998) have called for social scientists to specialize in research on the psychology of religiousness.

Donahue (1985) distinguishes between the terms religiosity and religiousness. Although these terms are typically used interchangeably in the literature, he notes that the term "'religiosity' connotes an affected, artificial, or exaggerated religious interest" whereas the term "religiousness" does not and may be more appropriate in research (Donahue, 1985, p. 400). The term "religiousness" is used in the current project.

Three constructs in the literature related to mental health, and more specifically to anxious and depressive symptomatology, include religious orientation, locus of control, and life meaning or purpose. Anxious and depressive symptoms will be studied

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This thesis follows the style and format of *American Psychologist.*

due to their prevalence in society. Anxious and depressive disorders are among the most common mental disorders in the U.S. and other developed nations (National Institute of Mental Health [NIMH], 2001).

Defining Religion

Definitions of religion have been set forth in the psychology of religion literature. Two existing definitions are described below. Hill and colleagues (Hill, Pargament, Hood, McCullough, Swyers, Larson, et al., 2000, p.66) proposed a definitional criteria for religion that is detailed below.

A. The feelings, thoughts, experiences, and behaviors that arise from a search for the sacred. The term "search" refers to attempts to identify, articulate, maintain, or transform. The term "sacred" refers to a divine being, divine object, Ultimate Reality, or Ultimate Truth as perceived by the individual.

AND/OR

B. A search for non-sacred goals (such as identity, belongingness, meaning, health, or wellness) in a context that has as its primary goal the facilitation of (A);
C. The means and methods (e.g., rituals or prescribed behaviors) of the search that receive validation and support from within an identifiable group of people.

This definition seems to fit a more traditional view of religion, including a particular group of people and their pursuit of the sacred. Batson, Schoenrade, and Ventis (1993, p. 8) proposed a functional definition of religion that allows for "the uniqueness, complexity, and diversity of religion." Religion is defined as "whatever we as individuals do to come to grips personally with the questions that confront us because we are aware that we and others like us are alive and that we will die" (Batson, et al., 1993, p. 8). In their view, religion helps people to deal with and answer existential questions on a personal level. This definition includes non-traditional forms of religion, including the

"belief in some impersonal cosmic force" and "participation in self-help or social-action rituals." Batson et al.'s (1993) definition of religion provides a context for the current project. Because of its inclusive nature, this definition will allow for a broader view of the relations between religion and mental health in this growing area of research. This broader view of religion is reflected in the scales chosen to measure religiousness in this study.

Religious Orientation

Allport, in his work on religion and prejudice, found that measuring the frequency of church attendance did not describe the more personal aspect of religiousness. Allport developed a scale to measure "the nature of the personal religious sentiment," which he called religious orientation (Allport, 1966, p. 454). Allport initially conceptualized religious orientation as a bipolar construct. On one end of this continuum is Intrinsic religiousness (I). He defined an intrinsic individual as one who "regards faith as a supreme value in its own right" and "strives to transcend all self-centered needs" (Allport, 1966, p. 455). The intrinsic individual "*lives* his religion" (Allport & Ross, 1967, p. 434). On the other end of this continuum is Extrinsic religiousness (E). Allport and Ross (1967, p. 434) defined an extrinsic individual as one who "*uses* his religion" to serve "other, more ultimate interests." This type of religiousness is "instrumental and utilitarian" (Allport & Ross, 1967, p. 434). The "extrinsic type turns to God, but without turning away from self" (Allport & Ross, 1967, p. 434).

Later research revealed that the Intrinsic-Extrinsic continuum was an inaccurate way to measure religiousness. Many research participants were found to be "provokingly

inconsistent" in answering the items on the I-E measure, meaning that endorsing intrinsic items was not necessarily related to rejecting extrinsic items (Allport & Ross, 1967; p. 437). Research showed that the I and E scales were independent of each other, so Allport and Ross (1967) developed a 4-fold typology with which to study religiousness. The four types of religious orientations were labeled intrinsic, extrinsic, indiscriminately pro-religious, and indiscriminately anti-religious. More recently, Donahue (1985) endorsed the use of the 4-fold typology. Batson et al. (1993), however, cited research indicating that typing is an inappropriate way to describe religiousness.

Batson et al. (1993) endorsed the measurement of the degree of religious orientations within an individual and added another type of religious orientation. Batson noted that Allport's Intrinsic scale did not adequately measure Allport's (1950) concept of mature religion, specifically the aspects of "flexibility, skepticism, and resistance to absolutistic thinking" (Batson et al., 1993, p. 161). Batson stated that the concept of mature religion "also included a critical, open-ended approach to existential questions" (Batson et al., 1993, p. 166). To fill this gap, Batson labeled a third dimension of religious orientation, "Religion as Quest." Quest religiousness is characterized by "complexity, doubt, and tentativeness" (Batson et al., 1993, p. 166) and:

> involves honestly facing existential questions in all their complexity, while at the same time resisting clear-cut, pat answers. An individual who approaches religion in this way recognizes that her or she does not know, and probably never will know, the final truth about such matters. Still, the questions are deemed important, and however tentative and subject to change, answers are sought.

> There may or may not be a clear belief in a transcendent reality, but there is a transcendent, religious aspect to the individual's life (Batson et al., 1993, p. 166).

To measure Quest religiousness, Batson and colleagues developed the Quest Scale. Batson avoids the use of religious typing and instead measures the degree to which each dimension describes one's religion. Batson endorses two ways of determining an individual's degree of each religious orientation. One method involves using six scales (Internal, External, Quest, Allport's Intrinsic, Allport's Extrinsic, and Doctrinal Orthodoxy). Principal components analysis was used to determine an individual's score on three independent and continuous dimensions: (a) Religion as Means, (b) Religion as End, and (c) Religion as Quest. Batson and colleagues stated that this method of analysis is "complex and cumbersome" and that some researchers employ another method of determining religious orientation (Batson et al., 1993; p 175). Allport's Intrinsic Scale, Allport's Extrinsic Scale, and Batson's Quest Scale are highly correlated with the End, Means, and Quest components, respectively, and can be administered to determine religious orientation. This simplified method will be employed in the current study (Batson et al., 1993).

Concerns have been raised about whether the Quest orientation measures anything religious at all (Donahue, 1985). Batson and colleagues counter this argument by citing research indicating that religious populations obtain higher scores on Quest than less religious populations (Batson & Ventis, 1982 as cited by Batson et al., 1993) and that particular religious populations may obtain higher scores than other religious populations (Ferriani & Batson, 1990 as cited by Batson et al., 1993). Batson and colleagues claim

that although Quest and Religious Conflict scales are correlated, the active seeking and not just confusion and doubt are related (Batson et al., 1993).

Locus of Control

Another construct related to anxious and depressive symptomatology in the literature is locus of control (LOC). Some researchers (Berrenberg, 1987; Gabbard, Howard, & Tageson, 1986) have argued that religious individuals are "penalized" on LOC measures, and have been characterized as having an external LOC which has been associated with negative attributes such as poor coping strategies. Although LOC measures such as Rotter's Internal-External Locus of Control (1966) and Levenson's Multidimensional Locus of Control Scale (1974) (which assesses Internal Control and two distinct forms of External Control: Chance and Powerful Others) are widely used, they do not account for what Welton, Adkins, Ingle, and Dixon (1996) term "God control."

Welton argued that control can be attributed to another source not assessed by these measures: God control. Welton et al. (1996) developed a scale of God Control, and revised Levenson's scale by altering two ambiguous items (i.e., It is unclear whether these items were referring to powerful others or to powerful beings.) and incorporating the God Control Scale. This measure was developed with the goal of more accurately measuring LOC, particularly in the lives of those who are religious. Some conceptualize God LOC as another external LOC, although it seems to be associated with an active, rather than passive, approach to life (Welton et al., 1996). The Multidimensional Locus of Control Scales: God Revision will be used in this study (Welton, 1999).

Spiritual Meaning

Another construct related to anxious and depressive symptomatology in the literature is meaning or purpose. Viktor Frankl (1972) stated that a sense of meaninglessness, which he described as an "existential vacuum," can lead to emotional maladjustment. Frankl (1972, p. 88) wrote "Meaning must be found; it cannot be given. And it must be found by oneself by one's own conscience."

Measures developed to assess meaning or purpose in life include the Purpose-In-Life Test, the Existential Well-Being subscale of the Spiritual Well-Being Scale, and the Spiritual Meaning Scale. Different aspects of meaning in an individual's life are assessed by these measures. The Purpose-in-Life Test measures Frankl's concept of meaning and purpose in life, with a low score representing an "existential vacuum" (Crumbaugh & Maholick, 1964). The Existential Well-Being subscale of the Spiritual Well-Being Scale measures life purpose and satisfaction without reference to religion (Ellison & Smith, 1991).

Spiritual meaning, as measured by the Spiritual Meaning Scale, encompasses the meaning of life itself, beyond the meaning of one's own life (Mascaro, Rosen, & Morey, 2004). Mascaro, et al. (2004) state that an individual can construct personal meaning around spiritual meaning, and find one's own personal purpose and function in the world through this spiritual meaning. Spiritual meaning is defined as "the extent to which an individual believes that life or some force of which life is a function has a purpose, will, or way in which individuals participate" (Mascaro, et al., 2004; p. 847). Although other scales measure personal meaning or implicit meaning, the newly-developed Spiritual

Meaning Scale supplements the existing measures of meaning by assessing the explicitly spiritual aspect of an individual's life meaning. Other advantages of this scale include its protection against socially desirable responding and lack of affective content.

A gender difference has been indicated in life meaning. The group mean for males on a measure of existential well-being was significantly higher than for females in a sample of at-risk adolescents (Davis, Kerr, & Kurpius, 2003).

Anxious Symptomatology

Religious Orientation and Anxious Symptoms

Intrinsic Religious Orientation

Typically, intrinsic religiousness is negatively related to trait anxiety (Baker & Gorsuch, 1982; Bergin, Masters, & Richards, 1987; Koenig, Moberg, & Kvale, 1988; Maltby, Lewis, & Day, 1999; Sturgeon & Hamley, 1979). This finding has been replicated across varied samples, including members of a religious camping organization (Baker & Gorsuch, 1982), students from both secular and religiously-affiliated colleges (Sturgeon & Hamley, 1979; Bergin et al., 1987; Maltby et al., 1999), and a geriatric sample (Koenig et al., 1988). However, some non-significant results for the relation between intrinsic religiousness and trait anxiety have also been found in samples of American, English, and Iranian college students (Maltby & Day, 2000; Watson et al., 2002). Non-significant relations have also been found between intrinsic religiousness and other forms of anxiety, including state anxiety (Baker & Gorsuch, 1982; Sturgeon & Hamley, 1979) and social anxiety (Storch, Storch, & Adams, 2002). Intrinsic religiousness has been negatively related to existential anxiety (Sturgeon & Hamley,

1979). Also in a study classifying undergraduates using the 4-fold typology, the four religious groups did not significantly differ on trait anxiety (Frenz & Carey, 1989).

Also, gender differences in the relation between anxiety and intrinsic religiousness were found in one study. When separate correlational analyses were run for males and females in a sample of at-risk adolescents, the relation of trait anxiety to intrinsic religious orientation was negative for males, but non-significant for females (Davis et al., 2003).

Extrinsic Religious Orientation

In most studies, extrinsic religiousness is positively related to anxiety (Baker & Gorsuch, 1982; Bergin et al., 1987; Watson et al., 2002). These studies were conducted primarily on religiously-affiliated and secular college campuses in the United States, England, and Iran (Bergin et al., 1987; Maltby & Day, 2000; Maltby et al., 1999; Watson et al., 2002), but also included a sample of members of a religious camping organization (Baker & Gorsuch, 1982). However in one study (Watson et al., 2002), certain types of extrinsic religiousness were positively related to anxious symptomatology while other types of extrinsic religiousness were non-significantly related to anxious symptomatology. In a sample of Muslim Iranian college students and a sample of American college students, dispositional anxiety was non-significantly related to Extrinsic-Personal and Extrinsic-Social religiousness, but was significantly positively associated with Extrinsic-Residual religiousness (Watson et al., 2002).

Gender differences have been noted in the relation between Extrinsic religiousness and anxiety (Maltby & Day, 2000; Maltby et al., 1999). In these studies,

separate correlational analyses were run for men and women. In two English undergraduate samples (Maltby & Day, 2000; Maltby et al., 1999), two types of extrinsic religiousness (Extrinsic-Personal and Extrinsic-Social) were positively related to anxiety for women. However, findings differed for men. In one study (Maltby & Day, 2000), both extrinsic orientations were non-significantly related to anxiety for men, and in the other study (Maltby et al., 1999), only Extrinsic-Social was significantly positively related to anxiety for men.

Quest Religious Orientation

Although little research has been conducted on the relation between Quest religiousness and anxious symptoms, the available literature indicates that there is a positive correlation between these variables (Kojetin, McIntosh, Bridges, & Spilka, 1987; Spilka, Kojetin, & McIntosh, 1985). Similar findings resulted among samples of undergraduates (Kojetin et al., 1987; Spilka et al., 1985), church members (Kojetin et al., 1987), and seminary students (Kojetin et al., 1987). However, Maltby et al. (1999) found Quest religiousness not to be significantly related to trait anxiety among undergraduates.

Locus of Control and Anxious Symptoms

Internal Locus of Control

Internal LOC seems to be negatively related to anxiety (Watson, 1967). One study of undergraduates relating a scale of exaggerated internal LOC to anxiety found a negative correlation (Berrenberg, 1987). In a sample of Catholic high school students, LOC did not seem to be related to trait anxiety (Hong & Withers, 1982). Gender differences were found in a sample of undergraduates. When males and females were

considered separately, Holder and Levi (1988) found that internal LOC was non-significantly correlated to anxiety in men and negatively correlated to anxiety in women.

External Locus of Control

In the literature, external LOC typically is related to increased anxiety (Archer, 1979; Beekman et al., 2000; Watson, 1967). Similar findings occurred among college students (Watson, 1967), older adults (Beekman et al., 2000), adolescents, army recruits, alcoholics, and emotionally disturbed children (see Archer, 1979 review). However, one study did report that external LOC was negatively related to anxiety (Berrenberg, 1987).

Gender differences were found in the relation between external LOC and anxiety when males and females were considered separately in two correlational studies. In a sample of undergraduates, Holder and Levi (1988) found a gender difference in the correlation between anxiety and LOC. Both chance and powerful others loci of control were positively correlated with anxiety in women, but only chance LOC, and not powerful others LOC, was significantly positively correlated to anxiety in men. In a sample of flood hazard victims, higher external LOC was significantly correlated with higher trait anxiety for women, but not for men (De Man & Simpson-Housley, 1985).

God Control

Little research has been conducted on God LOC. The available research relating God LOC and anxiety is equivocal and has been found to interact with ethnicity. Berrenberg's (1987) God-Mediated Control subscale of the Belief in Personal Control Scale was not significantly related to anxiety in a sample of college students. An interaction between ethnicity and God LOC was found in samples of college students and

young adults from Caucasian and Korean Protestant churches. God LOC related to decreased anxiety in Caucasians, but related to increased anxiety in Koreans (Bjorck, Lee, & Cohen, 1997).

Meaning and Anxious Symptoms

The literature indicates that purpose or meaning in life is associated with lessened anxiety (Davis et al., 2003; Mascaro et al., 2004; Yarnell, 1971). This finding holds across varying samples, including at-risk adolescents (Davis et al., 2003), military personnel, and veterans with schizophrenia (Yarnell, 1971). Also, spiritual meaning specifically was associated with lessened anxiety in a sample of university students (Mascaro et al., 2004).

Depressive Symptomatology

Religious Orientation and Depressive Symptoms

Intrinsic Religious Orientation

Most studies identified a negative relation between intrinsic religiousness and depressive symptomatology (Braam, Beekman, Deeg, Smit, &Tilburg, 1997; Burris, 1994; Genia, 1996; Koenig, George, & Peterson, 1998; Maltby et al., 1999; Maltby & Day, 2000; Nelson, 1989; Watson et al. 2002). Similar outcomes have been reported among American (Watson et al., 2002), English (Maltby et al., 1999), and Iranian (Watson et al., 2002) college students; elderly community adults (Nelson, 1989); and elderly medical populations (Braam et al, 1997; Koenig et al., 1988; Koenig et al., 1998). However, one university study of former Mormon missionaries (Bergin et al., 1987)

failed to find significant correlations between depressive symptoms and both Intrinsic and Extrinsic religiousness.

Gender differences have been noted in the relation between religiousness and depressive symptoms (Maltby & Day, 2000). When males and females were considered in separate regression analyses in an English undergraduate sample (Maltby & Day, 2000), Intrinsic religiousness and two types of Extrinsic religiousness (Extrinsic-Personal and Extrinsic-Social) accounted for unique variance in depressive symptoms for men. However, findings differed for women. Only Intrinsic and Extrinsic-Social orientations accounted for unique variance in depressive symptoms for women.

Extrinsic Religious Orientation

Studies on the relation between depressive symptoms and extrinsic religiousness report equivocal findings. Findings vary by type of extrinsic religiousness measured and vary somewhat by ethnicity. Depressive symptomatology has been positively related to Extrinsic-Personal and Extrinsic-Social religiousness (Maltby et al., 1999; Maltby & Day, 2000). Bergin et al. (1987) found that in a sample of former Mormon missionaries, depressive symptoms were unrelated to both intrinsic and extrinsic religiousness. In a Muslim Iranian sample of college students and an American sample of college students, depressive symptoms were positively related to one type of Extrinsic religiousness (Extrinsic-Residual) and were non-significantly related to another type of Extrinsic religiousness (Extrinsic-Social) (Watson et al., 2002). In addition, an ethnic difference was found. In the Iranian sample, depressive symptoms were negatively related to

Extrinsic-Personal religiousness while these variables were non-significantly related in the American sample.

Quest Religious Orientation

Little research has been done on the relation of Quest orientation to depressive symptoms. Maltby et al. (1999) found that Quest orientation was unrelated to depressive symptoms. Genia (1996) found higher depressive symptoms in those scoring high on Quest, but the relation disappeared when social desirability was taken into account. Genia (1996) posits that the low social desirability scores of Questors may actually indicate an accurate report of distress, which may indicate that Questors are more distressed than others.

Locus of Control and Depressive Symptoms

Internal Locus of Control

Typically, a negative relation between depressive symptoms and internal LOC has been found in the literature (Holder & Levi, 1988; Jaswal & Dewan, 1997; Natale, 1978). These samples consisted of college students. In one study using a clinical sample, this relation *approached* significance (Endlich, 1989). Regarding the influence of gender, Holder and Levi (1988) found that, for females and the total sample - but not for males - internal LOC was significantly negatively correlated with depressive symptoms. Also, a significantly higher group mean depressive symptomatology score was obtained by women than by men (Holder & Levi, 1988).

External Locus of Control

Typically, external LOC has been positively related to depressive symptoms (Beekman et al., 2000; Holder & Levi, 1988; Jaswal & Dewan, 1997; Natale, 1978). Three studies measured both chance and powerful others as types of external LOC and found this effect for both (Endlich, 1989; Holder & Levi, 1988; Jaswal & Dewan, 1997). Primarily undergraduate samples were used in this research (Holder & Levi, 1988; Jaswal & Dewan, 1997; Natale, 1978), although one study examined an older adult sample (Beekman et al., 2000). Regarding the influence of gender, Holder and Levi (1988) found that, for females and for the total sample, external LOC (both chance and powerful others) was significantly positively correlated to depressive symptoms. However, only the relation between chance and depressive symptoms was significantly correlated for men.

God Control

Little research has been done relating depressive symptoms to God LOC. Berrenberg (1987) found that God-Mediated Control (a subscale on the Belief in Personal Control scale) was associated with less depressive symptomatology in an undergraduate sample. Further, an ethnic difference was found between Korean-American and Caucasian American Protestants on God LOC. For Caucasians, the relation between negative events and depressive symptoms transformed from positive to negative as belief in God LOC was greater. However, the opposite trend was observed for Korean Americans (Bjorck et al., 1997).

Meaning and Depressive Symptoms

The literature typically indicates a negative relation between life meaning and depressive symptoms (Crumbaugh, 1968; Lester & Badro, 1992; Mascaro et al., 2004; Philips, 1980; Wright, Frost, & Wisecarver, 1993). Similar results were found across samples and measures of meaning, including spiritual meaning. Samples included high school students (Wright et al., 1993), undergraduates (Lester & Badro, 1992; Mascaro et al., 2004; Philips, 1980), community adults (Crumbaugh, 1968), and adult psychiatric patients (Crumbaugh, 1968). Perhaps life meaning serves as a protective factor against depression. One researcher "hypothesized that society's loss of touch with spirituality has made it more vulnerable to depression" (Brink, 1993 as cited by Westgate, 1996, p. 75). In the current study, the relation between depression and spiritual meaning will be examined.

Intercorrelations Among Variables

Religious Orientation and Locus of Control

Intrinsic Religious Orientation

Typically, research indicates intrinsic religiousness is positively related to internal LOC (Kahoe, 1974; Strickland and Shaffer, 1971; Sturgeon & Hamley, 1979). However, one study indicated that intrinsic religiousness was negatively related to internal LOC (McIntosh & Spilka, 1990). Intrinsic religiousness is typically negatively related to external LOC, specifically control by powerful others and chance (Pargament, Steele, & Tyler, 1979; Spilka et al., 1985). Research indicates that intrinsic religiousness relates

positively to God LOC (McIntosh, Kojetin, and Spilka, 1985 as cited by Spilka, 1989; Pargament et al., 1979).

Extrinsic Religious Orientation

The relation between extrinsic religiousness and internal LOC is equivocal. Studies have reported that extrinsic religiousness was positively related (McIntosh & Spilka, 1990), negatively related, or independent of internal LOC (Kahoe, 1974). Extrinsic religiousness was positively related to external LOC, specifically control by powerful others and chance (Strickland & Shaffer, 1971). Extrinsic religiousness was independent of a measure of God LOC (McIntosh et al., 1985 as cited by McIntosh & Spilka, 1990).

Quest Religious Orientation

In one study, Quest was found to be independent of all types of control (McIntosh et al., 1985 as cited by McIntosh & Spilka, 1990). However, another study found that Quest religiousness was positively related to internal LOC (McIntosh & Spilka, 1990). Quest was independent of external LOC in one study (McIntosh et al., 1985 as cited by McIntosh & Spilka, 1990) and negatively related to God LOC in another study (McIntosh & Spilka, 1990).

Religious Orientation and Spiritual Meaning

Intrinsic religiousness has been positively related to purpose in life (Bolt, 1975; Crandall & Rasmussen, 1975; Paloutzian, Jackson, and Crandall, 1978; Soderstrom & Wright, 1977). Similar results were found in religious university samples (Bolt, 1975; Soderstrom & Wright, 1977), public university samples (Crandall & Rasmussen, 1975;

Soderstrom & Wright, 1977; Paloutzian et al., 1978), and community adults (Paloutzian et al., 1978). Extrinsic religiousness has been non-significantly associated with purpose in life (Crandall & Rasmussen, 1975; Paloutzian et al., 1978; Genia, 1996). The author is not aware of any studies that have researched the relation between meaning and Quest religiousness.

Locus of Control and Spiritual Meaning

Few studies have examined the relation of meaning or purpose in life to LOC. Purpose has been found to be positively related to internal LOC (Jackson & Coursey, 1988; Richards, 1990; Yarnell, 1971). Purpose was negatively related to both powerful others and chance loci of control (Jackson & Coursey, 1988; Richards, 1990). Purpose and measures of spiritual or God LOC were found to be positively related in one study (Richards, 1990) and equivocally related in another study (Jackson & Coursey, 1988).

Critique of Literature

Religious Orientation

Religious orientation of research participants is examined in varying ways. Many researchers use a categorical approach to classify participants: (a) Intrinsic religiousness only (Braam et al., 1997); (b) Intrinsic vs. Extrinsic religiousness (Kahoe, 1974; Soderstrom & Wright, 1977); (c) Intrinsic vs. Extrinsic vs. Quest (Burris, 1994; McIntosh & Spilka, 1990); and (d) 4-fold typology (Bergin et al., 1987; Bolt, 1975; Donahue, 1985). Drawbacks to typing include limited use of data on religious orientation and the potential for reduced variability (e.g., Bergin et al., 1987).

Other researchers have measured individuals' degree of religiousness on a continuum. Many evaluate only intrinsic religiousness (Davis et al., 2003; Storch et al., 2002), whereas others evaluate the degree of both intrinsic and extrinsic religiousness (Baker & Gorsuch, 1982; Crandall & Rasmussen, 1975; Koenig et al., 1998; Koenig et al., 1988; Paloutzian et al., 1978; Watson et al., 2002). However, only a few studies examining religious orientation in relation to the variables studied in this project have examined the degree of intrinsic, extrinsic, *and* quest religiousness within each individual (Genia, 1996; Maltby & Day, 2000; Maltby et al., 1999; Spilka et al., 1985). This is the methodology that will be used in this study, although a different measure will be utilized. This method of examining the degree of each type of religiousness within an individual allows for a more complete picture of how religiousness may relate to mental health.

Genia (1996) noted that it is customary to restrict samples to religious respondents in research on religious orientation. Some researchers restrict their samples by screening for religious interest (e.g., Batson, Naifeh, & Pate, 1978; Genia, 1996; McIntosh & Spilka, 1990) or by targeting particular populations, such as church members (Jackson & Coursey, 1988; Sturgeon & Hamley, 1979), or members of other religiously-affiliated groups (e.g., Baker & Gorsuch, 1982). However, not all researchers do this (e.g., Burris, 1994; Davis et al., 2003). The author recognizes that at times convenience samples may unintentionally lead to restricted samples (e.g., Bergin et al., 1987).

When "less religious" participants are excluded from a study, it is more difficult to examine how various levels of religiousness affect mental health. In the current study, participants will not be excluded based on level of religious interest, in an attempt to

investigate the range of religiousness in this sample. However, the importance of religion in each participant's life will be assessed and its relation to other variables will be examined.

Locus of Control

In most of the LOC studies reviewed in this paper, either Rotter's Locus of Control Scale or Levenson's Multidimensional Locus of Control Scales were used to assess LOC. Only seven studies assessed a spiritual or religious component to LOC (Bjorck et al., 1997; Berrenberg, 1987; Gabbard et al., 1986; Jackson & Coursey, 1988; McIntosh & Spilka, 1990; Richards, 1990; Welton et al., 1996), using the following measures: Kopplin's God Control Scale (Bjorck et al., 1997; McIntosh & Spilka, 1990), Berrenberg's God-Mediated Control subscale (Berrenberg, 1987), a religious revision of the Rotter Intenal-External scale (Gabbard et al., 1986), God as a Causal Agent Scale (Jackson & Coursey, 1988), the Universal Forces scale (Richards, 1990), and Welton's God Control Scale (Welton et al., 1996).

Although Berrenberg developed a LOC scale including a God-Mediated Control subscale, the scale also includes a measure of exaggerated internal control, which is correlated with the Mania scale of Plutchik et al.'s (1970) measure. Exaggerated internal control seems to be measuring something different than the "internal control" measured on scales such at Rotter's Internal-External LOC and Levenson's Scale, and is not of interest in the current study.

The "Universal Forces" control measure examines belief in supernatural control, without reference to God as conceptualized in religion, and is not an explicit measure of

"God control." Kopplin's God Control Scale, Gabbard's religious revision of Rotter's scale, and God as a Causal Agent Scale each explicitly measure attributions of control to God. However, Welton's revised version of Levenson's LOC measure incorporates a measure of God Control into an established measure of LOC. The Multidimensional Locus of Control Scales: God Revision (Welton, 1999) will be used in this study to measure Internal control, External control (powerful others and chance), and God control.

Spiritual Meaning

Measures of meaning used in these studies include the Purpose-in-Life Test (Bolt, 1975; Crandall & Rasmussen, 1975; Crumbaugh, 1968; Jackson & Coursey, 1988; Lester & Badro, 1992; Paloutzian et al., 1978; Philips, 1980; Richards, 1990; Soderstrom & Wright, 1977; Yarnell, 1971), the Existential Well-Being subscale of the Spiritual Well-Being Scale (Davis et al., 2003; Genia, 1996), and the use of two items from Allport's Religious Orientation Scale (Wright et al., 1993). Although, these studies examined aspects of life meaning, the measures used did not allow for the measurement of spiritual meaning. Only the Spiritual Meaning Scale (Mascaro et al., 2004) explicitly measures life meaning that is linked to religious constructs and self-transcendence. The Spiritual Meaning Scale will be used in the current study to examine the relation between spiritual meaning and anxious and depressive symptomatology.

Social Desirability

Some discussion exists in the literature about whether or not using measures of social desirability in research with religious orientation is necessary or appropriate. Part of the debate concerns whether high scores on social desirability indicate increased

impression management (Batson, 1976; Batson et al., 1978; Burris, 1994) or whether these measures are biased against religious individuals who respond in an honest manner (Morris, Hood, & Watson, 1989). Research has found that intrinsic religiousness is positively correlated with social desirability (Batson et al., 1978). However, Genia (1996) found no relation between intrinsic religiousness and social desirability. The relations between social desirability and both Extrinsic and Quest orientations are equivocal. Extrinsic religiousness has been positively (Genia, 1996) and non-significantly related to social desirability (Batson et al., 1978). Quest religiousness has been negatively (Genia, 1996; Spilka et al., 1985) and non-significantly related to social desirability (Batson et al., 1978). A measure of social desirability will be used in the current study to replicate previous research. However, the author is aware that the results should be interpreted with caution given the equivocal findings to date.

Hypotheses

Much of the research on the psychology of religion has examined simple bivariate correlations between religious constructs and other psychological constructs. Specifically, research relating religious orientation to locus of control, meaning or purpose in life, anxious symptomatology, and depressive symptomatology has been studied in simple ways. Previous research may be extended by examining locus of control and spiritual meaning as mediators of the relations between religious orientation and anxious and depressive symptomatology. Locus of control and meaning have been related to anxious and depressive symptomatology in the literature. It would make sense that one's religiousness would contribute to one's sense of who or what has control in

one's life and to one's sense of whether or not there is meaning inherent in life. Perhaps, one's sense of control and spiritual meaning are what drives the relations between religiousness and anxious and depressive symptoms.

Support has been found for the view that coping mediates the relation between emotions and stress (Folkman & Lazarus, 1988). An individual's report of locus of control and spiritual meaning may be indicative of coping style. Religious/spiritual and internal coping styles are proposed to buffer against stress, leading to lower levels of symptomatology indicative of distress, while external coping styles are proposed to lead to higher levels of symptomatology indicative of distress. Existential meaning has also been shown to act as a stress-buffer. In a study of undergraduate university students, existential meaning was found to predict depressive symptoms two months later. Higher meaning was associated with lower levels of depressive symptoms (Mascaro & Rosen, 2005). Also, the positive relation between stress and depressive symptoms has been found to wane with higher levels of spiritual meaning (Mascaro & Rosen, 2006).

The author hypothesizes that the constructs of locus of control and spiritual meaning mediate the relations between religious orientation and anxious symptomatology and between religious orientation and depressive symptomatology. Simple visual depictions of these models are contained in Figures 1 and 2.

The goal of this project is to extend the existing psychology of religion literature by answering the following questions using mediated regression analyses:

1. Do spiritual meaning and LOC mediate the relations between religious orientation and anxious symptoms in a university sample?

2. Do spiritual meaning and LOC mediate the relations between religious orientation and depressive symptoms in a university sample?

Also, to replicate previous research on religious orientation, social desirability will be measured in the current study. Social desirability will be examined as a moderator of the relations between religious orientation and anxious symptomatology and depressive symptomatology. It seems that one's desire to manage impressions may be related to their report of anxious and depressive symptoms. The analyses to be conducted are listed below.

Hypothesis 1: Spiritual meaning mediates the relation between

a. Intrinsic Religious Orientation and Anxious Symptomatology.

b. Intrinsic Religious Orientation and Depressive Symptomatology.

c. Extrinsic Religious Orientation and Anxious Symptomatology.

d. Extrinsic Religious Orientation and Depressive Symptomatology.

e. Quest Religious Orientation and Anxious Symptomatology.

f. Quest Religious Orientation and Depressive Symptomatology.

Hypothesis 2: Internal LOC mediates the relation between

a. Intrinsic Religious Orientation and Anxious Symptomatology.

b. Intrinsic Religious Orientation and Depressive Symptomatology.

c. Extrinsic Religious Orientation and Anxious Symptomatology.

d. Extrinsic Religious Orientation and Depressive Symptomatology.

e. Quest Religious Orientation and Anxious Symptomatology.

f. Quest Religious Orientation and Depressive Symptomatology.

Hypothesis 3: Powerful Others LOC mediates the relation between

a. Intrinsic Religious Orientation and Anxious Symptomatology.

b. Intrinsic Religious Orientation and Depressive Symptomatology.

c. Extrinsic Religious Orientation and Anxious Symptomatology.

d. Extrinsic Religious Orientation and Depressive Symptomatology.

e. Quest Religious Orientation and Anxious Symptomatology.

f. Quest Religious Orientation and Depressive Symptomatology.

Hypothesis 4: Chance LOC mediates the relation between

a. Intrinsic Religious Orientation and Anxious Symptomatology.

b. Intrinsic Religious Orientation and Depressive Symptomatology.

c. Extrinsic Religious Orientation and Anxious Symptomatology.

d. Extrinsic Religious Orientation and Depressive Symptomatology.

e. Quest Religious Orientation and Anxious Symptomatology.

f. Quest Religious Orientation and Depressive Symptomatology.

Hypothesis 5: God LOC mediates the relation between

a. Intrinsic Religious Orientation and Anxious Symptomatology.

b. Intrinsic Religious Orientation and Depressive Symptomatology.

c. Extrinsic Religious Orientation and Anxious Symptomatology.

d. Extrinsic Religious Orientation and Depressive Symptomatology.

e. Quest Religious Orientation and Anxious Symptomatology.

f. Quest Religious Orientation and Depressive Symptomatology.

Hypothesis 6: Social desirability moderates the relation between

a. Intrinsic Religious Orientation and Anxious Symptomatology.

b. Intrinsic Religious Orientation and Depressive Symptomatology.

c. Extrinsic Religious Orientation and Anxious Symptomatology.

d. Extrinsic Religious Orientation and Depressive Symptomatology.

e. Quest Religious Orientation and Anxious Symptomatology.

f. Quest Religious Orientation and Depressive Symptomatology.

METHODS

Sample

Students enrolled in undergraduate psychology courses at Texas A&M University were recruited to participate in this study. Students received course credit for their participation. They completed the measures described below. The questionnaires were counterbalanced to control for possible ordering effects.

Measures

Demographic Questionnaire

A demographic questionnaire was used to gather data on gender, age, ethnicity, year in college, religious affiliation, interest in religion, personal importance of religion, and participation in religious activities.

Allport's Religious Orientation Scale

Allport's Religious Orientation Scale (Hill & Hood, 1999) was used to measure intrinsic and extrinsic religious orientations. The degree to which an individual's religious orientation is characterized by two types of religious orientation (Intrinsic and Extrinsic) was measured. This measure consists of 20 questions: nine assessing intrinsic religiousness and eleven assessing extrinsic religiousness. For each statement, the participant scored the item on a Likert-type scale from 1 (Strongly Disagree) to 9 (Strongly Agree) as suggested by Batson (Batson, et al., 1993). Individual scores on each scale, ranging from 1 to 9, were obtained.

Batson's Quest Scale

Batson's Quest Scale (Hill & Hood, 1999) was used to measure the degree to which an individual's religious orientation is characterized by a quest religious orientation. This measure consists of 12 questions. For each statement, the participant scored the item on a Likert-type scale from 1 (Strongly Disagree) to 9 (Strongly Agree). Individual scores on each scale, ranging from 1 to 9, were obtained.

The Multidimensional Locus of Control Scales: God Control Revision

The Multidimensional Locus of Control Scales: God Control Revision (Welton, 1999) was used to measure four types of LOC: Internal, Chance (a form of External control), Powerful Others (a form of External control), and God Control. Welton et al. (1996) revised Levenson's (1974) Multidimensional Locus of Control Scales by altering two items and adding items to measure God Control. The questionnaire consists of 32 items. For each statement, the participant scored the item on a Likert-type scale from +3 (Agree Strongly) to -3 (Disagree Strongly). Individual scores, ranging from -24 to 24, were obtained.

Spiritual Meaning Scale

The Spiritual Meaning Scale (Mascaro et al., 2004) was used to measure spiritual meaning, defined as "the extent to which an individual believes that life or some force of which life is a function has a purpose, will, or way in which individuals participate" (Mascaro et al., 2004; p. 5). The questionnaire consists of 14 questions. For each statement, participants scored items on Likert-type scale from 1 (I totally disagree) to 5 (I

totally agree). Scale scores range from 14 to 70, with higher scores indicating higher spiritual meaning.

Marlowe-Crowne Social Desirability Scale Short Form A

This shortened version of the Marlowe-Crown Social Desirability Scale was used to measure impression management (Reynolds, 1982). This form has been shown to have better psychometric properties than the original scale (Loo & Thorpe, 2000). The questionnaire consists of 11 True-False items. Scores range from 0 to 11, with higher scores indicating a higher need for approval.

Anxiety and Depression Scales of the Personality Assessment Inventory

The scales on the Personality Assessment Inventory (PAI) cover the full range of the severity of the construct from mild to quite severe (Morey, 1999). For each question, the participant scored the item on 4-point scale from "Totally False" to "Very True." Both the Anxiety and Depression Scales of the PAI consist of 24 items. Raw scores range from 0 to 72, with higher scores indicating higher levels of symptomatology.

Procedures

Participants read and signed an informed consent form, which was stored separately from the measure packet. Data collection was conducted in groups of 30 or fewer participants. After reading the instructions (which also were given orally by a data collector), participants completed the Demographic Questionnaire. Participants then completed the remaining measures placed in packets in counterbalanced order. Once participants' measure packets were turned in, they were informed regarding procedures for confirming course credit for their participation.

Data Analyses

Study questions were answered by analyzing the data using correlational analyses, mediated regression analyses, and moderated regression analyses.

RESULTS

The results of this study will be presented as follows: (a) demographic data, (b) reliability of measures, (c) student's t-tests for gender differences, (d) mediated regression analyses, and (e) moderated regression analyses. Little data were missing from the participant packets. Mean replacement was used to fill the empty cells.

Demographic Data

Data were collected from 409 participants. One case was excluded because mental health data were missing. Seven cases were excluded due to excessive influence, as measured by DfBetas which assess changes in regression coefficients when cases are deleted. Of the seven deleted cases, five participants were 18 years old, one was 19, and one was 20. Four were male and three were female. Five were Caucasian and two were Hispanic. Six were in their first year of college while one participant was a second year student. The following religious affiliations were reported: 2 Baptists, 2 Catholics, 1 Agnostic, 1 Lutheran, and 1 reported being personally religious without having any particular affiliation. Both the average interest in religion or spirituality and the average personal importance of religion or spirituality were reported by deleted participants as 5.57 on a 1 – 9 scale, with 9 indicating a high level of interest or importance and 1 indicating a low level of interest or importance. The participants reported that their mothers' highest level of education was as follows: 3 mothers earned graduate degrees, 2 mothers earned undergraduate degrees, and 2 mothers attended a 2-year college. The participants reported that their fathers' highest level of education was as follows: 5 fathers earned graduate degrees, 1 father attended a 4-year college or university, and 1

father attended a 2-year college. Religious orientation was measured on a 1 – 9 scale with 9 indicating the highest degree of a particular orientation. On average, participants scored 5.05 for intrinsic religiousness, 4.57 for extrinsic religiousness, and 6.21 for Quest religiousness. Locus of control was measured on a scale from – 24 (indicating strong disagreement with a particular type of locus of control) to 24 (indicating strong agreement with a particular type of locus of control). On average, participants scored 10.29 on internal LOC, 6.43 on powerful others LOC, 7.86 on Chance LOC, and 8.29 on God LOC. On average, participants scored 57 for spiritual meaning (with 70 indicating the most spiritual meaning and 0 indicating the least) and 2.71 on social desirability (with 11 indicating the most social desirability and 0 indicating the least). On a scale from 0 to 72, with 72 indicating a very high degree of symptoms and zero indicating no symptoms, participants scored 57.00 on anxious symptoms, on average, and 35.43 on depressive symptoms, on average.

To put the mental health raw scores into perspective, raw anxious and depressive symptomatology scores on the PAI Anxiety and Depression scales are described here in terms of T-scores. Morey (1991) described T-scores of 59T or below as average, meaning that the person reports few complaints of either anxiety or depression. Scores from 60T to 69T may be indicative of stress or worry on the PAI Anxiety scale and of unhappiness and pessimism on the PAI Depression scale. Scores of 70T and above on the PAI Anxiety scale suggest "significant anxiety and tension" and on the PAI Depression scale suggest "prominent dysphoria" (Morey, 1991; p. 14). The mean *T*-score of 87*T* on anxious symptomatology and mean *T*-score of 75*T* on depressive

Table 1.

Scale Scores on Measures for Analyzed and Deleted Cases

Measure	Potential Range of Scale Scores	Analyzed Cases	Deleted Cases
Interest	1 – 9	6.9	5.6
Importance	1 – 9	7.3	5.6
IRO	1 – 9	6.0	5.1
ERO	1 – 9	4.1	4.6
QRO	1 – 9	4.9	6.2
SMS	14 – 70	61.0	57.0
ILOC	-24 to 24	9.0	10.3
PO LOC	-24 to 24	-5.4	6.4
Ch LOC	-24 to 24	-4.5	7.9
God LOC	-24 to 24	10.3	8.3
SDS	0 – 11	3.9	2.7
PAIA	0 – 72	18.5 (51*T*)	57.0 (87*T*)
PAID	0 – 72	14.9 (52*T*)	35.4 (75*T*)

Note. Interest = interest in religion/spirituality, Importance = personal importance of religion/spirituality, IRO = Intrinsic Religious Orientation, ERO = Extrinsic Religious Orientation, QRO = Quest Religious Orientation, SMS = Spiritual Meaning Scale, ILOC = Internal Locus of Control, PLOC = Powerful Others Locus of Control, CLOC = Chance Locus of Control, GLOC = God Locus of Control, SDS= social desirability scale, PAIA = Personality Assessment Inventory Anxiety Scale, PAID = Personality Assessment Inventory Depression Scale

symptomatology indicate that these participants, on average, are experiencing clinically significant symptomatology.

Overall, the deleted cases seemed to be somewhat different from other cases in the sample. They seemed to find religion and spirituality somewhat less interesting and personally important, seemed somewhat less intrinsically religious and somewhat more extrinsically religious, and appeared to be higher on Quest religiousness. They had

slightly higher internal LOC, higher powerful others LOC, higher Chance LOC, somewhat lower God LOC, slightly lower spiritual meaning and social desirability scores, and higher anxious and depressive symptomatology. See Table 1 for a comparison of scores on the measures for deleted cases compared to the scores on the measures for analyzed cases.

Four hundred one cases remained for analysis. The sample was 49.1% male and 50.9% female. The mean age of participants was 18.9 years, with ages ranging from 18 to 27 years. The sample consisted of primarily Caucasian students (85.5%), with the remaining students identifying themselves as Hispanic (7.7%), African American (2.2%), Asian American (2.0%), and Other (2.5%). Participants who were of "Other" ethnicities (n = 10) identified themselves as being Asian-Caucasian (*n* = 2), Asian (*n* = 1), Black and Korean (*n* = 1), Indian (*n* = 1), Mexican and Japanese (*n* = 1), Native American (*n* =1), Pacific Islander (*n* = 1), White-Hispanic (*n* = 1), and one failed to identify a particular ethnicity (*n* = 1). Participants were primarily 1st year undergraduates (67.1%), while the remaining students indicated that they were in their 2nd year (18.7%), 3rd year (8.0%), 4th year (4.5%), and beyond their 4th year (1.7%). Most participants' mothers graduated from a 4-year college or university (42.9%). The remaining participants reported that the highest level of education completed by their mothers was as follows: completed the 8th grade or lower (1.5%), completed some high school (0.7%), graduated from high school (10.7%), completed some college (15.0%), graduated from a 2-year college or technical school (7.0%), completed some courses at a 4-year university (7.2%), and graduated with a post-bachelor's degree (15.0%). Most participants' fathers graduated from a 4-year

college or university (38.0%). The remaining participants reported that the highest level of education completed by their fathers was as follows: completed the 8th grade or lower (2.8%), completed some high school (1.0%), graduated from high school (10.3%), completed some college (11.0%), graduated from a 2-year college or technical school (3.8%), completed some courses at a 4-year university (6.8%), and graduated with a post-bachelor's degree (26.5%). The sample was mostly Protestant (62.1%), while the remaining participants were Catholic (24.7%), personally religious or spiritual, but with no specific orientation (6.7%), Agnostic (1.5%), Atheist (1.0%), Muslim (0.7%), Buddhist (0.7%), Hindu (0.2%), and other (2.2%). Of those who reported that they were Protestant (n = 249), 35.3% were Baptist, 21.7% were Methodist, 21.7% were from non-denominational or Bible churches, 8.0% were Lutheran, 5.2% were Episcopal, 4.0% were Church of Christ, 1.6% were Presbyterian, 1.2% were Disciple of Christ, 0.8% were Pentecostal, and 0.4% did not report a particular denomination/Protestant affiliation. Of those who reported their religious orientation as "Other" (n = 9), each of the following was reported as their religion by one participant: "whatever," Christian Science, Mormon, Pagan, Unitarian Universalist, Wiccan-Dianic, and Wiccan. Two participants reported their religious orientation as "none."

Participants were asked to rate both their interest in religiousness and spirituality and the personal importance of religiousness or spirituality in their lives on a 1 to 9 scale, with 1 indicating the least interest/importance and 9 indicating the most interest/importance. This sample was moderately-to-extremely interested in religion and spirituality (M = 6.93, SD = 1.82) and indicated that religion and spirituality are

moderately-to-extremely personally important (M= 7.30, SD = 1.83), with both distributions being skewed toward higher levels of interest and importance. Interest and importance were highly and significantly correlated ($r = 0.889$, $p < .001$). In Batson's work, degree of interest in religion is used as an exclusionary criterion (Batson, Naifeh, & Pate, 1978). Both degree of interest and personal importance of religion and spirituality were assessed to determine if asking about personal importance rather than interest would be more useful when assessing religiousness and for use as an exclusionary criterion. It seems that although these questions may be assessing different things, participants' answers are quite similar on these questions.

Participants' average scores on the measures given are reported. For religious orientation, participants averaged 6.04 for Intrinsic Religiousness, 4.07 for Extrinsic Religiousness, and 4.89 for Quest Religiousness. For locus of control, participants averaged 8.96 on Internal LOC, -5.35 for Powerful Others LOC, -4.52 for Chance LOC, and 10.25 for God LOC. The average spiritual meaning and social desirability scores were 60.98 and 3.94, respectively. The average anxious and depressive symptomatology scores were 18.52 (51*T*) and 14.94 (52*T*), respectively. This indicates that on average participants reported few complaints of either anxiety or depression and are experiencing symptoms at a level that is comparable to the college sample reported in the PAI Professional Manual (1991). Additional demographic data is contained in Table 2.

Table 2.

Number of Participants, Percentage of Participants, Mean Scores, and Standard Deviations for Demographic Data

Demographic Categories	*N*	%	*M*	*SD*
Gender				
Male	197	49.1		
Female	204	50.9		
Age	397		18.9	1.2
Ethnicity				
African American	9	2.2		
Asian American	8	2.0		
Caucasian	343	85.5		
Hispanic	31	7.7		
Other	10	2.5		
"Other" Ethnicities				
Asian	1	10		
Asian-Caucasian	2	20		
Black & Korean	1	10		
Indian	1	10		
Mexican/Japanese	1	10		
Native American	1	10		
Pacific Islander	1	10		
White-Hispanic	1	10		
Unspecified	1	10		
Year in School				
1st year	269	67.1		
2nd year	75	18.7		
3rd year	32	8.0		
4th year	18	4.5		
Beyond 4th year	7	1.7		
Education of Mother				
8th grade or lower	6	1.5		
Attended high school	3	0.7		
High school graduate	43	10.7		
Attended 2-year college	60	15.0		
2-year college graduate	28	7.0		
Attended 4-year college	29	7.2		
4-year college graduate	172	42.9		
Post-Bachelors graduate	60	15.0		
Education of Father				
8th grade or lower	11	2.8		
Attended high school	4	1.0		

Table 2 (continued).

Demographic Categories	*N*	%	*M*	*SD*
High school graduate	41	10.3		
Attended 2-year college	44	11.0		
2-year college graduate	15	3.8		
Attended 4-year college	27	6.8		
4-year college graduate	152	38.0		
Post-Bachelors graduate	106	26.5		
Religious Affiliation				
Agnostic	6	1.5		
Atheist	4	1.0		
Buddhist	3	0.7		
Catholic	99	24.7		
Hindu	1	0.2		
Muslim	3	0.7		
Personally religious	27	6.7		
Protestant	249	62.1		
Other	9	2.2		
Protestant Denominations				
Baptist	88	35.3		
Church of Christ	10	4.0		
Disciple of Christ	3	1.2		
Episcopal	13	5.2		
Lutheran	20	8.0		
Methodist	54	21.7		
Non-denominational/Bible Church	54	21.7		
Pentecostal	2	0.8		
Presbyterian	4	1.6		
Unspecified	1	0.4		
"Other" Religions				
"Whatever"	1	.11		
Christian Science	1	.11		
Mormon	1	.11		
"None"	2	.22		
Pagan	1	.11		
Unitarian-Universalist	1	.11		
Wiccan-Dianic	1	.11		
Wiccan	1	.11		
Interest in Religion [a]	401	-	6.9	1.8
Personal Importance of Religion [a]	401	-	7.3	1.8
Intrinsic Religiousness [b]	401	-	6.0	1.8
Extrinsic Religiousness [b]	401	-	4.1	1.1
Quest Religiousness [b]	401	-	4.9	1.2

Table 2 (continued).

Demographic Categories	*N*	%	*M*	*SD*
Internal Locus of Control [c]	400	-	9.0	6.7
Powerful Others Locus of Control [c]	400	-	-5.4	7.9
Chance Locus of Control [c]	400	-	-4.5	7.3
God Locus of Control [c]	400	-	10.3	12.8
Spiritual Meaning [d]	401	-	61.0	7.9
Social Desirability [e]	401	-	3.9	2.4
Depressive Symptomatology [f]	401	-	14.9	9.1
Anxious Symptomatology [f]	401	-	18.5	12.0

Note: [a] 1-to 9-point scale, with 9 indicating a high level of interest or importance and 1 indicating a low level of interest or importance, [b] 1- to 9-point scale, with 9 indicating the highest degree of the religious orientation and 1 indicating the lowest, [c] -24- to +24-point scale, with -24 indicating strong disagreement with the type of LOC and 24 indicating strong agreement with the type of LOC, [d] 0- to 70-point scale, with 70 indicating the most spiritual meaning and 0 indicating the least, [e] 0- to 11-point scale, with 11 indicating the most social desirability and 0 indicating the least, [f] 0- to 72-point scale, with 72 indicating a very high degree of symptoms and 0 indicating no symptoms

When asked about participation in religious activities, most (83.0%) of the sample reported that they pray or meditate at least once per week or more. Almost half (42.1%) of the sample reported that they attend religious services at least once per week or more. Slightly more than one-third (37.8%) of the sample reported reading religious texts at least once per week or more, and 14.7% reported volunteering to participate in or lead religious activities or services at least once per week or more. Detailed information about participation in religious activities in contained in Table 3.

Table 3.

Percentage of Participants Reporting That They Engage in Religious/Spiritual Activities

Frequency	Pray/Meditate	Attend Religious Services	Read Religious Texts	Volunteer/participate in religious activities
More than once per day	29.3	0.0	1.5	0.0
Once per day	23.3	0.0	9.5	0.0
More than once per week	20.8	17.3	14.8	7.2
Once per week	9.8	24.8	12.0	7.5
More than once per month	7.0	17.5	13.0	9.5
Once per month	2.5	13.5	11.0	10.7
More than once per year	3.8	17.0	19.0	23.4
Once per year	0.5	2.5	4.5	9.7
Less than once per year	0.8	4.0	5.8	13.0
Never	2.5	3.3	9.0	19.0

Note. N = 401

Participants were given the opportunity to indicate any additional religious activities in which they participate. Their responses were grouped into the following categories: 1) scripture study (e.g. Bible study), 2) spiritual development (e.g. Sunday school), 3) religious singing (e.g. church choir), 4) serving in a religious capacity (e.g. church camp counselor), 5) participation and/or membership in a religious organization (e.g. Aggie Sisters for Christ), and 6) religious discourse/conversation (e.g. share your faith). One hundred sixteen participants (28.9% of the sample) reported participating in at least one additional activity, 52 participants (13.0%) in at least two additional activities, and 22 participants (5.5%) in three additional activities. Detailed information about the frequency of participation in the additional religious activities is contained in Tables 4 – 6.

Table 4.

Number of Participants (% of Participants) Reporting That They Engage in Religious/Spiritual Activities for Additional Activity 1

Frequency	1[a]	2[b]	3[c]	4[d]	5[e]	6[f]
More than once per week	22 (19%)	9 (8%)	2 (2%)	7 (6%)	15 (13%)	4 (3%)
Once per month/More than once per month	4 (3%)	3 (3%)	2 (2%)	1 (1%)	1 (1%)	2 (2%)
More than once per year/Once per year/Less than once per year	1 (1%)	7 (6%)	1 (1%)	27 (23%)	5 (4%)	1 (1%)
Unreported frequency	0 (0%)	0 (0%)	0 (0%)	2 (2%)	0 (0%)	0 (0%)

Note. N = 116; [a] Category 1 = scripture study, [b] Category 2 = spiritual development, [c] Category 3 = religious singing, [d] Category 4 = serving in a religious capacity, [e] Category 5 = participation and/or membership in a religious organization, [f] Category 6 = religious discourse/conversation

Table 5.

Number of Participants (% of Participants) Reporting That They Engage in Religious/Spiritual Activities for Additional Activity 2

Frequency	1[a]	2[b]	3[c]	4[d]	5[e]	6[f]
More than once per week	7 (13%)	8 (15%)	3 (6%)	2 (4%)	10 (19%)	2 (4%)
Once per month/More than once per month	0 (0%)	4 (8%)	0 (0%)	2 (4%)	3 (6%)	0 (0%)
More than once per year/Once per year/Less than once per year	0 (0%)	2 (4%)	0 (0%)	8 (15%)	0 (0%)	0 (0%)
Unreported frequency	0 (0%)	0 (0%)	0 (0%)	1 (2%)	0 (0%)	0 (0%)

Note. N = 52; [a] Category 1 = scripture study, [b] Category 2 = spiritual development, [c] Category 3 = religious singing, [d] Category 4 = serving in a religious capacity, [e] Category 5 = participation and/or membership in a religious organization, [f] Category 6 = religious discourse/conversation

Table 6.

Number of Participants (% of Participants) Reporting That They Engage in Religious/Spiritual Activities for Additional Activity 3

Frequency	1[a]	2[b]	3[c]	4[d]	5[e]	6[f]
More than once per week	5 (23%)	7 (32%)	0 (0%)	0 (0%)	2 (9%)	0 (0%)
Once per month/More than once per month	0 (0%)	2 (9%)	0 (0%)	1 (5%)	1 (5%)	0 (0%)
More than once per year/Once per year/Less than once per year	0 (0%)	1 (5%)	0 (0%)	3 (14%)	0 (0%)	0 (0%)

Note. N = 22; [a] Category 1 = scripture study, [b] Category 2 = spiritual development, [c] Category 3 = religious singing, [d] Category 4 = serving in a religious capacity, [e] Category 5 = participation and/or membership in a religious organization, [f] Category 6 = religious discourse/conversation

According to the Office of Institutional Studies and Planning at Texas A&M University, 35,732 undergraduate students were registered at Texas A&M in Fall 2004 (http://www.tamu.edu/oisp/reports/ep/epfa2004_certified.pdf). Almost half of the student population was female (49.2%) and 50.8% was male. The population consisted of mostly White students (81.7%). Other ethnicities represented include Black (2.3%), Hispanic (10.1%), Asian (3.3%), American Indian (0.5%), International students (1.5%), and Unknown/Other ethnicities (0.6%). The age categories represented in the undergraduate population included those under 18 (0.2%), 18 – 21 years (71.2%), 22 – 25 years (26.1%), 26 – 30 years (1.6%), 31 – 39 years (0.6%), and those over 40 years of age (0.3%). Based on the available demographic information for the student population at

TAMU, the sample collected was representative of the composition of the population in terms of gender, age, and ethnicity.

Internal Consistency of Measures Analyses

Internal consistency reliability was assessed for all measures using Cronbach's alpha and item total correlations (see Table 7). According to guidelines suggested in Robinson, Shaver, and Wrightsman (1991), internal consistency was exemplary (α = .80 or above) for the Intrinsic Religious Orientation subscale, God LOC subscale, Spiritual Meaning Scale, PAI Depression Scale, and PAI Anxiety Scale. Internal consistency was extensive (α =.70-.79) for the Extrinsic Religious Orientation subscale, Quest Scale, and Powerful Others LOC subscale and was moderate (α =.60-.69) for the Internal LOC subscale, Chance LOC subscale, and Social Desirability Scale.

Most of the item-total correlations for each subscale were satisfactory (above 0.6). However, half of the item-total correlations for the internal LOC subscale were below 0.6. Also, the item "I have little interest in sex" on the PAI Depression Scale was negatively correlated with many other items on the scale. It seems likely that responses to the item were reflective of participants' religious concerns rather than depressive symptomatology. The internal consistency of this scale was exemplary even with this item included.

Table 7.

Scale Reliability Indices

Scale	Cronbach's alpha	Range of item-total correlations
Extrinsic Religious Orientation	.72	.68-.71
Intrinsic Religious Orientation	.90	.88-.91
Quest Orientation	.77	.73-.79
Internal LOC	.64	.57-.65
Chance LOC	.69	.63-.70
God LOC	.95	.94-.95
Powerful Others LOC	.75	.70-.76
Spiritual Meaning Scale	.87	.86-.87
Social Desirability Scale	.65	.61-.64
PAI Depression Scale	.87	.86-.88
PAI Anxiety Scale	.92	.91-.92

Student's *t*-tests for Gender Differences

Because the literature indicated that gender differences exist when examining many religious and spiritual constructs, student's *t*-tests were conducted to determine if gender differences existed for religious orientation, locus of control, anxious and depressive symptomatology, spiritual meaning, and social desirability.

When gender differences in religious orientation were examined, *t*-tests for extrinsic religious orientation and quest orientation were not significant, $t(399) = .12$, $p = .90$ (two-tailed) and $t(399) = -.37$, $p = .71$ (two-tailed), respectively. The *t*-test for intrinsic religious orientation approached significance, $t(399) = -1.90$, $p = .06$ (two-tailed). Examination of the means indicated that intrinsic religious orientation was somewhat higher in females than in males ($M = 6.21$, $SD = 1.69$ and $M = 5.87$, $SD = 1.92$, respectively).

When gender differences in locus of control were examined, the *t*-test for powerful others LOC was not significant, $t(398) = 1.32$, $p = .19$ (two-tailed). The *t*-test for internal LOC was significant, $t(398) = 2.00$, $p = .05$ (two-tailed). Examination of the means indicated that females had lower internal LOC than males ($M = 8.30$, $SD = 6.85$ and $M = 9.63$, $SD = 6.48$, respectively). The *t*-test for chance LOC was significant, $t(398) = 3.23$, $p = .001$ (two-tailed). Examination of the means indicated that females had lower chance LOC than males ($M = -5.67$, $SD = 6.88$ and $M = -3.33$, $SD = 7.57$, respectively). When examining gender differences in God LOC, Levene's test for equality of variances was significant, $F(1, 398) = 9.74$, $p = .002$, so the t-value not assuming equal variances was examined. A significant gender difference in God LOC emerged, $t(374.15) = -2.53$, $p = .01$ (two-tailed). Examination of the means indicated that females had higher God LOC than males ($M = 11.83$, $SD = 11.26$ and $M = 8.61$, $SD = 13.98$, respectively).

When gender differences in mental health variables were examined, the *t*-test for depressive symptomatology was not significant, $t(399) = .42$, $p = .67$ (two-tailed). When

examining gender differences in anxious symptomatology, Levene's test for equality of variances was significant, $F(1, 399) = 4.89$, $p = .03$, so the t-value not assuming equal variances was examined. A significant gender difference in anxious symtpomatology emerged, $t(395.91) = -3.89$, $p < .001$ (two-tailed). Examination of the means indicated that females had higher anxious symptomatology than males ($M = 20.77$, $SD = 12.54$ and $M = 16.18$, $SD = 11.08$, respectively).

The *t*-test for social desirability was not significant, $t(399) = -.001$, $p = .999$ (two-tailed). When examining gender differences in spiritual meaning, Levene's test for equality of variances was significant, $F(1, 399) = 26.51$, $p < .001$, so the *t*-value not assuming equal variances was examined. A significant gender difference in spiritual meaning emerged $t(328.56) = -4.21$, $p < .001$ (two-tailed). Examination of the means indicated that females had higher spiritual meaning than males ($M = 62.58$, $SD = 5.83$ and $M = 59.32$, $SD = 9.24$, respectively).

In sum, gender differences existed for the following variables: internal LOC, chance LOC, God LOC, anxious symptomatology, and spiritual meaning. Females had lower levels of internal LOC and chance LOC and higher levels of God LOC, anxious symptomatology, and spiritual meaning than males.

Regression Analyses for Mediation Models

To determine if a mediated regression can be conducted, it must be determined that significant correlations exist between the following variables for each proposed mediational relation: (a) predictor – criterion, (b) predictor – mediator, and (c) mediator –

criterion. Table 8 provides a correlation matrix with this information. The mediational hypotheses that met these criteria are discussed in this section. Because the literature indicates that gender differences often exist when studying religious issues and mental health and due to the gender differences found in this sample, gender was entered as a covariate in all of the following analyses.

Table 8.

Correlations Among Variables for Mediated Regressions

	IRO	ERO	QRO	SMS	ILOC	PLOC	CLOC	GLOC	PAIA	PAID
IRO	-									
ERO	-.17 [c]	-								
QRO	-.12 [a]	.20 [c]	-							
SMS	.57 [c]	-.13 [b]	-.07	-						
ILOC	-.23 [c]	.27 [c]	.10 [a]	-.17 [c]	-					
PLOC	-.20 [c]	.28 [c]	.13 [b]	-.11 [a]	.21 [c]	-				
CLOC	-.20 [c]	.33 [c]	.21 [c]	-.20 [c]	.18 [c]	.52 [c]	-			
GLOC	.83 [c]	-.09	-.15 [b]	.61 [c]	-.23 [c]	-.13 [b]	-.13 [b]	-		
PAIA	-.14 [b]	.18 [c]	.14 [b]	-.16 [b]	-.08	.21 [c]	.28 [c]	-.10 [a]	-	
PAID	-.18 [c]	.09	.14 [b]	-.29 [c]	-.02	.24 [c]	.33 [c]	-.14 [b]	.61 [c]	-

[a] $p < .05$
[b] $p < .01$
[c] $p \leq .001$

Note. IRO = Intrinsic Religious Orientation, ERO = Extrinsic Religious Orientation, QRO = Quest Religious Orientation, SMS = Spiritual Meaning Scale, ILOC = Internal Locus of Control, PLOC = Powerful Others Locus of Control, CLOC = Chance Locus of Control, GLOC = God Locus of Control, PAIA = Personality Assessment Inventory Anxiety Scale, PAID = Personality Assessment Inventory Depression Scale

Mediational Hypotheses

Hypothesis 1: Spiritual Meaning Mediates the Relation Between Religious Orientation and Anxious Symptomotology and Depressive Symptomatology

Hypotheses 1a and 1b. Intrinsic Religious Orientation. To test spiritual meaning as mediating the relation between intrinsic religious orientation and anxious and depressive symptomatology, the three step process outlined by Baron and Kenny (1986) was used. Intrinsic Religious Orientation was significantly related to Spiritual Meaning ($r = 0.57$, $p < .001$). Given this significant relation, a mediated regression was conducted for both anxious and depressive symptomatology.

Intrinsic religiousness was entered and accounted for 2% of the variance in anxious symptomatology ($p < .01$), controlling for gender. Spiritual meaning was entered and accounted for an additional 1% of the variance in anxious symptomatology ($p = .05$). The Beta weight for intrinsic religiousness was reduced substantially (-.13 to -.07) and was reduced to non-significance. Thus, the mediational hypothesis was supported; spiritual meaning mediated the relation between intrinsic religiousness and anxious symptomatology.

Intrinsic religiousness accounted for 3% of the variance in depressive symptomatology ($p < .001$), controlling for gender. Spiritual meaning accounted for an additional 5% of the variance in depressive symptomatology ($p < .001$). The Beta weight for intrinsic religiousness was reduced substantially (-.18 to -.02) and was reduced to non-significance. Thus, the mediational hypothesis was supported; spiritual meaning

appears to mediate the relation between intrinsic religious orientation and depressive symptomatology.

Hypotheses 1c and 1d. Extrinsic Religious Orientation. Extrinsic Religious Orientation was significantly related to Spiritual Meaning (r = -0.13, $p < .01$). Thus a mediated regression was conducted to test whether spiritual meaning mediated the relation between extrinsic religious orientation and anxious and depressive symptomatology. Extrinsic religiousness accounted for 3% of the variance in anxious symptomatology ($p < .001$), controlling for gender. Spiritual meaning accounted for an additional 2% of the variance in anxious symptomatology ($p < .01$). The Beta weight for extrinsic religiousness was reduced (β = .18 to .16), but was not reduced to non-significance. Thus, spiritual meaning appears to partially mediate the relation between extrinsic religious orientation and anxious symptomatology.

Extrinsic religiousness accounted for less than 1% of the variance in depressive symptomatology ($p > .05$), controlling for gender. Given that there was no significant direct effect of extrinsic religiousness on depressive symptomatology, spiritual meaning cannot act as a mediating variable. Thus, there is not enough evidence to support Hypothesis 1d.

Hypotheses 1e and 1f. Quest Religious Orientation. Quest Religious Orientation was not significantly related to Spiritual Meaning (r = -0.07, $p > .05$). Given this lack of a relation, Spiritual Meaning cannot mediate the relation between Quest Religious Orientation and Anxious and Depressive Symptomatology. Thus, Hypotheses 1e and 1f are not supported by these data.

Hypothesis 2: Internal LOC Mediates the Relation Between Religious Orientation and Anxious Symptomatology and Depressive Symptomatology

To test Internal LOC as mediating the relation between intrinsic religious orientation and anxious and depressive symptomatology, the three step process outlined by Baron and Kenny (1986) was used. Intrinsic Religious Orientation was significantly related to Internal LOC (r = -0.23, $p < .001$). However, Internal LOC was not significantly related to either anxious symptomatology (r = -0.08, $p > .05$) or depressive symptomatology (r = -0.02, $p > .05$), controlling for gender. Given this lack of a relation, Internal LOC cannot mediate the relations between Religious Orientation and Anxious and Depressive Symptomatology. Thus, Hypotheses 2a through 2f are not supported by these data.

Hypothesis 3: Powerful Others LOC Mediates the Relation Between Religious Orientation and Anxious and Depressive Symptomatology

Hypotheses 3a and 3b. Intrinsic Religious Orientation. To test powerful others LOC as mediating the relation between intrinsic religious orientation and anxious and depressive symptomatology, the three step process outlined by Baron and Kenny (1986) was used. Intrinsic Religious Orientation was significantly related to Powerful Others LOC (r = -0.20, $p < .001$). Given this significant relation, a mediated regression was conducted for both anxious and depressive symptomatology.

Intrinsic religiousness was entered and accounted for 2% of the variance in anxious symptomatology ($p < .01$), controlling for gender. Powerful others LOC was entered and accounted for an additional 4% of the variance in anxious symptomatology

($p < .001$). The Beta weight for intrinsic religiousness was reduced substantially (-.13 to -.09) and was reduced to non-significance. Thus, the mediational hypothesis was supported; powerful others LOC appears to mediate the relation between intrinsic religious orientation and anxious symptomatology.

Intrinsic religiousness accounted for 3% of the variance in depressive symptomatology ($p < .001$), controlling for gender. Powerful others LOC accounted for an additional 4% of the variance in depressive symptomatology ($p < .001$). The Beta weight for intrinsic religiousness was reduced (-.18 to -.14), but was not reduced to non-significance. Thus, partial mediation was supported; powerful others LOC appears to partially mediate the relation between intrinsic religious orientation and depressive symptomatology.

Hypotheses 3c and 3d. Extrinsic Religious Orientation. Extrinsic Religious Orientation was significantly related to Powerful Others LOC ($r = 0.28$, $p < .001$). Thus a mediated regression was conducted to test whether powerful others LOC mediated the relation between extrinsic religious orientation and anxious symptomatology and depressive symptomatology. Extrinsic religiousness accounted for 3% of the variance in anxious symptomatology ($p < .001$), controlling for gender. Powerful others LOC accounted for an additional 3% of the variance in anxious symptomatology ($p = .001$). The Beta weight for extrinsic religiousness was reduced (.17 to .13), but was not reduced to non-significance. Thus, powerful others LOC appears to partially mediate the relation between extrinsic religious orientation and anxious symptomatology.

Extrinsic religiousness accounted for less than 1% of the variance in depressive symptomatology ($p > .05$), controlling for gender. Given that there was no significant direct effect of extrinsic religiousness on depressive symptomatology, powerful others LOC cannot act as a mediating variable. Thus, there was not enough evidence to support Hypothesis 3d.

Hypotheses 3e and 3f. Quest Religious Orientation. Quest Religious Orientation was significantly related to Powerful Others LOC ($r = 0.13$, $p < .01$). Given this significant relation, a mediated regression was conducted for both anxious and depressive symptomatology.

Quest religiousness was entered and accounted for 2% of the variance in anxious symptomatology ($p < .01$), controlling for gender. Powerful others LOC accounted for an additional 4% of the variance in anxious symptomatology ($p < .001$). The Beta weight for quest religiousness was reduced (-.14 to -.12), but was not reduced to non-significance. Thus, powerful others LOC appears to partially mediate the relation between quest religious orientation and anxious symptomatology.

Quest religiousness accounted for 2% of the variance in depressive symptomatology ($p < .01$), controlling for gender. Powerful others LOC accounted for an additional 5% of the variance in depressive symptomatology ($p < .001$). The Beta weight for quest religiousness was reduced (.14 to .11), but was not reduced to non-significance. Thus, partial mediation was supported; powerful others LOC appears to partially mediate the relation between quest religious orientation and depressive symptomatology.

Hypothesis 4: Chance LOC Mediates the Relation Between Religious Orientation and Anxious and Depressive Symptomatology

Hypotheses 4a and 4b. Intrinsic Religious Orientation. To test chance LOC as mediating the relation between intrinsic religious orientation and anxious and depressive symptomatology, the three step process outlined by Baron and Kenny (1986) was used. Intrinsic Religious Orientation was significantly related to Chance LOC (r = -0.20, $p < .001$). Given this significant relation, a mediated regression was conducted for both anxious and depressive symptomatology.

Intrinsic religiousness was entered and accounted for 2% of the variance in anxious symptomatology ($p < .01$), controlling for gender. Chance LOC was entered and accounted for an additional 7% of the variance in anxious symptomatology ($p < .001$). The Beta weight for intrinsic religiousness was reduced substantially (-.13 to -.08) and was reduced to non-significance. Thus, the mediational hypothesis was supported; chance LOC mediated the relation between intrinsic religiousness and anxious symptomatology.

Intrinsic religiousness accounted for 3% of the variance in depressive symptomatology ($p < .001$), controlling for gender. Chance LOC accounted for an additional 9% of the variance in depressive symptomatology ($p < .001$). The Beta weight for intrinsic religiousness was reduced substantially (-.18 to -.12), but was not reduced to non-significance. Thus, chance LOC partially mediated the relation between intrinsic religious orientation and depressive symptomatology.

Hypotheses 4c and 4d. Extrinsic Religious Orientation. Extrinsic Religious Orientation was significantly related to Chance LOC (r = -0.33, $p < .001$). Thus a mediated regression was conducted to test whether chance LOC mediates the relation between extrinsic religious orientation and anxious and depressive symptomatology. Extrinsic religiousness accounted for 3% of the variance in anxious symptomatology ($p < .001$), controlling for gender. Chance LOC accounted for an additional 5% of the variance in anxious symptomatology ($p < .001$). The Beta weight for extrinsic religiousness was reduced (β = .17 to .09) and was not reduced to non-significance. Thus, Chance LOC appears to mediate the relation between extrinsic religious orientation and anxious symptomatology.

Extrinsic religousness accounted for less than 1% of the variance in depressive symptomatology ($p > .05$), controlling for gender. Given that there was no significant direct effect of extrinsic religiousness on depressive symptomatology, chance LOC cannot act as a mediating variable. Thus, there is not enough evidence to support Hypothesis 4d.

Hypotheses 4e and 4f. Quest Religious Orientation. Quest Religious Orientation was significantly related to chance LOC (r = 0.21, $p < .001$), thus a mediated regression was conducted to test whether chance LOC mediates the relation between quest religious orientation and anxious and depressive symptomatology. Quest religiousness accounted for 2% of the variance in anxious symptomatology ($p < .01$), controlling for gender. Chance LOC accounted for an additional 7% of the variance in anxious symptomatology ($p < .001$). The Beta weight for extrinsic religiousness was reduced (β = .14 to .09) and

was reduced to non-significance. Thus, Chance LOC appears to mediate the relation between quest religious orientation and anxious symptomatology.

Quest religiousness accounted for 2% of the variance in depressive symptomatology ($p < .01$), controlling for gender. Chance LOC accounted for an additional 10% of the variance in anxious symptomatology ($p < .001$). The Beta weight for extrinsic religiousness was reduced ($\beta = .14$ to $.07$) and was reduced to non-significance. Thus, Chance LOC appears to mediate the relation between quest religious orientation and depressive symptomatology.

Hypothesis 5: God LOC Mediates the Relation Between Religious Orientation and Anxious and Depressive Symptomatology

Hypotheses 5a and 5b. Intrinsic Religious Orientation. To test God LOC as mediating the relation between intrinsic religious orientation and anxious and depressive symptomatology, the three step process outlined by Baron and Kenny (1986) was used. Intrinsic Religious Orientation was significantly related to God LOC ($r = 0.83$, $p < .001$). Given this significant relation, a mediated regression was conducted for both anxious and depressive symptomatology.

Intrinsic religiousness was entered and accounted for 2% of the variance in anxious symptomatology ($p < .01$), controlling for gender. God LOC was entered and accounted for less than 1% of the variance in anxious symptomatology ($p > .05$). The Beta weight for intrinsic religiousness was increased (-.13 to -.15). Thus, there is not enough evidence to support Hypothesis 5a.

Intrinsic religiousness accounted for 3% of the variance in depressive symptomatology ($p < .001$), controlling for gender. God LOC was entered and accounted for less than 1% of the variance in depressive symptomatology ($p > .05$). The Beta weight for intrinsic religiousness was increased (-.18 to -.21). Thus, there is not enough evidence to support Hypothesis 5b.

Hypotheses 5c and 5d. Extrinsic Religious Orientation. Extrinsic Religious Orientation was not significantly related to God LOC ($r = -0.09$, $p > .05$). Given this lack of a relation, God LOC cannot mediate the relation between Extrinsic Religious Orientation and Anxious and Depressive Symptomatology. Thus, Hypotheses 5c and 5d are not supported by these data.

Hypotheses 5e and 5f. Quest Religious Orientation. Quest Religious Orientation was significantly related to God LOC ($r = -0.15$, $p > .01$), thus a mediated regression was conducted to test whether God LOC mediates the relation between quest religious orientation and anxious and depressive symptomatology.

Quest religiousness was entered and accounted for 2% of the variance in anxious symptomatology ($p < .01$), controlling for gender. God LOC was entered and accounted for less than 1% of the variance in anxious symptomatology ($p > .05$). The Beta weight for quest religiousness was decreased slightly (.14 to .13) and was not reduced to non-significant. Thus, there is not enough evidence to support Hypothesis 5e.

Quest religiousness accounted for 2% of the variance in depressive symptomatology ($p < .01$), controlling for gender. God LOC was entered and accounted for 1% of the variance in depressive symptomatology ($p < .05$). The Beta weight for

intrinsic religiousness was decreased (.14 to .12) and was not reduced to non-significance. Thus, God LOC partially mediates the relation between Quest religiousness and depressive symptomatology.

Summary of Mediational Hypotheses

In sum, many of the mediational hypotheses were supported. Spiritual meaning mediated the relation between intrinsic religiousness and anxious symptomatology (Hypothesis 1a) and between intrinsic religiousness and depressive symptomatology (Hypothesis 1b). Powerful others LOC mediated the relation between intrinsic religiousness and anxious symptomatology (Hypothesis 3a). Chance LOC mediated the relations between intrinsic religiousness and anxious symptomatology (Hypothesis 4a), between extrinsic religiousness and anxious symptomatology (Hypothesis 4c), between quest religiousness and anxious symptomatology (Hypothesis 4e), and between quest religiousness and depressive symptomatology (Hypothesis 4f).

Partial mediation was also supported in some cases. Spiritual meaning partially mediated the relation between extrinsic religious orientation and anxious symptomatology (Hypothesis 1c). Powerful others LOC partially mediated the relations between extrinsic religiousness and anxious symptomatology (Hypothesis 3c), between quest religiousness and anxious symptomatology (Hypothesis 3e), between intrinsic religiousness and depressive symptomatology (Hypothesis 3b), and between quest religiousness and depressive symptomatology (Hypothesis 3f). Chance LOC partially mediated the relation between intrinsic religious orientation and depressive

symptomatology (Hypothesis 4b). God LOC partially mediated the relation between quest religious orientation and depressive symptomatology (Hypothesis 5f).

Detailed depictions of the relations between the variables in the mediated regression analyses are contained in Figures 3 and 4. Solid arrows in the figures indicate that a significant relation was found. Dashed arrows in the figures indicate that a non-significant relation was found. The (+) symbol indicates that there is a positive correlation, and the (-) symbol indicates that there is a negative correlation.

Regression Analyses for Moderation Models

Three paths are examined when using moderated regression analyses: (a) the impact of the predictor on the criterion variable, (b) the impact of the moderator on the criterion variable, and (c) the impact of the interaction of the predictor and moderator. For moderation to be supported, the interaction must be significant. Significant main effects for the predictor and moderator may also be found (Baron & Kenny, 1986). Baron and Kenny (1986; p. 1174) state "it is desirable that the moderator variable be uncorrelated with both the predictor and the criterion (the dependent variable) to provide a clearly interpretable interaction term." In this study, social desirability (moderator) was non-significantly correlated with religious orientation (predictor variables), but was significantly correlated with both anxious and depressive symptomatology (criterion variables). However, the variables were centered to protect against difficulties in interpretation due to collinearity among the variables. Again, gender was entered as a covariate in all of the following analyses. Correlations among variables for the moderated regressions are contained in Table 9.

Table 9.

Correlations Among Variables for Moderated Regressions

	SDS	IRO	ERO	QRO	PAIA	PAID
SDS	-					
IRO	.06	-				
ERO	.02	-.17***	-			
QRO	-.08	-.12*	.20***	-		
PAIA	-.28***	-.14**	.18***	.14**	-	
PAID	-.28***	-.18***	.09	.14**	.61***	-

* $p < .05$
** $p < .01$
*** $p \leq .001$

Note. SDS = Social Desirability Scale, IRO = Intrinsic Religious Orientation, ERO = Extrinsic Religious Orientation, QRO = Quest Religious Orientation, PAIA = Personality Assessment Inventory Anxiety Scale, PAID = Personality Assessment Inventory Depression Scale

Hypothesis 6: Social Desirability Moderates the Relation Between Religious Orientation and Anxious and Depressive Symptomatology

Hypotheses 6a and 6b. Intrinsic Religious Orientation

To test social desirability as moderating the relation between intrinsic religious orientation and anxious symptomatology, the process outlined by Baron and Kenny (1986) was used. The Beta weight for the interaction term (intrinsic religiousness * social desirability) was not significant ($\beta = .07$, $p = .19$), and thus, Hypothesis 6a is not supported. However, a significant main effect was found. Increased social desirability

was related to decreased anxious symptomatology, β= -.27, $p < .001$. Intrinsic religiousness was non-significantly related to anxious symptomatology, β = -.09, $p = .08$.

To test social desirability as moderating the relation between intrinsic religious orientation and depressive symptomatology, a moderated regression was conducted. The Beta weight for the interaction term (intrinsic religiousness * social desirability) was not significant (β = -.01, $p = .83$), and thus, Hypothesis 6b was not supported. However, significant main effects were found. Increased intrinsic religiousness and increased social desirability were related to decreased depressive symptomatology, β = -.17, $p < .01$ and β = -.27, $p < .001$, respectively.

Hypotheses 6c and 6d. Extrinsic Religious Orientation

To test social desirability as moderating the relation between extrinsic religious orientation and anxious symptomatology, a moderated regression was conducted. The Beta weight for the interaction term (extrinsic religiousness x social desirability) was not significant (β = -.07, $p = .17$), and thus, Hypothesis 6c was not supported. However, significant main effects were found. Decreased extrinsic religiousness and increased social desirability were related to decreased anxious symptomatology, β = .15, $p < .01$ and β = -.28, $p < .001$, respectively.

To test social desirability as moderating the relation between extrinsic religious orientation and depressive symptomatology, a moderated regression was conducted. The Beta weight for the interaction term (extrinsic religiousness x social desirability) was significant (β = -.11, $p < .05$), and thus, social desirability does moderate the relation between extrinsic religiousness and depressive symptomatology. As social desirability

lessened, the relation between extrinsic religiousness and depressive symptomatology became stronger. A significant main effect was also found. Increased social desirability was related to decreased depressive symptomatology, β= -.28, $p < .001$. Extrinsic religiousness was non-significantly related to depressive symptomatology, β = .05, p = .36.

Hypotheses 6e and 6f. Quest Religious Orientation

To test social desirability as moderating the relation between quest religious orientation and anxious symptomatology, a moderated regression was conducted. The Beta weight for the interaction term (quest religiousness * social desirability) was not significant (β = -.06, p = .24), and thus, Hypothesis 6e was not supported. However, significant main effects were found. Decreased quest religiousness and increased social desirability were related to decreased anxious symptomatology, β = .10, $p < .05$ and β= -.27, $p < .001$, respectively.

To test social desirability as moderating the relation between quest religious orientation and depressive symptomatology, a moderated regression was conducted. The Beta weight for the interaction term (quest religiousness * social desirability) was not significant (β = -.04, p = .46), and thus, Hypothesis 6f was not supported. However, significant main effects were found. Increased social desirability was related to decreased depressive symptomatology, β = -.27, $p < .001$, respectively. The relation between quest religiousness and depressive symptomatology approached significance, β = .10, p = .053.

Summary of Moderational Hypotheses

In sum, only one moderational hypothesis was supported. Social desirability moderated the relation between extrinsic religiousness and depressive symptomatology. Figure 5 illustrates this relation. Also, increased social desirability was related to decreased anxious and depressive symptomatology. Decreased extrinsic religiousness and decreased quest religiousness were related to decreased anxious symptomatology. Although intrinsic religiousness and anxious symptomatology were negatively correlated, there was not a main effect for intrinsic religiousness as it relates to anxious symtpomatology after accounting for the interaction between intrinsic religiousness and social desirability. Increased intrinsic religiousness and decreased quest religiousness were related to decreased depressive symptomatology. Extrinsic religiousness was non-significantly related to depressive symptomatology.

DISCUSSION AND CONCLUSIONS

An individual's approach to religiousness seems to contribute to other views in life that are relevant to mental health. More specifically, religious orientation seems to contribute to people's sense of spiritual meaning and locus of control, which plays a role in anxious and depressive symptomatology (Archer, 1979; Holder & Levi, 1988; Mascaro et al., 2004; McIntosh & Spilka, 1990).

Sample Characteristics

Much of the available literature on religiousness, spirituality, and mental health variables includes research conducted using a university sample. It is possible that, given that the present study includes a university sample, this may have been a contributing factor to corroborating results found in the literature. However, similar relations also occurred across diverse populations, including geriatric samples (e.g. Koenig et al., 1988), religiously-affiliated samples (e.g. Baker & Gorsuch, 1982), adolescents (Davis et al., 2003), military personnel and clinical populations (Yarnell, 1971), and community adults (Crumbaugh, 1968), which lends more credence to the generalizability of some of the findings.

Given that a majority of the U.S. population claims to be Christian, one might surmise that many of those studied in research in the U.S. might also be Christian. Most of the sample in the present study identified themselves as Christian. Perhaps, the relation between religiousness, spirituality, and mental health might vary across religious affiliation.

The sample in the present study was quite homogenous and provided interesting data about religious orientation in a young, primarily Protestant university sample. Efforts were made in recruitment to avoid self-selection in the study due to interest in religion by describing the study in the recruitment materials as studying "world views and attitudes." However, the lack of diversity in terms of religious affiliation, ethnicity, age, and educational level represents a weakness. The lack of heterogeneity in the sample may have led to some of the statistical limitations, including skewness, kurtosis, and heteroscedasctiscity. In some analyses, the assumptions of normality and homoscedasticity were violated. However, the analyses performed are quite robust to violations, and none of the violations was so severe that data transformation was needed.

Although on average the sample reported symptoms of anxious and depressive symptomatology in the average range, it should be noted that scores ranging from 60T to 69T were attained by 13.22% on the Anxiety scale and by 13.47% of the participants on the Depression scale. Also, scores at or above 70T were attained by 6.48% of the sample for the Anxiety scale and by 8.23% of the sample for the Depression scale. Although the majority of participants (approximately 80%) scored in the average range for both anxious and depressive symptomatology, this was not the case for all participants.

Religious Orientation

The intercorrelations of the religious orientation subscales in the present study were all in the same direction, although stronger, as the findings of a study of 424 undergraduates interested in religion (Batson et al., 1993; p. 172). In the present study, the expected relations between types of religious orientation were found, given the

findings in the literature. Participants who reported all levels of religious interest were analyzed in the present study whereas Batson studies only those who report at least a moderate interest in religion. Almost one-tenth (9.2%) of the sample would have been eliminated if this restriction had been used. The direction of the relations between types of religious orientations did not deviate from the expected directions, even with more variability in the sample. These correlations were less attenuated than Batson's due to the broader view of religiousness and consequently more inclusive sample used in this study.

Intrinsic Religiousness

Results indicated that persons who reported higher intrinsic religiousness also reported higher spiritual meaning and God LOC, but less internal LOC, powerful others LOC, chance LOC and fewer anxious symptoms and depressive symptoms. Recall that Intrinsic Religiousness refers to valuing faith as being of ultimate importance and incorporating faith into daily life (Allport, 1966; Allport & Ross, 1967).

Anxious Symptoms

Specifically, spiritual meaning, Powerful Others LOC, and Chance LOC each fully mediated the relation between Intrinsic Religiousness and anxious symptomatology. This indicates that intrinsic religious orientation was relevant to anxious symptomatology to the extent that it was related to a sense of spiritual meaning and to powerful others LOC and chance LOC. Therefore, intrinsic religiousness contributed to a higher sense of the divine working in one's life and to less of a sense of other people or fate controlling one's life, which in turn leads to lessened anxious symptoms.

Depressive Symptoms

The relation between Intrinsic Religiousness and depressive symptomatology was fully mediated by spiritual meaning and partially mediated by powerful others LOC and chance LOC. This indicates that intrinsic religiousness was associated with depressive symptomatology to the extent that it is related to a sense of spiritual meaning in one's life, and to a lesser degree, to the extent that it is related to one's perception of other people and fate contributing to one's life. Therefore, intrinsic religiousness may contribute to a higher sense of spiritual meaning and a lower sense of others and fate contributing to life outcomes, which in turn leads to lessened depressive symptoms. However, God LOC did not mediate the relation. Because God LOC was so highly correlated with Intrinsic Religiousness, it seems that these scales may be measuring similar constructs.

Extrinsic Religiousness

Results indicated that persons who reported higher extrinsic religiousness also reported higher internal LOC, powerful others LOC, chance LOC, and more anxious symptoms, but lower spiritual meaning. Recall that Extrinsic Religiousness refers to religiousness that is utilitarian and is used to address more important concerns in one's life (Allport & Ross, 1967). Also, Extrinsic religiousness was non-significantly negatively related with God LOC. This finding follows from the concept of extrinsic religiousness. Those who are extrinsically religious are defined as using religious means to achieve personal ends and would not be likely to have a sense of control of their lives being attributed to God.

Anxious Symptoms

Specifically, Chance LOC fully mediated and spiritual meaning and Powerful Others LOC both partially mediated the relation between Extrinsic Religiousness and anxious symptomatology. This indicates that extrinsic religious orientation was relevant to anxious symptomatology to the extent that it was related to chance LOC and, to a lesser degree, to the extent that it is related to a sense of spiritual meaning in one's life and to one's perception of other people contributing to one's life. Therefore, extrinsic religiousness may contribute to a lower sense of spiritual meaning and to a higher sense of control in life by others and chance, which in turn leads to greater anxious symptoms.

Depressive Symptoms

Depressive symptoms were non-significantly positively related to extrinsic religiousness. Limited support for a non-significant correlation was found in the literature (Watson et al., 2002).

Quest Religiousness

Results indicated that persons who reported higher quest religiousness also reported higher internal LOC, powerful others LOC, chance LOC, and more anxious and depressive symptoms, but lower God LOC. Recall that Quest Religiousness refers to religiousness that includes doubt and questioning (Batson et al., 1993). Spiritual meaning was non-significantly negatively related to Quest religiousness.

Anxious Symptoms

Specifically, Chance LOC fully mediated and Powerful Others LOC partially mediated the relation between quest religiousness and anxious symptomatology. This

indicates that quest religiousness was relevant to anxious symptomatology to the extent that it was related to a sense of others and fate controlling one's life. Therefore, quest religiousness contributed to a greater sense of others and fate controlling one's life, which in turn leads to greater anxious symptoms.

Depressive Symptoms

Chance LOC fully mediated and both Powerful Others LOC and God LOC partially mediated the relation between quest religiousness and depressive symptomatology. This indicates that quest religious orientation was relevant to depressive symptomatology to the extent that it was related to a sense of fate controlling one's life and, to a lesser degree, was related to a sense of others controlling one's life and God's control in one's life. Therefore, quest religiousness contributed to a greater sense of fate acting on life and a lessened sense of others and God controlling one's life outcomes, which in turn leads to greater depressive symptoms.

Locus of Control

God LOC was negatively related to all other forms of locus of control measured in this study. God LOC's negative correlation with internal LOC supports Welton et al.'s (1996) similar finding in a sample from a major Midwestern state university. That higher God LOC was associated with lower external LOC in this study does not support the small amount of literature on this topic. Welton et al. (1996) found that God control was not significantly related to powerful others or chance LOC in both a university sample and a Christian college sample. Berrenberg (1987) found that God-Mediated Control and External LOC were significantly positively correlated ($r = .15$, $p < .05$). In the present

study, the more one believes that God is in control, the less one believes that external forces, such as fate or others, or oneself can control one's life. This is consistent with the conceptualization that perception of fate, chance, or luck is not synonymous with a belief that a deity controls events in human lives. Many religious individuals understand God as having ultimate authority over all things and all people and reject the notion that chance or other people determine life occurrences. Many religious individuals also seek God's direction in their lives and see this as relinquishing their control to God.

God LOC was very highly correlated with intrinsic religiousness ($r = .83$, $p < .001$). This is an indication that these scales may be measuring the same construct. Previous studies have not used these measures together before. It seems that in the future, researchers may choose to combine these scales or chose to use only one of them.

The variable internal LOC seemed problematic in this study. Its internal consistency was low, indicating that it did not correlate well with itself. It also correlated with other variables in the study in unexpected ways that were contradictory to the literature. Internal LOC was positively and significantly correlated with both types of External LOC (Powerful Others and Chance) and was non-significantly negatively correlated with anxious and depressive symptomatology, indicating that Internal LOC has little impact on these mental health variables. Welton et al. (1996) argued that including God LOC questions in a measure could change the meaning of the internal LOC questions for respondents on that measure. It is possible that this contributed to these findings. It is also possible that the statistical problems with the internal LOC subscale, including the lack of variance in responses and the low internal consistency, in this study

led to findings that were contradictory to the literature (Berrenberg, 1987; Holder & Levi, 1988; Jaswal & Dewan, 1997; Natale, 1978; Watson, 1967). More research should be conducted to better understand the relation between internal LOC and God LOC, and more specifically, how responses regarding internal LOC may change when God LOC items are included on a measure.

Spiritual Meaning

Spiritual meaning related to religious orientation in a logical way. Its positive relation to intrinsic religiousness makes sense since both constructs address an awareness of a spiritual or religious presence in one's life. Its negative relation to extrinsic religiousness can be understood by the greater importance placed on self relative to spiritual issues characteristic of extrinsic religiousness. Spiritual meaning's non-significant relation to quest religiousness may be explained by the sense of being unsure of spiritual issues present in quest religiousness.

Spiritual meaning also related to LOC in mostly expected ways. One might expect that one who experiences the divine working in their lives would report a high level of God LOC and lower levels of external control from powerful others and chance. Those reporting a greater sense of spiritual meaning in this study reported a lesser sense of internal LOC, which may be again be related to a sense of feeling direction and guidance coming from a spiritual source rather than from within oneself.

Social Desirability

Social desirability was found to moderate one relation between religious orientation and mental health variables. Social desirability moderated the relation

between extrinsic religious orientation and depressive symptomatology. Therefore, at varying levels of social desirability the relation between extrinsic religious and depressive symptomatology changed. More specifically, although this relation was positive at all levels of social desirability, as social desirability lessened the relation between extrinsic religiousness and depressive symptomatology became stronger. The remaining moderational hypotheses were not supported.

Significant main effects for social desirability were found in each moderated regression. Greater social desirability was related to less anxious and depressive symptomatology. Perhaps, individuals who received higher scores on the social desirability measure were trying to portray themselves in a positive light by indicating that they were not experiencing difficulties with anxious and depressive symptoms. It is also possible that those who received high scores on this measure answered truthfully and that the attitudes and actions detailed in this measure are related to lower levels of anxious and depressive symptoms.

Social desirability had only small, non-significant correlations with each type of religious orientation. The non-significant correlation between social desirability and intrinsic religiousness is supported by Genia (1996; using the 1993 revision of the Religious Orientation Scale) and Spilka et al. (1985; using the 1967 Religious Orientation Scale), but contradicted by Batson et al. (1978; using the Religion as End factor). The non-significant correlation between social desirability and extrinsic religiousness is supported by Batson et al. (1978; using the Religion as Means factor), Genia (1996; in relation to Extrinsic-Social religiousness as measured by the 1993 revision of the

Religious Orientation Scale), and Spilka et al. (1985; using the 1967 Religious Orientation Scale and the Edwards Social Desirability Scale), but contradicted by Genia (1996; in relation to Extrinsic-Personal Religiousness) and Spilka et al (1985; using the 1967 Religious Orientation Scale and the 1964 version of the Marlowe-Crowne Social Desirability Scale). The non-significant correlation between social desirability and Quest religiousness was supported by Batson et al. (1978; using the Religion as Quest factor) and Spilka et al. (1985; using the 1982 Interaction scale by Batson and the Marlowe-Crown Social Desirability Scale), and contradicted by Genia (1996; using the 1991 version of the Quest Scale) and Spilka et al. (1995; using the 1967 Religious Orientation Scale and the Edwards Social Desirability Scale).

The study samples appear to be quite similar. Each of these studies included undergraduate students and restricted samples by including only participants with at least a moderate interest in religion. Different versions of similar measures were used in these studies, which may account for some of the conflicting findings. Varying social desirability measures used in these studies include the 1964 version of the Marlowe Crown Social Desirability Scale (used in Batson, et al., 1978, and Spilka, et al., 1985), the 1972 version of the Marlowe Crown Social Desirability Scale (used in Genia, 1996), and the Edwards Social Desirability Scale (used in Spilka, et al., 1985). Based on Spilka et al.'s results, it appears that findings vary when using different scales to measure the same construct (i.e. social desirability), even in the same sample. It seems very likely that the conflicting findings in the literature are at least partially due to the variation in measures used. Based on the findings in the present study, it seems that social

desirability as measured by the *Marlowe-Crowne Social Desirability Scale Short Form A* is not biased against religious individuals. Social desirability's non-significant relation to religious orientation in this study appears to indicate that one's religiousness does not determine one's desire to manage outside impressions.

Most of these studies' findings indicate that social desirability is not significantly related to religious orientation which is also found in the present study. In this study, social desirability was significantly negatively related to anxious and depressive symptomatology. It may be that individuals are answering truthfully to the items on the social desirability scale as suggested by Morris et al. (1989). Perhaps, the attributes, such as forgiveness, courtesy, and acceptance, described by the social desirability scale are related to lessened anxious and depressive symptomatology.

Strengths and Limitations

A major strength of this study is the extension of simple correlational research on the relations between religious constructs and other psychological constructs to examine mediational and moderational models including these constructs. This study also added to the limited research on spiritual meaning and God LOC. The Spiritual Meaning Scale is a relatively new measure with excellent psychometric properties. The construct Spiritual Meaning has been related to lessened anxious and depressive symptomatology. Inclusion of the God LOC subscale allowed participants another option for describing their sense of control in life, especially for those who experience spiritual control. New research questions have been raised regarding LOC and will be discussed below.

The use of a broad definition of religion also reflects a strong point of the study. The use of Hill's definition would have restricted the sample to the religious who belonged to an "identifiable group of people" (Hill et al., 2000; p.66). The use of Batson's definition encouraged the inclusion of those who may not be affiliated with any particular religious group. This study surpassed Batson's inclusiveness by not restricting the sample to those who indicate at least somewhat of an interest in religion (e.g., Batson et al., 1978). By not restricting the sample, a broader view of religiousness was attained.

Another strength of the study is the use of continuous variables to measure religious orientation rather than a typology. Also, including Quest religiousness is a strength, given that this is relatively atypical. This method of examining the degree of each type of religiousness within an individual allows for a more complete picture of how religiousness may relate to mental health.

Research on religiousness and spirituality is increasing in psychology. Studies such as this can create an awareness of the importance of religious and spiritual issues in people's lives and how these issues may be related to mental health. As noted in the previous section, the sample in this study may be viewed as both a strength and a limitation. The sample is accurately reflects the demographic pattern at the university, but may not generalize to characteristics of other universities or the general population. A strength of this sample includes the lack of sample selection based on religious interest, which is common in research on religiousness (e.g. Batson et al., 1978). Participants with all levels of religious interest were included to examine how different levels of religiousness relate to mental health.

Although most of the measures used exhibited extensive to exemplary internal consistency, a few scales showed only moderate internal consistency, including the Internal LOC subscale, Chance LOC subscale, and Social Desirability Scale. The Internal LOC seemed the most problematic with half of the item-total correlations for the internal LOC subscale below 0.6, the threshold for satisfactory item-total correlations. This suggests that the subscale may not be assessing internal LOC very well in this sample. Other researchers have encountered difficulties in measuring locus of control. One possible remedy for this dilemma is to assess introversion and extraversion rather than internal LOC and external LOC.

Some limitations are related to the type of data collected. All data collected was self-report. It is possible that participants may think and view themselves in a certain way, but their actions or others' observations of them might give a conflicting picture or additional insight into the persons' attitudes. Also, cross-sectional, correlational data was collected. This data can only be used to describe how certain religious and psychological constructs relate at a certain point in time and does not allow for observations of changes over time or for causational conclusions to be reached. The data was also collected primarily from freshmen in college. Due to the specific developmental challenges facing this type of sample, the generalizability of the results may be limited to this particular segment of the population.

Directions for Future Research and Applications

Researching levels of each type of religiousness *together* within each case can provide more accurate, realistic, and complete information about religiousness in

individuals' lives. For example, perhaps individuals with high intrinsic religiousness, low extrinsic religiousness, and high Quest religiousness have fewer anxious and depressive symptoms than individuals with moderate intrinsic religiousness, moderate extrinsic religiousness and low Quest religiousness. Researchers could examine whether or not certain combinations of levels of religiousness relate to mental health outcomes.

Because the sample in this study was relatively homogenous, another important avenue for future research is to examine religious variables in samples with greater diversity, including more religiously, ethnically, educationally, and generationally diverse samples. For example, samples could be gathered at universities with more ethically and religiously diverse populations, in nursing homes, in clinical settings, or in national phone surveys.

Continued research on locus of control with a God LOC scale may elucidate the relations between types of locus of control and their relations to religious and mental health variables when spiritual control is taken into account. Specifically, the relations between internal LOC and God LOC and between internal LOC and external LOC when God LOC is assessed need further study. Do reports of internal LOC differ when God LOC items are included? Do the relations between internal LOC and external LOC differ when God LOC items are included versus when God LOC items are not included? This study would suggest that these relations are different. Another question to research is whether these relations differ for those with varying degrees of religiousness?

The majority of participants indicated that they experience religion or spirituality as important in their lives. Given this and the relations of religious and spiritual variables

to mental health, it seems important for clinicians to become aware of the varying ways that individuals may express their religiousness and how this may be related to other aspects of their world view, specifically spiritual meaning and locus of control, and to mental health issues.

Some clients may feel more comfortable, better understood, and may make better progress in therapy when important aspects of their lives, such as religiousness, are addressed in a sensitive, respectful manner and are not unnecessarily pathologized. Clinicians should attempt to recognize the beneficial and detrimental aspects of religiousness. Understanding clients' religiousness may benefit case conceptualization, including identifying clues to the origins and maintaining factors for some problems. For many religious individuals, their religiousness and spirituality are strengths that may be utilized to meet therapeutic goals. Also, Frankl discussed how lack of meaning in life may lead to emotional maladjustment. Issues like spiritual meaning and purpose in life can be very relevant to therapy and may underlie the presenting problem. Treatment outcome studies might address differences in client progress when these religious issues are addressed.

Conclusions

Although the results were unable to point to causational relations between any particular religious orientation pattern and mental health outcomes, strong evidence emerged that these variables are related. The present study showed that spiritual meaning and locus of control play a mediating role in the relations among religious orientation and mental health variables. This indicates that religious orientation is relevant to anxious

and depressive symptomatology to the extent that it is related to a sense of spiritual meaning and to locus of control. Social desirability moderated the relation between extrinsic religious orientation and depressive symptomatology. In this study, as social desirability lessened the relation between extrinsic religiousness and depressive symptomatology became stronger.

This study addressed the relations between religious and spiritual variables and mental health variables in a new and more complex way. The present study has also extended the limited research on spiritual meaning and God LOC. The information gained from this research is clinically relevant. Knowledge gained from research on religiousness may assist clinicians in better understanding clients' lives from a broader perspective.

REFERENCES

Allport, G.W. (1950). T*he individual and his religion: A psychological interpretation*. New York: The Macmillan Company.

Allport, G.W. (1966). The religious context of prejudice. *Journal for the Scientific Study of Religion, 5*, 447-457.

Allport, G.W., & Ross, J.M. (1967). Personal religious orientation and prejudice. *Journal of Personality and Social Psychology, 5*, 432-443.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Washington, DC: American Psychiatric Association.

Archer, R.P. (1979). Relationships between locus of control and anxiety. *Journal of Personality Assessment, 43*, 617-626.

Baker, M., & Gorsuch, R. (1982). Trait anxiety and intrinsic-extrinsic religiousness. *Journal for the Scientific Study of Religion, 21*, 119-122.

Barron, R.M., & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.

Batson, C.D. (1976). Religion as prosocial: Agent or double agent? *Journal for the Scientific Study of Religion, 15*, 29-45.

Batson, C.D., Naifeh, S.J., & Pate, S. (1978). Social desirability, religious orientation, and racial prejudice. *Journal for the Scientific Study of Religion, 17*, 31-41.

Batson, C.D., Shoenrade, P., & Ventis, W.L. (1993). *Religion and the individual*. New

York: Oxford University Press.

Beekman, A.T.F., de Beurs, E., von Balkom, A.J.L.M, Deeg, D.J.H., van Dyck, R., & van Tilburh, W. (2000). Anxiety and depression in later life: Co-occurrence and communality of risk factors. *American Journal of Psychiatry, 157*, 89-95.

Bergin, A.E., & Jensen, J.P. (1990). Religiosity of psychotherapists: A national survey. *Psychotherapy, 27*, 3-7.

Bergin, A.E., Masters, K.S., & Richards, P.S. (1987). Religiousness and mental health reconsidered: A study of an intrinsically religious sample. *Journal of Counseling Psychology, 34*, 197-204.

Berrenberg, J.L. (1987). The Belief in Personal Control Scale: A measure of God-mediated and exaggerated control. *Journal of Personality Assessment, 51*, 194-206.

Bjork, J.P., Lee, Y.S., & Cohen, L.H. (1997). Control beliefs and faith as stress moderators for Korean American versus Caucasian American Protestants. *American Journal of Community Psychology, 25*, 61-72.

Bolt, M. (1975). Purpose in life and religious orientation. *Journal of Psychology and Theology, 3*, 116-118.

Braam, A.W., Beekman, A.T.F., Deeg, D.J.H., Smit, J.H., & Tilburg, W.V. (1997). Religiosity as a protective or prognostic factor of depression in later life; Results from a community survey in The Netherlands. *Acta Psychiatrica Scandinavica, 96*, 199-205.

Burris, C.T. (1994). Curvilinearity and religious types: A second look at intrinsic,

extrinsic, and quest relations. *The International Journal for the Psychology of Religion, 4*, 245-260.

Crandall, J.E., & Rasmussen, R.D. (1975). Purpose in life as related to specific values. *Journal of Clinical Psychology, 31*, 483-485.

Crumbaugh, J.C. (1968). Cross-validation of Purpose-In-Life Test based on Frankl's concepts. *Journal of Individual Psychology, 24*, 74-81.

Crumbaugh, J.C., & Maholick, L.T. (1964). An experimental study in existentialism: The psychometric approach to Frankl's concept of noogenic neurosis. *Journal of Clinical Psychology, 20*, 200-207.

Davis, T.L., Kerr, B.A., & Kurpius, S.E.R. (2003). Meaning, purpose, and religiosity in at-risk youth: The relationship between anxiety and spirituality. *Journal of Psychology and Theology, 31*, 356-365.

De Man, A.F., & Simpson-Housley, P. (1985). Trait anxiety and locus of control. *Psychological Reports, 56*, 556.

Donahue, M.J. (1985). Intrinsic and extrinsic religiousness: Review and meta-analysis. *Journal of Personality and Social Psychology, 48*, 400-419.

Ellison, C.W., & Smith, J. (1991). Toward an integrative measure of health and well-being. *Journal of Psychology and Theology, 19*, 35-48.

Endlich, E. (1989). Depression and attributions for problems and solutions in college students. *Psychological Reports, 65*, 131-141.

Folkman, S., & Lazarus, R.S. (1988). Coping as a mediator of emotion. *Journal of Personality and Social Psychology, 54*, 466-475.

Frankl, V. (1972). The feeling of meaninglessness: A challenge to psychotherapy. *American Journal of Psychoanalysis, 32*, 85-89.

Frenz, A.W., & Carey, M.P. (1989). Relationship between religiousness and trait anxiety: Fact or artifact? *Psychological Reports, 65*, 827-834.

Gabbard, C.E., Howard, G.S., & Tageson, C.W. (1986). Assessing locus of control with religious populations. *Journal of Research in Personality, 20*, 292-308.

Genia, V. (1996). I, E, Quest, and fundamentalism as predictors of psychological and spiritual well-being. *Journal for the Scientific Study of Religion, 35*, 56-64.

Hill, P.C., & Hood, R.W. (1999). *Measures of religiosity*. Birmingham, AL: Religious Education Press.

Hill, P.C., Pargament, K.I., Hood, R.W., McCullough, M.E., Swyers, J.P., Larson, D.B., et al. (2000). Conceptualizing religion and spirituality: Points of commonality, points of departure. *Journal for the Theory of Social Behavior, 30*, 51-77.

Holder, E.E., & Levi, D.J. (1988). Mental health and locus of control: SCL-90-R and Levenson's IPC scales. *Journal of Clinical Psychology, 44*, 753-755

Hong, S.M., & Withers, C.M. (1982). Trait anger, locus of control, religiosity, and authoritarianism as related to trait anxiety. *Psychological Reports, 51*, 941-942.

Jackson, L.E., & Coursey, R.D. (1988). The relationship of God control and internal locus of control to intrinsic religious motivation, coping, and purpose in life. *Journal for the Scientific Study of Religion, 27*, 399-410.

James, W. (1985). *Varieties of religious experience*. Cambridge, MA: Harvard University Press.

Jaswal, A., & Dewan, A. (1997). The relationship between locus of control and depression. *Journal of Personality and Clinical Studies, 13*, 25-27.

Jung, C.G. (1938). *Psychology and religion*. New Haven, CT: Yale University Press, Inc.

Jung, C.G. (1947). *Modern man in search of a soul*. London: Kegan Paul, Trench, Trubner, & Co. Ltd.

Kahoe, R.D. (1974). Personality and achievement correlates of intrinsic and extrinsic religious orientations. *Journal of Personality and Social Psychology, 29*, 812-818.

Koenig, H.G., George, L.K., & Peterson, B.L. (1998). Religiosity and remission of depression in medically ill older patients. *American Journal of Psychiatry, 155*, 536-542.

Koenig, H.G., Moberg, D.O., & Kvale, J.N. (1988). Religious activities and attitudes of older adults in a geriatric assessment clinic. *Journal of the American Geriatrics Society, 36*, 362-374.

Kojetin, B.A., McIntosh, D.N., Bridges, R.A., & Spilka, B. (1987). Quest: Constructive search or religious conflict? *Journal for the Scientific Study of Religion, 26*, 111-115.

Lester, D. & Badro, S. (1992). Depression, suicidal preoccupation, and purpose in life in subclinical population. *Personality and Individual Differences, 13*, 75-76.

Levenson, H. (1974). Activism and powerful others: Distinctions within the concept of internal-external control. *Journal of Personality Assessment, 38*, 377-383.

Loo, R., & Thorpe, K. (2000). Confirmatory factor analyses of the full and short

versions of the Marlowe-Crowne Social Desirability Scale. *The Journal of Social Psychology, 140*, 628-635.

Maltby, J. & Day, L. (2000). Depressive symptoms and religious orientation: Examining the relationship between religiosity and depression within the context of other correlates of depression. *Personality and Individual Differences, 28*, 383-393.

Maltby, J., Lewis, C.A., & Day, L. (1999). Religion orientation and psychological well-being: The role of the frequency of personal prayer. *British Journal of Health Psychology, 4*, 363-378.

Mascaro, N. & Rosen, D.H. (2005). Existential meaning's role in the enhancement of hope and prevention of depressive symptoms. *Journal of Personality, 74*: 4, August.

Mascaro, N., & Rosen, D.H. (2006). The role of existential meaning as a buffer against stress. *Journal of Humanistic Psychology, 46*, 168-190.

Mascaro, N., Rosen, D.H., & Morey, L.C. (2004). The development, construct validity, and clinical utility of the Spiritual Meaning Scale. *Personality and Individual Differences, 37*, 845-860.

McCullough, M.E., & Larson, D.B. (1998). Future directions in research. In H.G. Koenig (Ed.), *Handbook of religion and mental health* (pp. 95-107). San Diego, CA: Academic Press.

McIntosh, D., & Spilka, B. (1990). Religion and physical health: The role of personal faith and control beliefs. *Research in the Social Scientific Study of Religion, 2*, 167-194.

Morey, L.C. (1991). *Personality Assessment Inventory professional manual*. Odessa, FL: Psychological Assessment Resources, Inc.

Morey, L.C. (1999). Personality Assessment Inventory. In M.E. Maruish (Ed.), *The use of psychological testing for treatment planning and outcomes assessment*. (pp. 1083-1121). Mahwah, NJ: Lawrence Erlbaum Associates.

Morris, R.J., Hood, R.W., & Watson, P.J. (1989). A second look at religious orientation, social desirability, and prejudice. *Bulletin of the Psychonomic Society, 27*, 81-84.

Natale, M. (1978). Effect of induced elation and depression on internal-external locus of control. *The Journal of Psychology, 100*, 315-321.

National Institute of Mental Health (NIMH). (2001). *The numbers count: Mental disorders in America* (NIH Publication No. NIH 99-4584) [Online]. available: http://www.nimh.nih.gov/ publicat/numbers.cfm.

Nelson, P.B. (1989). Ethnic differences in intrinsic/extrinsic religious orientation and depression in the elderly. *Archives of Psychiatric Nursing, 3*, 199-204

Paloutzian, R.F., Jackson, S.L., & Crandall, J.E. (1978). Conversion experience, belief system, and personal and ethical attitudes. *Journal of Psychology and Theology, 6*, 266-275.

Pargament, K.I., Steele, R.E., & Tyler, F.B. (1979). Religious participation, religious motivation, and individual psychosocial competence. *Journal for the Scientific Study of Religion, 18*, 412-419.

Phillips, W.M. (1980). Purpose in life, depression, and locus of control. *Journal of*

Clinical Psychology, 36, 661-667.

Reynolds, W.M. (1982). Development of reliable and valid short forms of the Marlowe-Crowne Social Desirability Scale. *Journal of Clinical Psychology, 38*, 119-125.

Richards, D.G. (1990). A "Universal Forces" dimension of locus of control in a population of spiritual seekers. *Psychological Reports, 67*, 847-850.

Robinson, J.P., Shaver, P.R., & Wrightsman, L.S. (Eds). (1991). *Measures of personality and social psychological attitudes*. San Diego, CA: Academic Press.

Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs, 80*, 1-28.

Soderstrom, D., & Wright, E.W. (1977). Religious orientation and meaning in life. *Journal of Clinical Psychology, 33*, 65-68.

Spilka, B. (1989). Functional and dysfunctional roles of religion: An attributional approach. *Journal of Psychology and Christianity, 8*, 5-15.

Spilka, B., Kojetin, B., & McIntosh, D. (1985). Forms and measures of personal faith: Questions, correlates, and distinctions. *Journal for the Scientific Study of Religion, 24*, 437-442.

Strickland, B.R., & Schaffer, S. (1971). I-E, I-E, & F. *Journal for the Scientific Study of Religion, 10*, 366-369.

Storch, E.A., Storch, J.B., & Adams, B.C. (2002). Intrinsic religiosity and social anxiety of intercollegiate athletes. *Psychological Reports, 91*, 186.

Sturgeon, R.S., & Hamley, R.W. (1979). Religiosity and anxiety. *The Journal of Social Psychology, 108*, 137-138.

Texas A&M University Office of Institutional Studies and Planning. (2004). *Enrollment Profile Fall 2004*. College Station, TX: Author. Retrieved April 4, 2005 from the World Wide Web: http://www.tamu.edu/oisp/reports/ep/epfa2004_certified.pdf.

Watson, D. (1967). Relationship between locus of control and anxiety. *Journal of Personality and Social Psychology, 6*, 91-92.

Watson, P.J., Ghorbani, N., Davison, H.K., Bing, M.N., Hood, R.W., & Ghramaleki, A.F. (2002). Negatively reinforcing personal extrinsic motivations: Religious orientation, inner awareness, and mental health in Iran and the United States. *The International Journal for the Psychology of Religion, 12*, 255-276.

Welton, G.L. (1999). Multidimensional locus of control scales. In P.C. Hill & R.W. Hood, Jr. (Eds.), *Measures of Religiosity* (pp. 496-502). Birmingham, AL: Religious Education Press.

Welton, G.L., Adkins, A.G., Ingle, S.L., & Dixon, W.A. (1996). God control: The fourth dimension. *Journal of Psychology and Theology, 24*, 15-25.

Westgate, C.E. (1996). Spiritual wellness and depression. *Journal of Counseling and Development, 75*, 26-35.

Wright, L.S., Frost, C.J., & Wisecarver, S.J. (1993). Church attendance, meaningfulness of religion, and depressive symptomatology among adolescents. *Journal of Youth and Adolescence, 22*, 559-568.

Yarnell, T.D. (1971). Purpose-In-Life Test: Further correlates. *Journal of Individual Psychology, 27*, 76-79.

APPENDIX

Demographic Questionnaire

Gender:	**Ethnicity:**	**Year in University:**
_____ Male	_____ African-American	_____ 1st year
_____ Female	_____ Asian-American	_____ 2nd year
	_____ Caucasian/White	_____ 3rd year
Age in Years:	_____ Hispanic	_____ 4th year
_____	_____ Other (Please specify.)	_____ Beyond 4th year
	_____	

Highest level of education completed by your parents: Please circle the appropriate item.	
Mother	**Father**
Completed 8th grade or lower	Completed 8th grade or lower
Some high school	Some high school
Graduated high school	Graduated high school
Some college or technical school	Some college or technical school
Graduated 2-year college or technical school	Graduated 2-year college or technical school
Some 4-year university/college	Some 4-year university/college
Graduated 4-year university/college	Graduated 4-year university/college
Graduated post-bachelor's graduate degree	Graduated post-bachelor's graduate degree

Religious Orientation:

_____ Protestant (Please specify denomination: _____)

_____ Catholic _____ Muslim

_____ Jewish _____ Buddhist

_____ Agnostic _____ Hindu

_____ Atheist _____ Other (specify) _____

_____ No specific orientation but personally religious or spiritual

How interested are you in religiousness or spirituality? (Please circle appropriate number.)

Not at all Moderately Extremely

1 2 3 4 5 6 7 8 9

How important to you personally are your views about religiousness or spirituality? (Please circle appropriate number.)

Not at all Moderately Extremely

1 2 3 4 5 6 7 8 9

Demographic Questionnaire (continued)

Please place a check mark in the *one* column that best answers each of the following questions.

	How often do you pray or meditate?	How often do you attend religious services?	How often do you read religious texts (e.g. Bible, Koran, Torah, etc.)?	How often do you volunteer to participate in or lead religious activities or services?
More than once per day				
Once per day				
More than once per week				
Once per week				
More than once per month				
Once per month				
More than once per year				
Once per year				
Less than once per year				
Never				

Please list other religious activities in which you participate, if applicable. Also, place a check mark in the *one* column that best describes how often you participate in these activities.

	Activity 1 _____	Activity 2 _____	Activity 3 _____
More than once per day			
Once per day			
More than once per week			
Once per week			
More than once per month			
Once per month			
More than once per year			
Once per year			
Less than once per year			
Never			

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