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HEALTH AND RELIGIOUS COMMITMENT AMONG COLLEGE STUDENTS:  
THE EFFECTS OF HEALTH BEHAVIOR, MENTAL HEALTH, AND SOCIAL  
SUPPORT

A dissertation submitted in partial fulfillment of the requirements for the degree of  
Doctor of Philosophy at Virginia Commonwealth University

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## **Abstract**

### **HEALTH AND RELIGIOUS COMMITMENT AMONG COLLEGE STUDENTS: THE EFFECTS OF HEALTH BEHAVIOR, MENTAL HEALTH, AND SOCIAL SUPPORT**

By Monica Yvette Jones, Ph.D.

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

Virginia Commonwealth University, 2012

Major Director: Micah L. McCreary, M. Div., Ph.D., Associate Professor of Psychology,  
Department of Psychology

Empirical findings supporting the connection between religion and spirituality and health have been consistently found in the literature, whereas the factors explaining this relationship have lacked clarity. The present study sought to explore this relationship and establish health behavior, mental health, and social support as mediating factors to the proposed association between religious commitment and physical health. Physical health was measured by a number of indicators: body mass index, self-reported medical conditions, prescription drug use, over-the-counter medication usage, and problem use of drugs and alcohol. A sample of 150 college students from a university in Central Virginia participated in this study. The initial hypothesis was that there would be a positive correlation between religious commitment and each potential mediator: health behavior, mental health, and social support. The second hypothesis proposed that religious commitment and physical health would be correlated. The third hypothesis posits that health behavior; mental health;



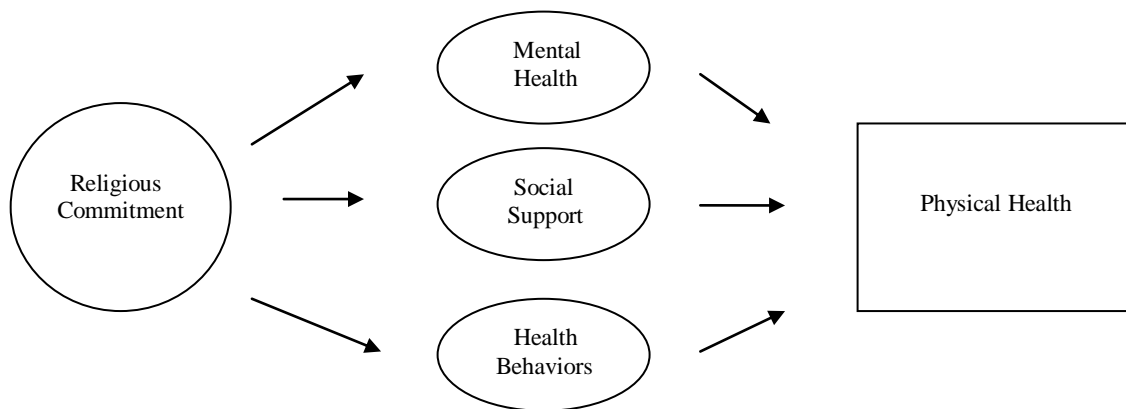
and social support would be correlated with physical health; thereby, establishing them as mediators. The results of this study confirmed that health behavior was related to religious commitment; however, the remaining two proposed mediators were not found to have significant relationships with religious commitment. While health behavior was correlated to religious commitment, physical health was not found to be significantly related to religious commitment. These findings did not satisfy the conditions deemed for mediation; therefore, it was unable to prove that health behavior, mental health, and social support mediate the relationship between religion/spirituality and health, as hypothesized. Further implications of these findings are discussed.

## Health and Religious Commitment Among College Students: The Effects of Health Behavior, Mental Health, and Social Support

The current project investigates religiosity and spirituality as factors affecting health. The relationship between religion, spirituality, and health is examined within a sample of college students. The central aim of this project is to evaluate physical health and religious commitment. The relationship between health and religion has been relatively stable and resistant to confounding by various demographic variables (Taylor et al, 2004). This association has also been conceptually linked to multiple factors, some of which are the focus of the current project: health behavior, mental health, and social support. In the present research, there is expected to be a connection between religious commitment and physical health. Also, this association is thought to be further explained by the influence of health behavior, mental health, and social support. To determine if this mediated relationship exists within this sample, the Baron & Kenny (1986) method will be employed.

The hypotheses for this project will establish a relationship between health and religion among the participants while also providing support for mediation of the association. The first hypothesis is that religious commitment will be correlated with each potential mediator: health behavior, mental health, and social support. This means that a developed sense of religious commitment will be associated with better psychological functioning; increased perceived access to and satisfaction with social support from others; and an elevated degree of participation in physical health behaviors. Secondly, it is hypothesized that religious commitment and physical health will also be correlated. Religious commitment is expected to be associated with normal body mass index, less problem drug use and reduced self-report of illness, prescription drug use, over-the-counter medication

usage, and problem alcohol use. The third hypothesis is that each of the potential mediators (i.e., health behavior; mental health; and social support) will be correlated with physical health. Engagement in health promoting activities, better psychological health, and elevated social support will be associated with normal levels of body mass index, fewer drug abuse behaviors, and fewer medical conditions, prescription and over-the counter drug use, and problem drinking. These hypotheses are supported by a theoretical model explaining the association between religion and health where mediators, such as health behavior, mental health, and social support provide a rationale for the mechanisms of this relationship (Koenig, 1999). Hierarchical regressions and logistic regressions with hierarchical entry of variables are utilized to examine these relationships.



*Figure 1.* Theoretical model explaining the religion and spirituality-health connection. Adapted from “The Healing Power of Faith,” by H . G. Koenig, 1999. Copyright 1999 by Simon & Schuster.

## Health

**Defined.** The World Health Organization defines health (1946) as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”. This is a comprehensive definition that exceeds the intended parameters for the current project. The present study focuses exclusively on physical health as the outcome

measure due to the expansive nature of “health.” The following sections will outline important data about the state of “health” in the United States and the chosen population, college students.

**Health in the United States.** In the United States, a health crisis exists in which individuals struggle with a deteriorating health care system; health disparity; the looming threat of pandemics; the prevalence of cancer; and the evidence of chronic illness. These issues cause concern across demographic variables. Declining health status has become problematic in the United States as deleterious health outcomes proliferate due to various political, social and personal reasons. The infrastructure of the health care system has been failing and affecting health outcomes. We have created an atmosphere where health is becoming a luxury to be enjoyed by a select few. A lack of preventive strategies and poor self-management behaviors has led to exacerbated symptoms and poor prognoses. Diet, nutrition, exercise, and physical activity are often neglected, eventually leading to a state of poor health. Also, the engagement in health compromising behaviors, such as excessive alcohol use, cigarette smoking, and illicit drug use persist, complicating one’s health status as well.

This is an opportune time to scour the health literature to identify and explore factors that may hold valuable insight into the improvement of health for all Americans. The current climate demands that attention be concentrated on the health of Americans and how to best understand the factors contributing to physical health. Americans have become increasingly interested in how to gain optimal health in the face of societal issues, such as health disparity; poverty; diminished access to health care; a poor economic climate; increased unemployment; and an inability to acquire and sustain quality health insurance. This need

for new conversations about health will achieve deeper understandings of contributing factors to overall health status, such as faith. Religion and spirituality often emerge as predictors of physical health, with indicators, such as church attendance, related to positive health outcomes (Koenig et al, 2001). The present research attempts to address this gap in the health literature by dealing with the religion and spirituality-health connection.

**Health Statistics.** Vital statistics published by the Centers for Disease Control (2008) for Americans reveal that the leading causes for death are: heart disease, cancer, stroke, chronic lower respiratory disease, accidents, diabetes, Alzheimer's disease, influenza, kidney disease, septicemia, suicide, liver disease, hypertension, Parkinson's disease, and homicide; respectively (Kung et al, 2008). Heart disease and cancer have remained the first and second leading causes for death for two consecutive years, 2004 and 2005, with approximately 50% of deaths in the United States resulting from these diseases. Many of these causes of death are perpetuated by health problems caused by a number of factors, such as genetic predisposition, environmental influences, and engagement in health compromising behaviors, such as poor nutrition, minimal physical activity, lack of routine medical care, and substance use (CDC, 2008). Although there are medical conditions beyond our control and resistant to prevention, one's health practices often impact the occurrence, frequency, and severity of illness.

The Centers for Disease Control (2008) reported that multiple diseases and medical conditions, such as hypertension, diabetes, coronary heart disease, stroke, gallbladder disease, osteoarthritis, and sleep apnea and respiratory issues, have ravaged the health of Americans. These health problems alone have harmful effects, but they have also been found to be associated with another serious health issue for Americans: excessive body weight.

In the United States, the federal government has identified several categories for classifying weight, or more specifically, body mass index (BMI), an objective measure of weight. Based on a metric system that considers kg/m<sup>2</sup>, individuals are underweight if they have a BMI less than 18.5. Those who are within a range that is between 18.5 and 24.9 are within the normal weight range. Persons who have a BMI of 25 to 29.9 are overweight, while those over 30kg/m<sup>2</sup> are obese (Kulminski et al, 2008).

Excessive weight gain is a health problem that reaches beyond demographics, but appears to be particularly threatening for some groups. In 2007, 25.6% of all American adults were considered obese. Issues with body fat appeared to vary by geographical location; the rate of obesity was highest in the South, as approximately 27% of all Southerners were said to be overweight (CDC, 2008). A study found that in 2048, all Americans will be “overweight” (Reuters Health, 2008). This study’s findings accentuated the fact that race, ethnicity, and gender influenced rates of obesity, with Latino males and African American females at highest risk for obesity. African Americans appeared to be most vulnerable to becoming overweight in comparison to other races. On average, 39% of Black women were characterized as “overweight” based on body mass indices dictated by governmental guidelines. Thirty two percent of Black men exceeded their suggested weight range as well (CDC, 2008). These disturbing findings force us to confront the mounting health crisis in America through an exploration of the behaviors which contribute to it.

Health outcomes are often directly influenced by the health behaviors that persons practice. The most typical self-management practices for enhancing health include physical activity, exercise, diet and nutrition. Adults and youth are more overweight and physically inactive as compared to any other time in the history of the United States (CDC, 2008).

Children and adults are advised to engage in at least 30 minutes of physical activity each day at a time when sedentary lifestyles are prevalent and indoor activities, such as television viewing and video game playing, are major pastimes (CDC, 2008). These damaging statistics compelled Dr. William Dietz, director of CDC's Division of Nutrition, Physical Activity, and Obesity, to state the following: "We need to encourage people to eat more fruits and vegetables, engage in more physical activity and reduce the consumption of high-calorie foods and sugar-sweetened beverages in order to maintain a healthy weight"(CDC, 2008). Diet and nutrition have the ability to positively affect health status, with fruits and vegetables offering essential nutrients, vitamins, and minerals needed for healthy growth and development. Diets high in fat, sodium, and sugar appear to facilitate the disease process by increasing weight, elevating cholesterol, and compromising the effectiveness of the immune system.

**Health and College Students.** The focus of the current project is college student. Unfortunately, they are not exempt from concerns about health, although many individuals within a traditional aged college population are generally healthy. The American College Health Association (2012) collects data about the health behaviors, attitudes, and perceptions of college students across the nation. In a recent survey, approximately 61% of the college students questioned reported that their health was “very good” or “excellent” (ACHA, 2012). When those college students who described their health as “good” were also added to this statistic, the percentage increased to 92%. Overall, it appears that college students view their health in a positive manner.

There is greater variation in the health of this population when individual factors contributing to overall health are considered, such as illness. For example, about 55% of

college students responding to the ACHA survey indicated that they suffered from one or more medical condition for which they had received medical treatment in the past year (ACHA, 2012). These illnesses ranged from allergies to pelvic inflammatory disease.

Other challenges to pristine health were noted for college students as well. As previously mentioned in reference to the larger American society, excessive body weight is a health issue that continues to increase. Twelve percent of the college students surveyed described themselves as obese and 22% reported that they were overweight (ACHA, 2012). A lack of health promoting behaviors can contribute this rampant weight gain. A neglect of proper nutrition and exercise can be commonplace for this age group; thereby, lending itself as a factor to obesity and being overweight. Only 6% had consumed five or more fruits or vegetables per day, with 57% of college students having only 1-2 daily servings of fruits and vegetables (ACHA, 2012). Diets that are balanced and include fruits and vegetables assist in the maintenance of an ideal weight. Also, approximately 47% of college students failed to meet minimum requirements for moderate intensity exercise (ACHA, 2010). Low amounts of physical activity are also related to unhealthy states.

College students are often engaged in a number of health compromising behaviors that influence physical health outcomes. The CDC (2012) reported that alcohol continues to be “the most commonly used and abused substance among youth in the United States,” surpassing tobacco and illicit drug use. While normal levels of drinking can be problematic, binge drinking in this population also emerges as a significant concern. The CDC (2012) defines binge drinking as “consuming four or more drinks for women and five or more drinks for men over a short period of time”. Among the college aged population, specifically 18- 24 years old, binge drinking was found to have a prevalence rate of 28.2% with an intensity rate



of about 9.3 drinks (CDC, 2012). This behavior has also been identified as a risk factor when considering other harmful outcomes, such as sexual assault among female college students. Additional risk behaviors associated with binge drinking are drunk driving, traffic accidents, violence, unprotected sex, pregnancy, and HIV/STI transmission (CDC, 2012).

Lastly, drug use can compromise the health of college students. Sixteen percent of college students in the ACHA (2012) college health survey reported marijuana use and 14% had used tobacco. Thirteen percent had engaged in the use of other recreational drugs, such as methamphetamine, cocaine, or other illegal drugs (ACHA, 2012). Fourteen percent had reported use of at least one prescription drug that had not been prescribed to them (ACHA, 2012). Among college students, this drug use can range from experimental to addictive, but has the potential to affect overall health, safety, and functioning.

Managing the health of Americans is essential to the development of a healthier society. Interventions, such as health education and disease prevention, have gained greater attention due to rising health care costs, along with the need for research to identify other factors contributing to positive health outcomes (Koenig, 2001). Factors that have been found to lend themselves to, and detract from, good health should be illuminated, given the present climate.

The following section will provide insight into one factor that has consistently been correlated with health status, while also being prevalent in American life: religion and spirituality. Health and religion and spirituality as an avenue for supporting health benefits will be addressed in the next section.

## **Health and Religion**

Empirical findings supporting the religion and spirituality-health connection point to

correlations between religious involvement and varied health behaviors, such as eating, sex practices, sleep, alcohol, and smoking (Koenig, 2001). Religion appears to be associated with one's decision making regarding a wide array of health decisions, such as end of life treatment, the performance of medical procedures, and compliance with medical treatment recommendations (Koenig, 2001). Associations between religion and health practices, such as Pap smears, and the evidence of disease, such as cancer, have been found (Naguib, Geiser, & Comstock, 1968; Levin & Vanderpool, 1991).

There are a number of identified benefits of religion and spirituality. Spiritual growth and development are central to most religious traditions and seen as a benefit of religion and spirituality (Hill & Pargament, 2008). Persons may experience positive effects of personal or community practices that enhance their spiritual well-being.

Longevity has also been correlated with church attendance and viewed as a benefit of religiosity and spirituality (Hummer et al, 1999). In a study of religion and mortality, Hummer et al (1999) determined that African Americans who attended church more than once per week, as compared to those who never attended, lived approximately 14 years longer. There was a stronger relationship found for church attendance and longevity among African Americans as compared to their Caucasian counterparts. On average, African Americans attended more religious services than their Caucasian counterparts, 52.3% versus 43.2% (Taylor et al, 1996). Whites who did attend more than once per week only experienced an extended lifespan of about 7.6 years longer than other Caucasians who did not report church attendance (Hummer et al, 1999).

Studies investigating physical and mental health often neglect the impact of religion and spirituality on these constructs, or add them into protocols haphazardly or as an

afterthought (Hill & Pargament, 2008). The present research seeks to explore these constructs in such a way as to make a meaningful contribution to the literature of health research.

**Religion in America.** Newport (2009) interprets Gallup Poll results and indicates that the United States remains one of the most religious countries. A minority of 10% of Americans indicated that they do not believe in God, but others described God and faith as major components of their daily experience. About 65% of Americans have stated that religion is “important” to their daily lives. This belief transcends region with over half of residents in each state, excluding Vermont, New Hampshire, Maine, and Massachusetts, reporting religion as an essential facet of daily life (Davis et al, 2006). Approximately 60% of Americans also stated that they had a “belief in God” that is “without any doubts” (Newport, 2009). About four out of five adults believe that the Bible is “divinely inspired”, while one third of Americans deny that the Bible is the literal Word of God (Davis et al, 2006). In the discussion of the health of Americans in the United States, religion and spirituality is largely overlooked, despite its centrality in the lives of many Americans.

The manner in which persons identify with religiosity and spirituality differs widely. One such way has been to classify oneself as belonging to a group of like-minded individuals, usually an organized religion or denomination which a long-standing heritage. A number of religious groups exist within America, including predominant groups of Catholics, Baptists, and Protestants. Fundamentalist, evangelical, charismatic groups, nondenominational, nontraditional Christian groups, and non-Christian groups also exist in American society (Sherkat & Ellison, 1999). About 25-80% of Americans report being Catholic, Baptist or Protestant (Davis et al, 2006). In total, about 85% of adults in the United

States express a preference, or affinity, for a particular religious community (Davis et al, 2006). One half of all American adults reported that they belonged to a religious community (Davis et al, 2006). Two thirds of all of Americans identify with some affiliation to a religious tradition (Koenig et al, 2001).

Joining together with others within your identified community who have similar beliefs and values is a primary vehicle for expression of one's faith and spiritual values. Both organized religions and less structured groups can find support and belongingness by meeting with one another. Approximately 30% of Americans report that they have attended religious services once per week or more, while 30% also reported that they had not attended any religious services during the past year (Davis et al, 2006). There have been estimates of church attendance among Americans that have been as high as 60%, while there have been consistent declines in weekly church attendance (Presser & Chaves, 2007; Sherkat & Ellison, 1999).

Wicker (2009) examined faith beliefs and practices of approximately 1,000 adult Americans. The findings support the dominance of faith in the lives of Americans, despite significant declines in the prevalence and content of those beliefs and practices. Sixty-nine percent of the individuals indicated that they believed in God. More Americans classified themselves as "religious" (45%) while 24% preferred categorizations such as "spiritual, but not religious" (Wicker, 2009). The meaning that individuals assign to these labels can translate into a variety of things. For example, this study describes that of the persons identifying themselves as "religious," (70%) were inconsistent or lacked participation in worship services. The group of people who indicated that they were "spiritual, but not religious" was even more diverse. Persons in this group ran the gamut from those who were

members of traditional religious groups who believed they were free of legalism, to those who were entrenched in a personal sense of religiosity that had no formalized definition or practice (Wicker et al, 2009). Religiosity and spirituality are further clarified next to explain the meanings and functions of each.

**Religiosity and Spirituality.** Religion and spirituality play an integral role in the lives of many individuals, with many regarding faith as essential for human development and necessary for the creation of purpose and meaning (Cobb & Robshaw, 1998; Gallup, 2008). These constructs have been shown to affect the way individuals perceive, interpret, and respond to the world by forming an integrated system of beliefs and values (Mattis, 2000). This framework, as informed by religiosity and spirituality, offers a means of explaining one's relationship to God, while assessing, evaluating, and interpreting various life experiences (Geertz, 1973; Bellamy, 1998).

Much of what is written pertaining to religion and spirituality has been based on a Judeo-Christian religious tradition, which has been dominant in American society. With the proliferation of other organized religions, such as Islam, Americans' definitions of religion and spirituality are also changing. Even more, the recognition of Eastern religious beliefs and practices, along with more New Age observances and behaviors, has led to a widened scope of definitions ascribed to each religion and spirituality (Koenig, 2008).

Depending on the manner in which an individual conceptualizes their faith, there are a number of ways to understand religion and spirituality. For some persons, religion is merely a tradition of beliefs and practices, while others allow their faith to influence their entire lifestyle. Spiritually is commonly viewed as an ever-changing entity which is dynamic, while religion is seen as more rigid and static. Each construct is elaborated upon.

**Religion.** Religion is a collection of beliefs, practices, feelings, and relationships organized within a framework that recognizes God (Pargament, 1999). The construct of religion is multidimensional, with behavioral, cognitive, existential, spiritual, ritualistic, and social aspects (Connors et al., 1996). It has been operationally defined in terms of prayer; church, mosque, synagogue, or temple attendance; worship of God; meditation; study of scriptural text; and correspondence with a spiritual leader or guide (Larson & Larson, 2003). It can serve many functions, such as providing a sense of identity and belonging, increasing one's locus of control, transmitting messages of affirmation, and exerting order (Fowler, 1999; Schumaker, 1992). Religion is comprised of beliefs, values, attitudes, and behaviors which occur alone or with others and in public and private settings (Cobb & Robshaw, 1998; Bellamy, 1998).

Kendler and colleagues (1997) defined religiosity in terms of personal beliefs and articulated three dimensions: personal devotion, personal conservatism, and institution conservatism. Personal devotion is operationalized as a personal relationship with God. An individual's choice to pursue a lifestyle influenced by a religious creed is personal conservatism. Institution conservatism is the "degree of fundamentalism in a religious denomination" (Kendler et al., 1997).

Religion is characterized as a synthesis of ideology, ritual, and organization. It represents a system of values that can be identified and explained with a particular doctrine typically passed on through the ages. Pargament (1999) elaborated that religion is an integration of the individual into an institution of formal values and practices. Religiosity is most often associated with organized guidelines for general conduct and ritualized practice thought to bring about a desired outcome of goodness to God, self, and others. Religious

persons are typically regarded as having a lack of inward direction and are more motivated by behavior, or formalized practices, having a focal point of symbolizing one's values and beliefs.

Religious practices are behaviors performed in order to exhibit a relationship with God and a value for humanity. Some religious practices are: church attendance, prayer, study of religious text, meditation, listening to praise and worship music, and participation in religion oriented activities. These behaviors can be initiated to invoke the presence of God and/or to give reverence to God. Church attendance can nurture a sense of belongingness to a religious community that is comprised of individuals espousing the same, or similar, beliefs and values. Prayer is a means of communicating with God in an attempt to connect and receive support, guidance, and comfort. Religious writings and scriptures are another means for understanding God and His intentions for believers, in addition to documenting the doctrine. These writings also outline tenets that are designed to give direction regarding one's life affairs, ranging from how to deal with self to the posture to take in interactions with others, such as family neighbors, and those in positions of legal authority. Meditation, although not always related to a religious system, can also be practiced in conjunction with a faith tradition. Religions with meditation as a practice, include Christianity, Judaism, Buddhism, Baha'i, Hinduism, and Islam. Religious music has long been a sacred part of the experience dedicated to worshippers of the Divine. It often provides a space for meditation, focus on God, and participation with the community of believers through singing, dancing, and other forms of expression. Singers, choirs, and bands function as an important part of the worship experience within the church as well.

More traditional definitions of religion include an emphasis on community. Believers in a religious tradition are seen as one unit, similar to that of a family. The group is unified by a common set of goals, beliefs, and values. In some cases, one's religious family is thought to be as important as biologically connected relatives. The community of believers functions in such a way as to provide for its own members, when necessary.

Even those who may be less engaged with religion and spiritual development appear to gain from church membership or affiliation with the church community. Some racial groups, such as African Americans, share an experience with the African American church which often represents provision which supersedes spiritual resources to include social, financial, and relational resources (Krause, 2002). The African American church continues to emerge as a "source of racial pride, hope, and optimism" (Krause, 2002). Although the church is not an exclusively positive experience and is fraught with some negativity, such as disagreements about theology, and conflicts with and among church leadership, those African Americans who frequently participate in worship services exhibit lower rates of mortality, greater self esteem, and higher quality of life (Bryant & Rakowski, 1992; Hummer et al, 1999; Pargament, 1997; Strawbridge et al 1997.) Since the church offers a wealth of resources and services beyond those exclusively spiritual in nature, those who are not connected to a place of worship may actually miss receiving beneficial assistance. This is particularly relevant for those who have low resources or limited access to necessities.

Depending upon how spirituality is conceptualized, it can be vastly different from religion or considered as an extension of it. Spirituality is detailed in the next section.

***Spirituality.*** Definitions of spirituality run the gamut, but are generally very broad in scope. The breadth and dearth of definitions convey a lack of uniformity and also are



affected the changing social climate. Historically, spirituality has been viewed as grounded in religion, as reflected in Figure 2 (Koenig et al, 2001). Spirituality, in this sense, could be exemplified by devoutly religious individuals, such as nuns and monks, who took painstaking action to seek a higher level of connectedness with God through intense study and self discipline (Smith & Denton, 2005; Koenig, 2008). Religion was seen as the foundation of spirituality, with spirituality taking on the form of intent, focused work for the purposes of God, such as taking a vow of poverty as a way of self sacrifice for the poor or devotion of one's life to God by excluding oneself from secular activity (Koenig et al, 2001). The "spiritual" were a subset of religious individuals dedicated to a religious order of some type (Smith & Denton, 2005). Recent times have seen an evolution of the term to encompass very nontraditional approaches to faith, such as yoga.

Bellamy (1998) articulated this modernized version of spirituality as "an inner searching for God that is consistent with human nature and independent of religion." Spirituality is thought to be an integration of beliefs and experiences, both psychosocial and biological in nature, which do not require a devotion to a larger religion or religious tradition (Miller, 1998). It can be understood as a component of culture that addresses experiences and beliefs related to transcendence, as opposed to a complex system of laws and practices. Spirituality is devoid of rigid tenets or behavioral prescriptions. It does not have a central doctrine. One's values and beliefs may be less orthodox than those of religious groups. Despite its lack of rules for governing behavior, spirituality can lend a sense of coherence.

Spirituality typically consists of a search for meaning and connectedness that may also include strivings for self actualization or attainment of one's optimal human potential. These strivings are understood as a spiritual journey where individuals direct energy inwards

in order to develop mature spirituality. Its emphasis on this personal evolution elucidates its goal of achieving internal unity and forging a connection with the natural world (Antonovsky, 1980; Lowery, 1998).

Spirituality can be further analyzed as having basic components, such as values, meaning, and relatedness. Values are ideals that are significant and integral to life choices. Meaning is “the quest for life-enhancing meaning which does not preclude mystery but which does not necessitate looking for a supernatural factor” (Bellamy, 1998). This idea encapsulates the gamut of religions and a sense of spirituality in which there is no Supreme Being. Relatedness taps into “the human need to find self worth and identity, to love and be loved, to be accepted or forgiven. This relatedness may involve the self, other people, the environment, the transcendent” (Bellamy, 1998).

An alternative conceptualization of spirituality has been offered by Westgate (1996) who delineated it into four broad dimensions of spirituality: 1) meaning and purpose in life, 2) intrinsic values, 3) transcendent beliefs or experiences, and 4) community or relationship with self and others. A pictorial representation further clarifying the distinction between religion and spirituality is included in Table 1.

***Innovation in Viewing of Religion and Spirituality.*** Forerunners in research regarding religion, spirituality, and health have attempted to operationalize spirituality as well, especially for purposes of research. These definitions are typically less traditional, and highlight the ever changing view of religiosity and spirituality which convey an overlap of the constructs, while also appreciating the nuances of these differences in concepts. Pargament (1999) postulated that spirituality “refers to the personal, the affective, the experiential, and the thoughtful” (Pargament, 1999). Pargament (1999) conceptualized it as a

Table 1

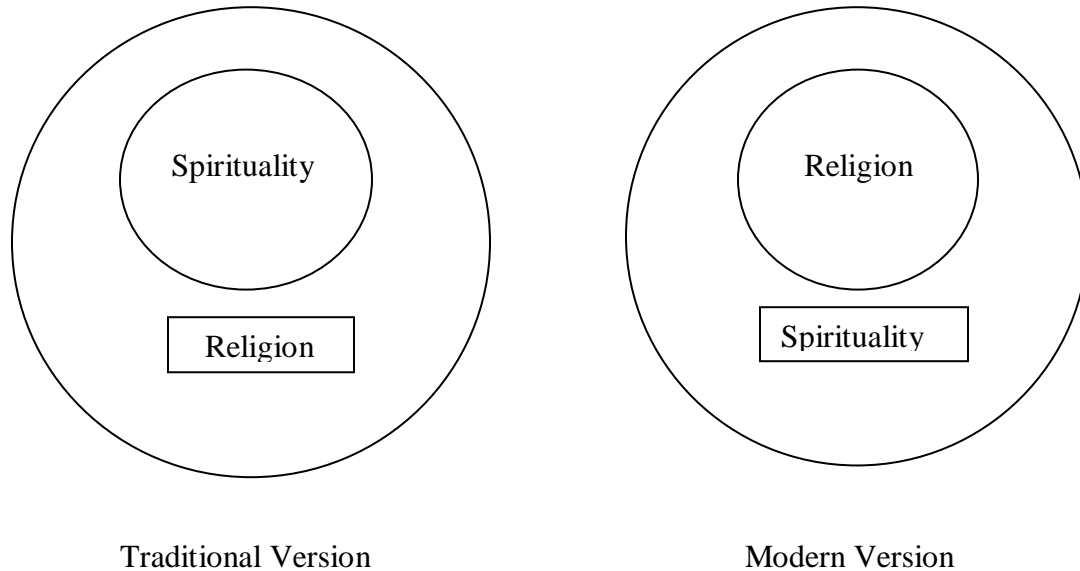
*Traditional characteristics distinguishing religion and spirituality*

<i>Religion</i>	<i>Spirituality</i>
Community focused	Individualistic
Observable, measurable, objective	Less visible and measurable, more subjective
Formal, orthodox, organized	Less formal, less orthodox, less systematic
Behavior oriented, outward practices	Emotionally oriented, inward directed
Authoritarian in terms of behaviors	Not authoritarian, little accountability
Doctrine separating good from evil	Unifying, not doctrine oriented

Note: Adapted from “Handbook of Religion and Health” by H. G. Koenig, M. E. McCullough & D. B. Larson, 2001. Copyright 2002 by the Oxford University Press.

“search for the sacred” that may function as a core value extending to other dimensions of life. Although spirituality is perceived as different from religion, it is actually an outgrowth of religion, according to this perspective. Pargament (1999) argued that without religion, there would be no spirituality as it draws directly from the basis of what religiosity is. As demonstrated in Figure 2, the modernized view of the relationship between spirituality and religiosity is one in which spirituality is all-encompassing, while having religion as its foundation. This manner of understanding the religiosity-spirituality intersection moves to distance the definition from one that has the tendency to polarize religion and spirituality on the same continuum. They are largely different constructs, despite their obvious relationship to overarching values about faith. The experience of being religious or spiritual is not mutually exclusive, so individuals with religiosity can also possess spirituality. In fact, some sources highlight the point that persons who are very religious may also be very spiritual, although elevated spirituality does not automatically translate to increased religiosity. Despite their obvious distinction, spirituality stems from religious traditions.

Variations in understanding and applying religion and spirituality makes operationalization difficult. This problematic process of operationalization has also



*Figure 2. Traditional View of Religiosity and Spirituality Versus the Modern Perspective. Adapted from “Concerns about measuring ‘spirituality’ in research,” by H. G. Koenig, 2008, *Journal Of Nervous and Mental Disease*, 196 (5), p. 349. Copyright 2008 by Lippincott and Wilkins Press.*

influenced the measures of religion and spirituality (Koenig, 2008). Many of the widely used measures of religion and spirituality have been derived from foundational Judeo-Christian concepts. Research in the area of religion, spirituality, and health mandates that objective, standardized measures be established to preserve the integrity of the scientific method (Koenig, 2008).

For purposes of the current study, religious commitment has been chosen as the measure of religion and spirituality. According to Koenig (2001), it was one of the twelve dimensions of religiousness: religious belief; religious affiliation; organizational religiosity; non-organizational religiosity; subjective religiosity; religious commitment; religious questioning; religious well-being; religious coping; religious history; religious and spiritual

maturity; and religious attitudes and practices. Although religious commitment will be described in further detail later in this paper, it was selected as the construct of religiosity and spirituality due to its ability to encompass the internalization and practice of religious and spiritual values. This dimension is not exhaustive, nor widely agreed upon among those studying religion and spirituality; however, it provides a good sense of a measurable aspect of religion and spirituality.

The present research aligns itself with the modernized view that spirituality stems from religion. Koenig (2008) described religion as a construct that is more easily measurable than spirituality due to its expansive nature. The current study uses the two terms conjointly because religion, commonly described as extrinsic behaviors, is believed to give rise to spirituality, with spirituality likened to a type of intrinsic religiosity. Again, the research yielded mixed findings about the specific distinctions among the labels attributed to these concepts.

A central function of religion and spirituality is spiritual health and well being; however, correlations with physical health continue to be identified (Hill & Pargament, 2008). Before delving deeper into this discussion, we will review the history of the relationship between religiosity, spirituality, and health.

***History of Health and Religion.*** Interest in the intersection of health, religion, and spirituality is a reemergence of a previously held school of thought. There is a rich history linking religion, science, and medicine dating back to as early as 6,000-5,000 B.C., during predynastic Egypt (Zilboorg & Henry, 1941). Evidence suggests that health was understood in terms of religion and spirituality with there being no distinction between these concepts and physical and mental illness. Labels, such as demonic oppression and evil spirits, were

frequently used for illness because disease was considered analogous to an imbalance or deficiency in one's religious and spiritual well being. Ritual, prayer, chanting, and spiritual journey were often implemented to cure and facilitate healing of illness among various cultural and religious groups all over the world, including those in Mesopotamia, India, China, Greece, and Rome (Koenig et al, 2001).

The chasm separating religion, medicine, and health care was initiated in the 1700s with the Age of Enlightenment, or the Age of Reason, in Europe. People had begun to grow concerned about the influence of the church on science. The work of philosophers, such as Rene Descartes and John Locke, promoted scientific thinking which was rooted in natural laws and universal order, while also rejecting the influences of religion and spirituality despite their contributions to medicine and health care. After all, this was a time when health and religion were entrenched with one another with many of the hospitals of the Middle Ages resulting from the efforts made by the Christian church (Koenig, 2001). In fact, many of the medical professionals constituting the health care system also served as clergy in the church of the Middle Ages. By the middle of the 20<sup>th</sup> century, the church had assumed the responsibility for providing health care to approximately 25% of hospital patients, with about 16 million patients receiving services per year. The result of the Enlightenment Era was a transition from faith based views to a secular perspective of viewing the world where many of the benefits accompanying religion and spirituality were lost or devalued as seen contradictory to science.

The literature has suggested various mediators for this religion and spirituality-health connection. The following section reviews the literature in this area, while emphasizing the overarching themes.

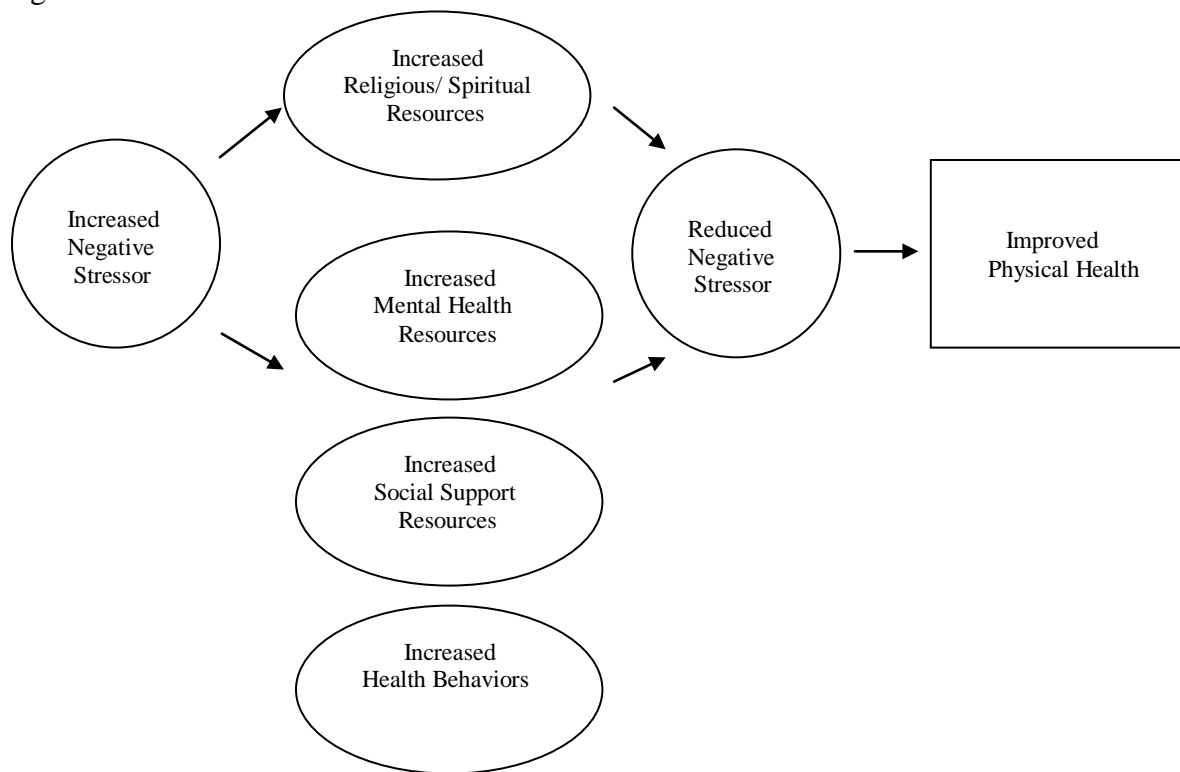
## **Religion and Spirituality-Health Connection**

Religion and spirituality are multidimensional constructs that make operationalization, measurement, and analysis particularly complex. This predicament adds an additional layer of difficulty to the attempts to understand the religion and spirituality-health relationship and explain its mechanisms. Regardless of this reality, the religion and spirituality-health link has been relatively stable and resistant to confounding by various demographic variables, such as income (Taylor et al, 2004). This association has been conceptually allied to multiple factors that will be reviewed here.

**Potential Mechanisms of Religion and Spirituality-Health Connection.** Most of the theoretical models developed to explore the mechanistic function of the religion and spirituality-health connection tend to include explanations of relationships among stress, religion, and physical and mental health outcomes (Chatters, 2000). Additional major categories for these mediators have been articulated in an effort to interpret the relationship between religion and health: health behaviors; social support; coping resources; attitudes, beliefs, and emotions; and general worldview (Chatters, 2000). This interaction of psychosocial and biobehavioral pathways have been conceptualized into a variety of theoretical models all having the proclivity to aggregate into a number of categories: suppressor, health effects, distress-deterrent, moderator, and prevention (Chatters, 2000). A meditational model will also be reviewed in this discussion.

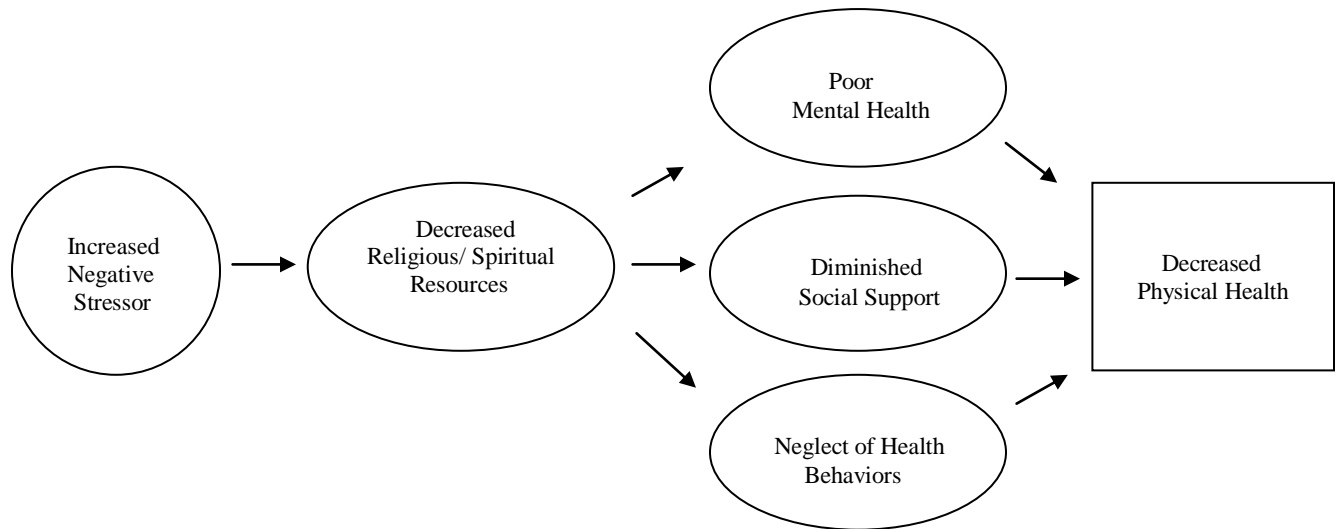
The suppressor model has operated upon the theory that one's degree of commitment to religious involvement is dictated by the presence of stressors. This model has explained that individuals are likely to increase their activities and behaviors reflecting their religious and spiritual values when confronted with stress (Chatters, 2000). Stressors serve to

mobilize religious, spiritual, and other forms of coping resources, all with the aim of stress reduction. This decrease in stress is said to then lead to improved health outcomes. This stress response approach to the religion and spirituality-health connection depends upon the stressor to modulate the practice of one's religious and spiritual resources. It projects the sense that important aspect of one's growth and development of faith may rest upon the intensity of one's spiritual strivings. This has been supported by some research that suggests that individuals experience several gains in their religious values and convictions by finding a way to navigate through distressful circumstances. This model is pictorially represented in Figure 3.



*Figure 3. Suppressor Model. Adapted from “Religion and health: Public health research and practice,” by L. M. Chatters, 2000, *Annual Review Of Public Health*, 21, p. 335. Copyright 2000 by Annual Review.*





*Figure 4. Health Effects Model. Adapted from “Religion and health: Public health research and practice,” by L. M. Chatters, 2000, *Annual Review Of Public Health*, 21, p. 340. Copyright 2000 by Annual Review.*

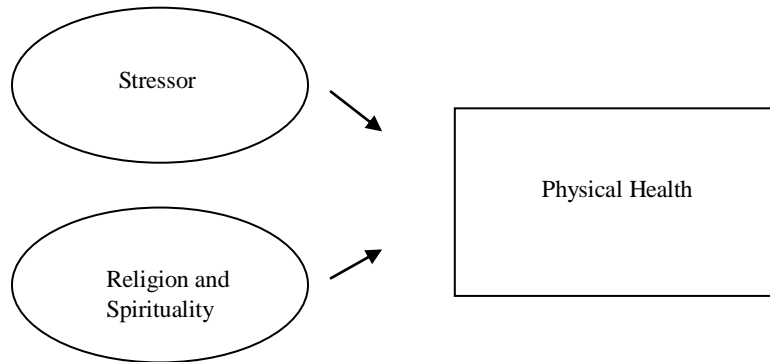
An additional model used to describe the inner workings of the religion and spirituality-health connection has been the health effects model, which is pictured in Figure 4. This framework has operated from the premise that stressors cause the individual to decrease participation in religious activity (Chatters, 2000). As persons attempt to cope with stressors, they withdraw from religious involvement, both publicly and privately. This removal from all representations of religiosity and spirituality is thought to result in negative psychological and social states which are believed to influence health outcomes poorly.

The distress-deterrent model, or the counterbalancing model, has conceptualized that religion and spirituality have an effect on health that is opposite to and independent of what effects are inflicted by stressors (Chatters, 2000). In turn, health and stress function along different continuums. Religious and spiritual values operate to counteract the impact made by stress to health; thus, serving to compensate for harmful influences to health. This

“balancing act” between stress and health can lead to positive outcomes if managed well.

Figure 5 displays the relationships of the variables considered here.

Chatters (2000) explained that the moderator model espoused that religion and

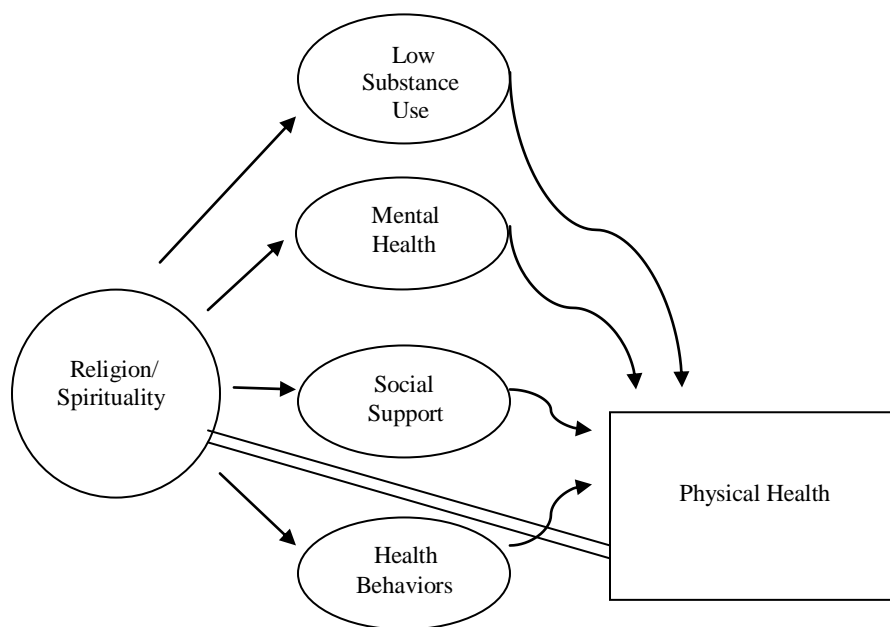


*Figure 5. Distress Deterrent Model. Adapted from “Religion and health: Public health research and practice,” by L. M. Chatters, 2000, *Annual Review Of Public Health*, 21, p. 345. Copyright 2000 by Annual Review.*

spirituality moderates the effect of stress on health. This theory has described that the impact of religion and spirituality is contingent upon the degree of stress that an individual encounters. Persons who are experiencing heightened levels of stress may stand to gain the most from their religious and spiritual values as there is a demand put upon these resources. Health benefits result when stress is diminished by religion and spirituality.

The prevention model has provided a rationale for the religion and spirituality-health connection that places emphasis on the direct and indirect protective effects exerted by one’s values and positive lifestyle choices. Figure 6 shows the association of these variables. The prevailing premise has been that religious involvement has indirect influence through the discouragement of risk behaviors and the adoption of health behaviors (Chatters, 2000). Indirect effects also include less frequent exposure to stress-laden situations and circumstances through social interactions and relationships that are more prosocial and

positive in nature. Faith values and practices may have more direct influences encouraging stress management and reduction strategies, such as prayer and meditation, which have been well documented to produce advantageous health outcomes. This supposition that there may be direct influence of religiosity and spirituality were also supported by Hill and colleagues (2008) who postulated that the relationship between faith and health may extend beyond explanations emphasizing psychosocial factors.



*Figure 6. Prevention Model. Adapted from “Religion and health: Public health research and practice,” by L. M. Chatters, 2000, *Annual Review Of Public Health*, 21, p. 350. Copyright 2000 by Annual Review.*

The present research is driven by another type of theoretical model that emphasizes the effects of mediating variables. This is the focus of the present study. The components of this framework are detailed in the following section.

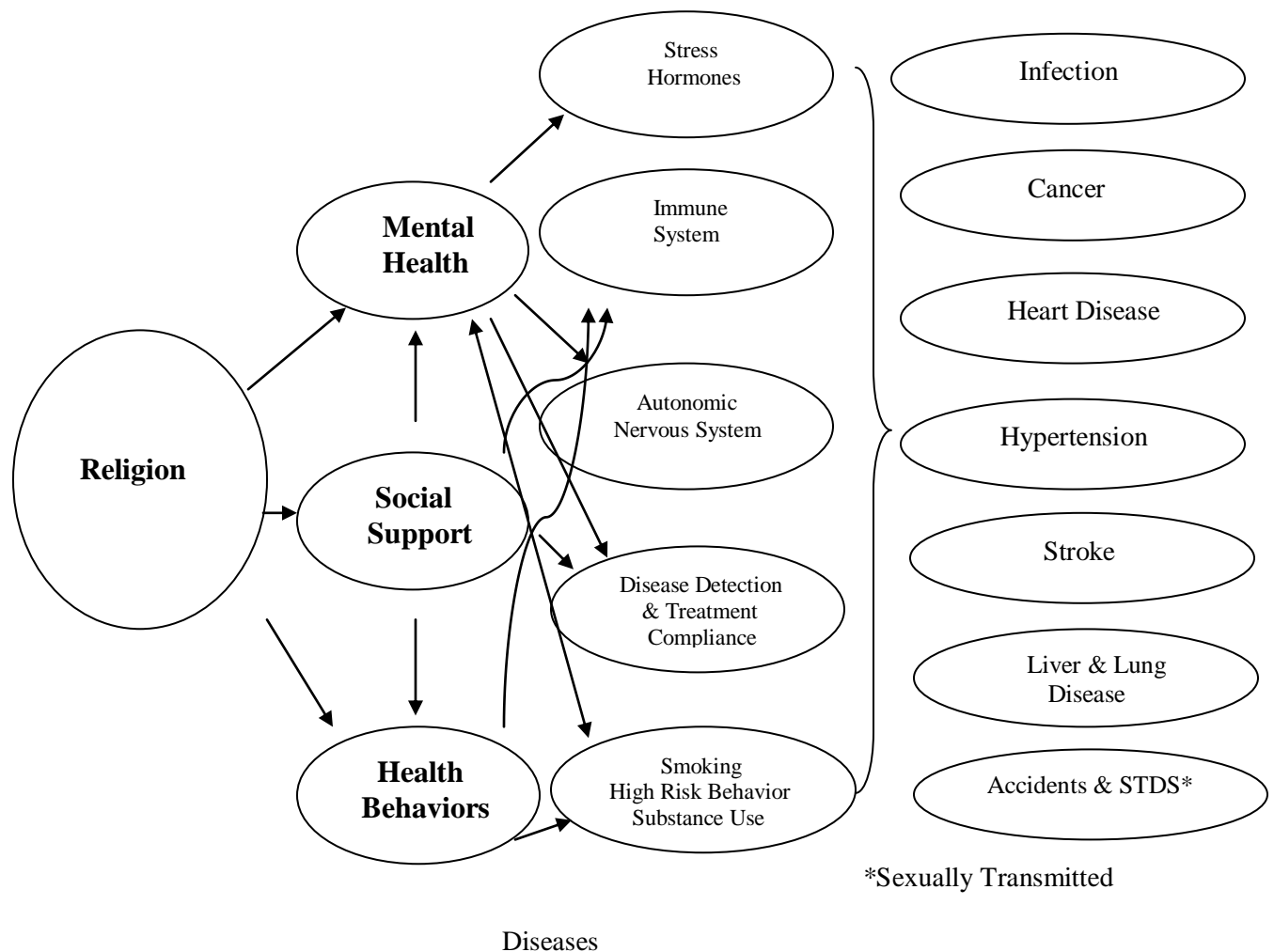
### **Theoretical Framework for Present Study**

Blasi (2011) put it well when he addressed the difficulty of identifying a theory that offered understanding, conceptualization, and explanations for the very large subject area of

health and religion. The reality is that an aspect of one of these constructs can easily be related to the aspect of another. For example, health can be “subjective, physiological, culturally relative, individual, indicated by symptoms,” while religion is “cognitive, experiential, normative, ritualistic, inspirational, social, traditional” (Blasi, 2011).

Common threads in many of the reviewed theories are the natural mechanisms of social, psychological, and behavioral factors. These constructs have continually been the focus of probable explanations of the religion and spirituality-health connection (Koenig, 2002). The present research has its theoretical origins in a model that is mediational in nature, pictured in Figure 7, as religion and spirituality are linked to health outcomes through several pathways: health behavior, mental health, and social support (Koenig, 1999). In the original model, religion and spirituality function as behavioral modifiers that influence health behavior, social functioning, and emotional well-being (Koenig, 2002). Biopsychosocial variables, such as genetics, gender, age, race, education, and income preclude an individual’s adoption of certain religious and spiritual characteristics. In turn, faith is also further affected by a person’s values and character; decisions; and child-rearing strategies. Finally, religion and spirituality impact health behaviors, mental health, and social support that eventually lead to health outcomes. Medical conditions, such as infection, cancer, hypertension, heart disease, stroke, and other illnesses result from changes in one’s immune system; the presence or absence of stress hormones; the state of one’s autonomic nervous system; disease detection and treatment and high risk behaviors, including smoking and substance use (Koenig et al, 2001). Due to the limited scope of the present project, only a portion of this original model was considered, please see Figure 1 for further clarity.

Chatters (2000) accentuated the need to test the rigor of theoretical models linking



*Figure 7.* Theoretical model describing how religion affects physical health. Adapted from “The Healing Power of Faith,” by H . G. Koenig, 1999. Copyright 1999 by Simon & Schuster.

religion and health. The researcher called for the testing of these models, in various populations, to assert the place of religion and health within the established research traditions of the social and behavioral sciences. The current research attempts to test this theoretical model’s fit with the current sample by focusing on religious commitment, both in an interpersonal and intrapersonal manner, and health, paying special attention to the manner in which health behavior, mental health, and social support mediate the relationship.

The present study conceptualizes religion and spirituality as religious commitment. This construct was selected for its ability to describe one's faith in an interpersonal and intrapersonal manner.

Turner-Musa et al (2006) found that religious commitment was related to engagement in health promoting behaviors within an African American college population such that students who participated in more health behaviors also had higher religious commitment. Hill and researchers (2008) proposed that psychospiritual constructs, such as religious commitment, have roots in psychological theory while having clear implications for religious and spiritual well being and health status. The next section will provide greater detail about religious commitment.

**Religious Commitment.** Allport and colleagues (1967) theorized that religion is a source of motivations and goals for individuals. Faith, or the lack thereof, appears to drive much of one's life, including affect, cognition, and behavior. Allport and colleagues (1967) conceptualized religion as a "master motive" that emerges as immature or mature in nature. Religious orientation, as conceptualized by Allport & Ross (1967), was a means for measuring the degree of maturity of one's faith beliefs. It was the extent to which someone is attached to their religious and spiritual values.

Religious commitment is a construct almost identical to religious orientation in that it embodies both intrinsic and extrinsic aspects of one's religious and spiritual values and practices. A collection of religious and spiritual attitudes, beliefs, and practices make up religious commitment. This construct is further specified in intrapersonal and interpersonal terms. These values may be exhibited through engaging in specific practices, rites, behaviors, etc. Others may choose to simply espouse a value system that does not overtly

govern their daily activities. For some, religion extends beyond a system of beliefs or a worldview to a lifestyle which is dictated by religious and spiritual values. There may be a combination of both for some people. Intrinsic and extrinsic religiosity are not mutually exclusive, so individuals who identify closely with one type may also possess high degrees of another type. The next section will provide greater detail about intrinsic religious commitment.

***Intrinsic Religious Commitment.*** Intrinsically motivated persons have internalized and embraced religion and spirituality in such a way that they are able to “live” their faith (Allport et al, 1967). The lifestyles of these persons are usually reflect their faith ideals, to some degree. According to the literature, one who has internalized their religious views is also more likely to make choices that reflect these faith beliefs. Individuals who espouse intrinsic religiosity tend to select a creed to identify with, internalize the messages of that creed, and allow it to influence their total life experience (Allport et al, 1967). God and religion is not viewed as a means to an end, but an end within itself. Spiritual growth and development is accentuated within the intrinsic religious commitment. Intrinsic religiosity is thought to lend itself to an avoidance of negative behaviors, while embracing health promoting behaviors (Hill & Pargament, 2003). It presumably leads to positive outcomes as the fundamentally, beneficial aspects of religion are internalized.

This type of religiosity stresses an importance of connecting to God in a way that is personal and intimate. Those who possess this manner of being religious are often more concerned with a relationship with God that is expressed by choices that communicate devotion and commitment. Intrinsic religiosity emphasizes a worldview that is less dependent on practices and rituals, but most concerned about communion with God. An

exchange between the individual and God is valued and upheld without pretense. Prayer, worship of God, and study of scriptural text may be important for those with intrinsic religious commitment.

Intrinsic religiosity refers to the quality of one's relationship with God. The individual evaluates their degree of support, intimacy, and attribution of value received from God. Religion and spirituality can be understood as an integrated system of beliefs and values central to how a person views the world. It offers a framework in which individuals and communities make important choices and interpretations about their environments and situations. Religion and spirituality has been shown to affect the way individuals perceive, interpret, and respond to their worlds (Mattis, 2000).

***Extrinsic Religious Commitment.*** Individuals with elevated levels of extrinsic religiosity are said to use religion to attain personal and social ends, such as security and solace. An assumption of an extrinsic religious commitment includes the adoption of values that are instrumental and utilitarian in nature (Allport et al, 1967). Religion is seen as the means to acquire personal and social benefits in the form of security, solace, sociability and status. As with intrinsic religiosity, there is an adoption of a creed, but the difference lies in the degree to which it is embraced. With those who identify with an extrinsic religiosity, one's creed is only selectively applied to one's life. There may be some internalization of values, but this is only done to accommodate one's personal and social needs. God is viewed as important; however, self is still a major focus.

Allport & Ross (1967) conceptualized extrinsic religiosity as a superficial approach to faith. They described this type of religiosity as "immature" in nature. Personal gain was noted as one of the major motivating factors for those with high levels of extrinsic religiosity,



as opposed to religion being viewed as an end within itself. Individuals who identify with an extrinsic religiosity placed an emphasis on expressing their beliefs through their behaviors, practices, and rituals. From this perspective, religious behaviors were performed in order to exhibit a relationship with God or a sense of belongingness to a religious community. Some examples of typical religious practices highlighted in the research were: church attendance, prayer, study of religious text, meditation, listening to praise and worship music, and participation in religion oriented activities. These behaviors could be initiated to invoke the presence of God and/or to give reverence.

One important personal type of extrinsic religiosity is prayer. Stress reduction properties have been found for prayer in the form of calm feelings as one communicates with God (Taylor et al, 2004). Ellison (1991) determined that religious coping through methods, such as prayer, emerged as fundamental in dealing with emotional distress. Prayer has been associated with heightened mastery and personal control over one's well being (Ellison & Levin, 1998). This locus of control over one's health has been purported to lead to better health outcomes. Pargament (1997) concluded that some persons with higher personal religiosity also experienced greater personal control when confronted with negative life events. It appeared as if this sense of control and mastery served as an extension of self worth which was found to be related to better health outcomes (Ellison & Levin, 1998).

Another common demonstration of extrinsic religiosity is church attendance. Participation in worship services can be due to a desire to strengthen one's relationship with God, learn more about faith, or to connect with other believers in a social manner. Church attendance remains the most reliable indicator of health benefits from religious and spiritual values. In a study of religion and mortality, Hummer et al (1999) determined that African

Americans who attended church more than once per week, as compared to those who never attended, lived 14 years longer. The strength of this finding tends to dissipate once an individual reaches late adulthood.

***Religious Commitment and Health.*** The current project seeks to reveal how religiosity may be associated with health.

### **Health Behavior**

An important factor to consider in the discussion of physical health is an individual's own participation in their health status through the engagement in health behaviors. Health behavior is "an action taken by a person to maintain, attain, or regain good health and to prevent illness." These behaviors are indicative of one's health beliefs and include a variety of actions, such as regular exercise, consumption of a balanced diet, or access to routine medical care. Health behaviors can affect the occurrence, severity, and eventual prognosis of several medical problems (Harris et al, 2010).

**Diet/Nutrition.** Diet has emerged as significant factor in the experience of health and wellness. Consumption of healthy foods, such as fruits and vegetables, have been said to have a positive effect on physical health. The essential vitamins and minerals taken from nutritious meals have a profound impact on how well a person's body functions. The cleansing and healing of cells within the body by the ingestion of such food is fundamental to good health outcomes. Observance of dietary recommendations of the food pyramid has been linked to better physical health. Some of the natural consequences of healthy food choices are: decreases in obesity, increased energy, reduced evidence of disease, and better prognoses for chronic illness.

**Physical Activity and Exercise.** The degree and intensity of the physical activities

that one engages in also affects health outcomes. Persons who participate in at least 30 minutes of activities which increase heart rate experience better health outcomes. These activities can include, but are not limited to a formal exercise program. They may also include activities where physical exertion is required, such as: house work, gardening, or brisk walking.

Physical activity also produces endorphins in the body. These hormones are implicated in the creation of emotions related to positive moods. Heightened confidence and greater satisfaction with body image is also said to result from regular exercise. Regular physical activity can also combat the harmful effects of chronic illness. Exercise has been associated with a slowing of the disease process. As the oxygen is pumped throughout the system, cells are aided. Effective functioning of the cellular system contributes to the appropriate operation of the body.

Diet and exercise combined are connected with a multitude of positive health outcomes. Engagement in these two health behaviors appears to have a prominent influence on one's physical health status. There appears to be direct effects experienced on the body, but even indirect gains, such as increased emotional state, positive mood, healthy self concept, and good self esteem have been determined to represent a state of total health.

The current theoretical framework supports the proposition that religion can have a positive impact on one's health because of its promotion of healthy lifestyle behaviors and its ability to dictate health practices (Levin, 1994; Strawbridge et al, 1997). Specific religious groups and denominations, such as Mormonism or Seventh Day Adventism, are largely governed by religious tenets which impress followers to adhere to health and lifestyle behaviors conducive to positive health outcomes. Religious affiliations, such as the Church

of Latter Day Saints (LDS), have a doctrine which encourages its believers about specific dietary restrictions and physical activity (LDS, 2009). These guidelines vary, from the exclusion of alcohol and hot drinks; minimal consumption of meat and poultry; emphasizing the importance of fruits, vegetables, and grains in one's diet; to regular exercise and fresh air. Other religious groups espouse values which address health issues in a more broad sense. For example, Christians who model their lives based on scriptures from the Holy Bible may point to the need to regard the "body as a temple" as a directive for good health, while not feeling obligated to have stringent regulations about eating or exercise. The Bible also provides scriptural support for the adoption of general healthy lifestyle behaviors. The Bible is understood as a literal guide for living to which many Christians look for insight into daily decision-making, standards for living, and a belief system. There may be a reliance upon an identity of God which is revealed in the Bible as Jehovah Rophe, or the Healer. This characteristic of God emerges in several scriptures where the promises of God are revealed as freedom from illness and long life.

Just as positive, healthy lifestyles are supported by faith communities, the avoidance of risk behavior can also be reinforced. Reduced smoking, drinking, and drug use behaviors are supported by the church; thereby, this encourages a decision making that is more consistent with healthy behavior (Koenig, 2001). Other negative coping styles, such as risky sexual behaviors are also not usually supported or advocated by the church, making participation in such behaviors less likely due to shared values or pressures to conform to norms (Marks et al, 2005). Violent behavior, such as assault, gang activity, and criminal acts are also antithetical to most church doctrine, decreasing the chances that those who regularly attend church will condone and participate in said behaviors.

## **Mental Health**

Positive mental health may function as a mediator between religion and health (Mullen, 1990). The inverse relationship between religiosity and mental health has been consistently found in numerous studies. Religiosity serves as a means of reducing negative affect, such as anxiety. For example, decreased anxiety is observed for those who employ religious coping (Hertsgaard & Light, 1984). “Religion is a universally powerful coping behavior” which can provide relief in the face of burgeoning psychological and emotional symptoms p.54 (Koenig, 2008). Ellison (1991) reported that religious persons tended to also report decreased levels of anxiety; more life satisfaction; and elevations of personal happiness. Persons with religious beliefs tended to report higher ratings of quality of life in the emotional and cognitive domains. Ellison (1991) concluded that faith was positively correlated with the ability to cope following distressing life events, such as unemployment, chronic illness, divorce, and bereavement. Religious African Americans experienced better mental health and quality of life, and showed less evidence of psychological impairment, suicide, substance abuse, and depression in comparison to those who indicated no involvement in a faith community (Ball et al, 2003).

Positive emotional states, such as hope, joy, optimism, and compassion may be experienced by religious and spiritual populations to function as a buffer against stressors (Koenig et al., 2001; Pargament, 1997). It is hypothesized that religious coping may derive or contribute to these emotions in some individuals belonging to the religious community. Church attendance may improve one’s mental health, thereby increasing positive mental health and decreasing symptoms of depression (Strawbridge et al, 2001). Religious practices (ie. prayer, worship, devotion, etc.) contribute to the experience of positive emotions, such as

love (Kaplan et al, 1994). Participation within a religious community may also foster a sense of being loved and appreciated, both by God and other congregants. Feelings of loneliness may also be diminished through regular church attendance (Levin, 1994). Levin (1994) also explained that worship services may bolster an individual's expectation of positive outcomes which have been related to physiological benefits. Oman & Thoresen (2002) also offered that environmental factors, such as spiritual lessons learned from the experiences of family members, religious community affiliates, or significant others, may influence an individual's perspective taking, thereby also positively affecting mental health. A reduction in negative emotions, such as fear, sadness, and anger can play a role in adjusting one's expectations for positive states such as optimism and faith (Frank, 1975). The same effect may be applicable to other well-studied or potentially health relevant states such as meaning, conscientiousness, or perceptions of primary or secondary control of health matters (Cole & Pargament, 1999; Park & Folkman, 1997).

Intrinsic religiosity and mental health outcomes, such as depression and anxiety, have been repeatedly determined to be inversely related. The literature suggests that persons with greater intrinsic religiosity exhibit better psychological adjustment in comparison to persons with pure extrinsic religiosity (Bergin, 1991; Donahue, 1985). Gains in mental health are common for those who are intrinsically religious as it appears to be "...associated with taking life's existential issues quite seriously and seeking closure in a set of religious answers as to how to live, the meaning of life, etc. Such a commitment should provide significant protection against existential anxiety" (p. 37) (Ventis, 1995). Intrinsic religiosity has been linked to low trait anxiety (Lavriv et al, 2008). Conversely, very extrinsically religious persons, who are also largely motivated by social means, were shown to have elevated trait

anxiety (Lavriv et al, 2008). Jurkovic et al also found that for men, intrinsic religiosity is particularly beneficial as it was positively correlated to more positive psychological outcomes in their study sample.

Mental health has been shown to produce physiological effects (Koenig, 2008). Physiological links with mental health and physical health have been documented, with positive emotions being associated with improved immune and endocrine system functioning and decreased cardiovascular reactivity. The immune system is a fundamental part of the disease prevention process as it stands as the first defense to eradicating harmful effects of germs, infection, and viruses. Chronic health issues, such as hypertension and coronary heart disease are symptoms considered to be the result of cardiovascular reactivity in which a psychological or physical stressor causes an exaggerated response to the body.

Thoughts and feelings of suicide are often caused by or related to mental illness. As such, the literature suggests that rates of suicide are lower among very religious groups. Pelham et al (2008) highlighted Gallup Poll statistics from 2005 and 2006 that showed countries that are more religious tend to have lower suicide rates. It is plausible that religion and spirituality serve to counterattack a lack of purpose that makes desperate acts, such as suicide, appealing. It appears that having a belief and devotion to something bigger than oneself opens an avenue that makes enduring in a difficult world possible, instead of relinquishing hope.

In relation to the theoretical model presented here for further emphasis, religious and spiritual values may affect mental health, while eliminating obstacles to engagement in health practices, as stress and negative emotion have been proven to affect physical health (Koenig, 2008; Oman & Thoresen al, 2002). The ability to form more positive social

connections may be bolstered by optimal psychological functioning as well (Gorsuch, 1995; Miller, 1998).

### **Social Support**

The selected theoretical model also taps into the social function that may explain a portion of the religion and spirituality-health connection. Religion and spirituality has been consistently connected to social support in the literature. The amount and quality of social support appears to mediate the strength of the religion and spirituality-health connection, especially for older adults (Koenig, 2008). Social support is a multidimensional construct that has been correlated with health-related behavior and psychological functioning, with increased recovery from illness and greater protection from negative health outcomes (Levin & Vanderpool, 1989; Umberson, 1987).

Receiving positive, social support from others has been found to support good health outcomes. It also appears to function as a means of managing stress and potentially regulating harmful emotions which could impact one's physical health. The greatest health benefit stemming from social support is the extensiveness of individuals available to supply necessary resources. Affiliation with larger social networks has health benefits (Musick et al, 2000). Those who attend church often possess larger social networks as compared to those who are not meaningfully connected to several communities of people. Church membership often supports relationship building with other individuals and with God, all of which are potential sources of support. Increased direct support activities are also associated with church attendance. Tangible, emotional, and spiritual support can be the outcome of social connections derived from church (Taylor et al, 2004; Holt et al, 2005). Persons involved with the faith community may experience social contact with other members, translating to a



greater potential for larger and stronger social networks with more available social support. Social and organizational ties are vital as they dictate many of the behaviors exhibited by individuals. Social capital refers to the extended network of resources available to the individual. This enlarged network of social contacts increases one's accessibility to helpful information, in addition to reducing the chances that their overall needs will go unmet. As there is a greater ability to meet personal, relational, social, and economic needs, likelihood of participation in a detrimental subculture is also reduced (Mainous, 1996).

It is proposed that offering support to others may generate a sense of altruism which may create positive feelings of purpose and worth. The action of diverting one's attention from their own needs to those of others may give rise to a shift in a cognitive perspective that may have physiological benefits. Providing support to others has the capacity for enhancing an individual's own expectancy for receipt of similar resources in the future (Ellison & Levin, 1998).

Individuals who regularly attend worship services are likely to form relationships with others within the religious community. These people have the potential to offer substantial social support, which has been found to be related to positive health outcomes (Taylor et al, 1997; Levin, 1997). It may also be argued that nurturing relationships with others from one's faith could be a spiritual support, in addition to serving a social function. Spiritual support can be gained from others while it is also provided to others. Although this is not an explicit expression of religious views, it may be understood that way. Religious involvement has been associated with social support, with those effects of support garnered from the church as emerging as greater in comparison with social support achieved from other sources (Salsman et al, 2005).

Social support from religious sources may be different from secular outlets due to motivation, such as a central belief system consisting of values, such as caring for others. Social support gained from others within an individual's church congregation is also likely to provide benefits (Marks et al, 2005). In addition to offering an opportunity for relationship building, engagement in prosocial activity is also said to bolster health benefits. Within the African American community, the church has also served as a source of social support. Research indicates that a person's place of worship supports relationships with kin and fictive kin (Taylor et al, 2004). This social support includes emotional support from church members, spiritual support from church members, and emotional support from church ministers and pastors (Krause et al, 2002). Elderly with greater social and spiritual supports also possessed greater relationships with God which translated into higher levels of optimism. This optimism also led to increased positive health outcomes. Individuals who regularly attend worship services are likely to form relationships with others within the religious community.

There is an assumed network of prosocial individuals with whom one interacts on a regular basis, thereby limiting exposure to negative circumstances. Social pressure exerted by faith communities to abstain from excessive use of substances may also function as a mechanism for explaining the religion and spirituality-health connection. Reduced smoking, drinking, and drug use behaviors are supported by the church, thereby encouraging a decision making that is more consistent with healthy behavior (Koenig, 2001).

Although religion and spirituality serve to structure the nature, type, and extent of social support relationships in ways that benefit health, the consequences may not be wholly beneficial. It would be presumptuous to draw the conclusion that every faith community or

member of a religious group has inherently innocent and positive behaviors and motives which nurture others. There may be occasions when these social networks are not positive, and may in fact be to the detriment of one's health. Just as social support has been determined to work in the interest of nurturing health outcomes, there is growing evidence that negative social interactions can have an effect which operates in the opposite direction. Mental health and well-being may be compromised in this case, thus translating into negative effects for social support as well.

### **Practical Implications of the Current Research**

In fields, such as health psychology, where the study of the mind and its intersection with health are paramount, the findings of the present study could be particularly important as it would suggest the need for further study of religious beliefs and values as it relates to health outcomes. As one's religious commitment is recognized as increasingly vital to psychological health and treatment, clinicians would need to be more open to exploring how presenting clinical issues may be associated to their faith beliefs and practices. Furthermore, this relationship could also yield greater insight into how mental health concerns are influenced, sustained, or alleviated by their religiosity. This area of intersection between psychology and religion is often neglected in training mental health professionals leading to failure to address these issues which could be seemingly pertinent for some clients. In recent years, there has been an acknowledgement of benefits for exploring the spiritual/religious identity of those receiving treatment; however, the implementation of this knowledge continues to be lacking. The arena of public health has begun to recognize the richness of the faith community as a resource for improving disease screening, access to service, and health

care planning, and this study stands to further support the natural overlap between the health and religious community.

The next section will cover the hypotheses for the study, with statistical analyses, along with each hypotheses addressed in detail at the end of Chapter 3.

## **Hypotheses**

The present study will explore religious commitment, the independent variable, and physical health, the dependent variable by utilizing a cross-sectional, correlational research design. This relationship is expected to be further explained by mediators, including mental health, social support, and health behavior. The following hypotheses are proposed for study here:

**Hypothesis One.** Religious commitment will be correlated with each potential mediator: health behavior, mental health, and social support. Religious commitment will have a negative relationship with mental health where lower mental health scores indicate reduced psychological distress and more adaptive psychological functioning. Social support and health behavior will each be positively correlated to religious commitment. Individuals reporting higher satisfaction with social support, in addition to greater number of individuals on which they can receive social support, are also expected to have higher levels for religious commitment. Elevations in religious commitment are hypothesized to be associated with greater participation in health behaviors.

**Justification.** The present study seeks to establish a relationship between religious commitment and physical health that is mediated by health behavior, mental health, and social support, and health behavior. In light of this goal, the Baron and Kenny method for determining mediation will be used. For the conversation involving the Baron and Kenny

method, X is religious commitment, Y is physical health, and M is all hypothesized mediators, including health behavior, mental health, and social support.

Baron & Kenny (1986) specified that mediating variables function in such a way that the following conditions apply: X significantly predicts M; X significantly predicts Y; and M significantly predicts Y. To determine if perfect mediation has occurred, there will be a relationship between X and Y when M is controlled for. As such, religious commitment and physical health are expected to be related in such a manner that failure to acknowledge certain mediating variables would also fail to provide a comprehensive view and understanding of this association. The expected mediating variables outlined here are thought to give additional insight into how one's degree of religiosity and spirituality may translate physical health. Due to this expected relation, religious commitment will be predictive of health behavior, mental health, and social support.

***Analysis.*** A hierarchical regression will be completed to test this hypothesis, with age, race/ethnicity, and gender entered into Step 1 to be control for these variables as potential confounds. Mental health, social support, and health behavior are entered at the second step. Religious commitment is the main variable of interest here.

**Hypothesis Two.** Religious commitment will be correlated with physical health. Each of the measures of physical health included in the study which are continuous variables, both body mass index and drug use, will have a negative relationship with religious commitment. As religious commitment increases, both body mass index and drug use are expected to decrease. In addition, the physical health measures, including reported medical illness, prescription drug use, over the counter medication, and alcohol use are dichotomous measures and are each predicted by the degree of religious commitment. Membership to

these groups, or endorsement of these indicators, will lead to lower degrees of religious commitment.

***Justification.*** Religion and health have been linked together throughout the literature. The current research seeks to establish the basic relationship between the independent and dependent variables, religious commitment and physical health as a means of satisfying the second condition of mediation.

***Analysis.*** Several regressions, both hierarchical and logistic regression models, will be completed to test this hypothesis. Age, race/ethnicity, and gender are to be entered at the first step and religious commitment will be entered at the second step for the proposed hierarchical regressions. BMI and drug use will each be entered into separate hierarchical regression models as the dependent variable.

The remaining variables making up the physical health construct, prescription drug use; over the counter medication use; self reported illness, and alcohol use will each be used in separate logistic regression models as well. Just as with the hierarchical regression models, the potential confounds of age, race/ethnicity, and gender will be added in the first step of each of the logistic regression model. The second step will include religious commitment. The minimum ratio of valid cases to independent variables for logistic regression is 10 to 1, with a preferred 20 to 1 ratio. The current sample size and number of independent variables places it well within these suggested parameters; thereby, substantiating the use of this statistical analysis method. The dichotomous nature of the dependent variable, drug abuse, also necessitates the use of logistic regression.

**Hypothesis Three.** The potential mediating variables health behavior, mental health, and social support will each be correlated with physical health. It is suspected that

better mental health, or lower mental health scores, will be negatively correlated religious commitment, such that individuals with greater religious commitment also have better mental health. Also, greater social support satisfaction and increased number of report social supports will be positively correlated to physical health, with positive physical health outcomes also translating to enhances social support. Lastly, participation in an elevated number of physical health behaviors also will be related to higher reported physical health, based on the indicators of interest in the current study.

***Justification.*** The focal point of the current research is to explore the potential mechanisms by which the suspected religion and health connection operates. This hypothesis seeks to satisfy the third condition for mediation as outlined by Baron & Kenny (Baron & Kenny, 1986). In order to establish mediation of a relationship between two variables, the independent and dependent variables, the relationship between the mediators and dependent variable must be proven. Since the current research hypothesizes that the relationship between religious commitment and physical health is suspected to be mediated by health behavior, mental health, and social support, we must also determine that there is a relationship between physical health and health behavior, mental health, and social support.

***Analysis.*** Hierarchical and logistic regression models will be employed to test this hypothesis. Due to the continuous nature of BMI and drug use, hierarchical regressions will be computed for each variable to determine its relationship to the mediators. In separate models, the dependent variables, BMI and drug use, will be entered into the field for Y. Age, race, and gender will be entered into Step 1 to be controlled for as confounds. Health behavior, mental health, and social support will be entered at the second step. The remaining variables representing the construct of physical health, including prescription drug use, over

the counter medication use, diagnosis with illness, and alcohol use will each be used to generate separate logistic regression models. Again, the dependent variable in each individual model will be each of these variables. At the first step, age; race/ethnicity; and gender will be entered into each logistic regression model. Step 2 will include each of the potential mediator for study.

## **Method**

### **Study Design**

The present study had a cross sectional, correlational research design. It examined physical health and religious commitment with the use of several self-report measures collecting information about health, religion, health behavior, mental health, and social support.

### **Recruitment**

A demographically diverse population based upon race/ethnicity, gender, education, marital status, income, faith beliefs, and religious affiliation was recruited from the VCU student population. This was expected to improve the generalizability of the findings to a wider range of college students. The recruitment for the present study was conducted with Service Oriented Network Architecture (SONA) software, a web based human subject pool management system. This database was made available through the VCU Psychology Department to manage recruitment, study signup, course credit management, and administration of online surveys. The VCU SONA system is managed and coordinated by a faculty member and graduate assistant in the psychology department. The researcher of the current study also had access to all data concerning the project and study participants. The complete data set was only accessible to the researcher working directly on this project



through provisions made by VCU SONA, such as passwords and encryptions that ensured privacy.

## **Participants**

Study participants were college students recruited from Virginia Commonwealth University via a web based software system, SONA. The sample was demographically diverse based on gender, race/ethnicity, religious affiliation, income, and marital status. The sample was composed of 150 participants attending a medium sized public university in Central Virginia.

The participants ranged in age from 18 to 54. Ninety percent of the sample was within the average age range for traditional college students, 18-22. Approximately 66% of the participants identified as “female”, and 34% identified as “male”. Over half of the participants were Caucasian (52%) and about 18% of the remaining participants were African American, 11% were Asian American, 8% were Pacific Islander, 4% were Latino, and 6% were Biracial/Multiracial or self-identified as “other”.

The demographics questionnaire asked the respondents about the “highest educational level completed”. Based on the pattern of responding, it is unclear as to whether the participants had a full grasp of the question. For example, the study was extended to a large number of students involved in an introductory level psychology course. This being the case, it is expected that the vast majority of the respondents would indicate “high school” as the “highest educational level completed”. While approximately 45% of the sample identified “high school”, 46% of the participants also reported having already received a bachelor’s degree. This appears to convey a fundamental misunderstanding of this question. Three percent of the sample indicated that they had completed “some college,” and about 5% noted

either receiving some graduate education or a graduate degree. Any conclusions drawn directly from this portion of the data set should be done so with caution.

Marital status was assessed with a single question in which participants had to identify whether they were single, married, separated, divorced, widowed, opposite-sex cohabiting, or same sex cohabiting. Most of the participants were single (87%), 4% were married, and 8% were cohabiting with an opposite sex partner. Slightly under 1% of the sample were either cohabiting with a same sex partner or were divorced.

The majority of the respondents identified making an annual household income of about \$20,000 or less (35%). Twenty-four percent stated their household's earnings as \$80,000 or more. The remaining 40% of the sample were almost equally distributed within either the \$20,000-\$40,000 (11.8%), \$40,000-\$60,000 (16.8%), or \$60,000-\$80,000 (13.4%) range. This data also brought into question the respondent's potential thoughts about what the word "household" means and whether this universally understood by the participants. Again, since the vast majority of the respondents are thought to come from an undergraduate pool of students taking a Psychology 101 course, the variability of the income reported was unexpected. It is unclear whether the students answered the question based on their income or that of their entire household, or their household of origin. For this reason, these results will be interpreted with caution.

A majority of respondents reported a religious background of Christianity (62%), followed by those who identified that their beliefs fit most closely in the "Other" category (26%). The remainder of the sample identified as Muslim (5.9%), Jewish (2.2%), Hindu (2.2%), and Buddhist (1.5%). Forty nine percent further described themselves as "religious,"

while 36% believed themselves to be “nonreligious”, based on their own estimations. An overview of the demographic information is included in Table 2.

Table 2

*Demographic Characteristics of Participants*

Characteristic	Participants	
	n	%
Gender		
Female	97	65.9
Male	50	34.1
Age		
18	87	60.4
19	22	15.3
20	14	9.7
21	8	5.5
22	4	2.8
23	1	0.7
25	1	0.7
26	2	1.4
27	1	0.7
31	1	0.7
38	1	0.7
43	1	0.7
54	1	0.7
Race/Ethnicity		
African American	27	18.4
Asian American	16	10.9
Caucasian	77	52.4
Latino	6	4.1
Pacific Islander	12	8.2
Other	1	0.6
Biracial/Multiracial	8	5.4

(continued)

Characteristic	Participants	
	n	%
Education		
High School	66	45.5
Some college	4	2.8
Bachelor's degree	68	46.9
Some graduate school	5	3.4
Graduate school	2	1.4
Marital		
Single	127	86.9
Married	6	4.1
Divorced	1	0.7
Opposite Sex Cohabiting	11	7.5
Same Sex Cohabiting	1	0.7
Income		
Under \$20,000	41	34.5
\$20,000-\$40,000	14	11.8
\$40,000-\$60,000	20	16.8
\$60,000-\$80,000	16	13.4
\$80,000+	28	23.5
Religious Self Description		
Religious	71	49.0
Nonreligious	52	35.9
Other	22	15.1
Religious Affiliation		
Christian	84	62.2
Jewish	3	2.2
Muslim	8	5.9
Buddhist	2	1.5
Hindu	3	2.2
Other	35	26.0

## **Procedures**

This research was approved by the Virginia Commonwealth University Institutional Review Board for the Protection of Human Subjects (IRB) prior to being implemented with university students. VCU SONA software was identified as the only mode of data collection for the current study. SONA allows students interested in completing a research study to log into the database using a unique user identification name and password. Once they have gained access to the system after clicking on the “Studies” button, the student was presented with a list of names and descriptions of studies available for participation. This list also contains information regarding the time necessary to complete the study, along with allowable credits, if a student chooses to do so.

Once the student selected the present study and gained access to it, there was a brief description of the project included. This following description was used to explain the research project:

“The current study will investigate the relationship between health and commitment to one’s religious and spiritual values. Research shows that values of religion and spirituality have been long since connected to positive health outcomes. This study will include surveys with questions about your health, relationships, feelings, and behaviors in order to learn more about this subject. We hope to develop more effective practices for enhancing health.

Your responses will be kept confidential and private through a process where your answers are assigned an ID number and kept in separate from one another. If you choose to receive either course credit or extra credit due to your participation, as stipulated by your professor, you may give us permission to share that you have

participated in our study. No other information regarding your answers to the survey will be provided to your professor. You are not required to participate in this study.”

All participants were asked to consent to their involvement in the research project prior to their participation. VCU SONA allowed for electronic consent prior to participation in the current study. The description of the study on SONA also constituted a part of the informed consent process. The prospective study participant could ask questions regarding the research to the investigators via email by using the email address provided in the study material. This could be done prior to consenting to participation in the study to ensure that the potential subject was adequately informed about the nature of the study. This constituted an extra level of opportunity to become informed about the study in the recruitment process.

After consenting to engage in the current research, participants received a random unique identification number that was assigned to their response data in the system. The assignment of ID numbers also allowed students to receive credit for their participation in the study, at the discretion of the student and the professor, while protecting their answers to the study materials. Their identifying information was separated from the test answers entered by the participants.

This identification number was stored separately from the participant’s identifying information, such as their name, age, or income. The identifying information was also not stored with the participant’s responses from the study survey. This was important because it protected the participant’s confidentiality and privacy, while documenting the subject’s participation in the study. This process allowed data to be collected that was not linkable to the participant’s identity, but recorded the student’s participation in the study for purposes of receiving credit, if the student chose to do so and if their professors allowed that option.

Some professors may require participation in university research as a part of class requirements or offer the opportunity for extra credit points if students elect to participate in IRB approved university research. The individual professor and the potential participant determined this course credit and/or extra credit prior to involvement in the current study. Extra credit or course credit is solely at the discretion of the participant's professor and the student knew about any expectations of the professor before completing the survey materials. The SONA coordinator provided the professor with proof of the student's participation in the study, with the permission of the student only.

It was made clear to the participants that there was minimal chance for harm. Potential risks were minimized through adequate prior information to the participant about the nature of the study in which they would be asked questions about their physical health, mental health, and religious/spiritual values. Individuals who consented to the study were asked to complete a series of questionnaires that obtained information regarding their current behaviors, thoughts, and feelings regarding their physical health, emotional well being, and social status. There was a potential that these questions would cause only minimal discomfort from having to think about one's health status or beliefs. If this was the case, and the client chose to no longer participate, they were not required to do so. If they required further attention by medical or mental health professionals, referral information was included in the study's consent materials. All participants received general referral information about health and mental health providers as a part of the informational packet. The risks to be experienced by the current study were considered to be minimal. The completion of this survey may have contributed to feelings of discomfort from having to think about past or current health issues or psychological symptoms; however, this reaction was thought to be no

greater than any other encounter with health information. Benefit of participation in this study was possibly be greater than any harm because findings could contribute to the general knowledge about health and better ways of coping with health related issues. While individual subjects may not have personally benefitted from participation in the study, but the findings would contribute to a greater understanding about physical health and how it relates to one's religious and spiritual values.

Following informed consent and the assignment of ID number, the study participants completed the study instruments via the SONA system as study instruments were converted to an online format to accommodate this system. For the purposes of the current project, participants were asked to utilize computers housed in a private space to complete study materials to further protect their confidentiality. Participants completed an electronic questionnaire packet, including a brief study description, informed consent, and self-report measures (Self Report of height and weight for Body Mass Index calculation; Self Report of Medication Usage (Prescription Drug and Over the Counter Medication, Weekly and Monthly); Self Report of Medical Conditions; Religious Commitment Scale-10; Health Promoting Lifestyles Profile-II; Brief Symptom Inventory-18; Social Support Questionnaire-6; Brief Michigan Alcoholism Screening Test; Drug Abuse Screening Test; Demographics Questionnaire). Data was collected during the Fall semester. The VCU SONA system privately and confidentially stored data collected.

The participant responses were stored within the SONA database and were only accessed by the identified researchers. The VCU SONA system privately and confidentially stored identifying information, identification numbers for the subjects, and response data on a secured server. The researchers extracted the anonymous identification numbers and



response data. The identifying information, identification numbers, and response data was ultimately deleted from the secure server and SONA system. This extracted data was securely stored. Data collected was stored electronically and was accessible only to the investigators involved in this project. It was kept on a drive dedicated to this data only.

## **Measures**

This section will describe the scales used to measure the study hypotheses and constructs of interest. The key study constructs (physical health, religious commitment, health behavior, mental health, and social support) were measured with self-report instruments. Demographic data was collected.

**Physical Health.** Self-report scales measured the physical health of the participants.

**Body Mass Index (BMI).** One of these measures was body mass index (BMI). BMI is an objective measure of an individual's body fat (CDC, 2011). It was calculated with a formula that factors in one's height and weight. The formula is as follows:  $\text{weight (lb)} / [\text{height (in)}]^2 \times 703$ .

BMI has been used to identify weight related problems, especially when combined with other measures, such as family medical history, diet, and physical activity. As previously indicated, failure to maintain a healthy weight may contribute to the development and prognosis of some illnesses. Also, it has been selected for the current study due to its inexpensive nature and ease of measure.

The U.S. federal guidelines provide six categories for classifying body mass index according to kg/m<sup>2</sup>: less than 18.5 (underweight); 18.5 to 24.9 (normal weight); 25.0 to 29.9 (overweight); 30.0 to 34.9 (Grade 1 obesity); 35.0 to 39.9 (Grade 2 obesity); and 40.0 and higher (Grade 3 obesity) (Kulminski et al, 2008). This is important because being overweight

or obese has been associated with a number of diseases, including hypertension, dyslipidemia, Type 2 diabetes, coronary heart disease, stroke, gall bladder disease, osteoarthritis, sleep apnea and respiratory issues, and cancers such as breast, colon, and endometrial (WHO, 1995). It is important to note that BMI is not a sole contributor to illness, but excess weight can certainly play a role in the development and maintenance of some health issues. Participants were asked to provide their height and weight, and the conversion to body mass index was made by the researcher. Body mass index was used as a continuous variable in the current study.

Body mass index has been found to be a reliable measure of health status. While BMI is not a direct measure of body fat, findings suggest that BMI is strongly correlated to direct measures of body fat, such as underwater weighing (Mei et al, 2002; Garrow & Webster, 1985). There are some variations in this correlation based on sex, race, and age. For example, women tend to have more body fat than men, despite a similar BMI rating (CDC, 2011). Also, individuals with a high degree of muscle mass may have a high BMI due to their muscularity rather than their body fat. These elements were considered as potential limitations.

***Medication Usage.*** The use of prescription and over-the-counter medications are related to one's overall health status (Koenig et al, 2001). These drugs are used to treat a number of health conditions, ranging from chronic health issues to acute or intermittent pain and discomfort. The present study used this as a measure of physical health as well. Individuals who engage in regular use of medications may be experiencing a medical condition that causes poorer physical health. At the very least, these individuals may have physical complaints or symptoms that may be indicative of illness; thereby, providing

information about their physical health status. It is important to note here that there may be medications indicated that do not directly imply illness, such as birth control pills and multivitamins. Due to the multiple reasons why persons may take these medicines, it is important to consider them in the analyses because this may very well indicate illness.

In the current study, the participants were asked to report their use of these medications in the past week and past month. Participants were also asked to list the specific medications that they use. This provided more in depth information about the sample and their physical health at the time of data collection. This was a dichotomous variable with participants indicating “yes” or “no.” The participants’ responses was labeled as: “0” = no medications used and “1” = medications used within the past week and past month. As mentioned earlier, all information collected, including this sensitive health information, was kept private and confidential, along with being de-identified.

***Medical Conditions.*** The participants’ report of illness and disease serve as another measure of physical health. This method has been used in other studies to establish health status (Kulminski et al, 2008). Individuals with a reported illness are considered less healthy and assumed to have a poorer health state.

The participants were asked to report the evidence of health conditions experienced within the past week, month, and year. This was a dichotomous variable with participants indicating “yes” or “no.” Respondents who did not endorse the experience of illness were assigned the value of “0,” while individuals that reported illness were be labeled “1.”

***Alcohol Abuse.*** The Brief Michigan Alcoholism Screening Test is a 10-item self-report measure of alcohol use and alcohol related problems (BMAST: Selzer, 1975). It is adapted from the Michigan Alcoholism Screening Test (MAST), which is a 25-item scale of

problematic drug use (Selzer, 1971). The items focus on symptoms of problematic drinking, along with associated negative consequences. The BMAST has demonstrated the ability to discriminate substance users from individuals exhibiting alcohol abuse issues. The answer selections are “yes” and “no,” and are assigned the following weights depending upon the question: 0, 1, 2, and 5. The total possible score is 29, with higher scores indicating alcohol use problems. More specifically, a score of zero means no alcohol abuse; a score of 1 to 5 suggests potential problems with use; while scores over six indicate problems with use. Due to the population of interest here, college students, analyses considered those who report a total score of 5 or less in one group and those whose responses are 6 or greater in another group. The former group was assigned a “0” and the latter group received a “1” to indicate troubled drinking patterns.

Test-retest reliability for the original full scale measure, the Michigan Alcohol Screening Test (MAST), was about .84, with the subscales ranging from .65-.86 for test-retest reliability. The BMAST was correlated with the original scale, within ranges of .95-.96. It has also been employed in various populations, lending to the external validity of the scale. There were some moderate effects on the total scale score found for participants who were careless in completing the instrument. Denial and social desirability also appeared to have minimal effects on the scale score. The measure was correlated with other indices of psychopathology.

***Drug Abuse.*** The Drug Abuse Screening Test is a 28-item questionnaire for measuring drug abuse. It is a clinical screening tool which is also used in treatment evaluation research (DAST: Skinner, 1982). It is a self-report measure yielding a score that conveys one’s degree of substance use with increasing values. The respondent is prompted

with a question concerning his or her drug use patterns, such as “Have you ever abused prescription drugs?” An answer of either “yes” or “no” is then selected, equating to “1” and “0,” respectively. Items 4, 5, and 7 were reverse scored, with “no” receiving a 1 value and “yes” receiving a “0” value.

The Cronbach’s coefficient alpha was .92, suggesting sound reliability. Internal consistency coefficients range from .92 to .94. Moderate to high item-total correlations were found, with the lowest item-total correlations found for Items 7 and 20 of the scale. These questions ask the respondent about their attempts to limit their drug use in certain circumstances and their use of drugs while driving, respectively (El-Bassel et al, 1997). Validity scores between the DAST and other self-report measures of substance use ranged from 0.19 to 0.55. Minimal influence by response style bias was found (Skinner, 1982). Concurrent and discriminant validity have been demonstrated (Cocco & Carey, 1998; El-Bassel et al 1997; Gavin et al, 1989). Moderate to high levels of test-retest reliability were found for the DAST scale (Yudko, 2007). El-Bassel et al (1997) determined a test-retest coefficient of .85 in a population that was tested again after two weeks. The DAST also demonstrates good face validity (Skinner, 1982).

**Religiosity and Spirituality.** Religious commitment was the construct used to measure religiosity and spirituality in the present project. The Religious Commitment Inventory-10 (RCI-10) taps into an individual’s degree of adherence to their religious values, beliefs, and practices, in addition to how these concepts are integrated into their daily lives (Worthington et al, 2003). It was used as the sole measure of religious commitment in the present study. This scale operates from the perspective that religious individuals adopt a worldview that affects their entire lives. It consists of two major factors that also function as

subscales, intrapersonal religious commitment and interpersonal religious commitment. This 10-item scale utilizes a 5-point Likert scale ranging from 1 = “*not at all true of me*” to 5 = “*not at all true of me.*” The score increases with the participant’s degree of religious commitment. Religious commitment is a continuous variable.

The Intrapersonal Religious Commitment subscale measures a largely cognitive aspect of religiosity. Questions that are posed on this scale ask about an individual’s integration of their religious beliefs into their life, their time spent in private religious thought, and the personal importance of religion. It is most closely aligned with intrinsic religiosity in which a person’s intrinsic motivations determine how much their religious beliefs play a dominant role in their lives. It is the thought that, although there may be other needs having less significance in comparison, individuals who are motivated intrinsically by their religious and spiritual beliefs will attempt to bring all other aspects of their lives into harmony with their faith (Allport et al, 1967).

The RCI-10 Interpersonal Religious Commitment scale measures attributes that are demonstrative of one’s religious behavior, or extrinsic religiosity. This scale includes questions about the participant’s attendance to religious activities, their financial contributions to their religious organizations, participation in decision-making regarding their religious institution, and spending time with persons from their religious organization.

The internal consistency for the RCI-10 total scale was .93, with coefficient alphas equal to .92 for the Intrapersonal Religious Commitment subscale and .87 for the Interpersonal Religious Commitment subscale. The two subscales were highly correlated with one another, with the Pearson correlation coefficient determined to be .72. Test-retest reliability was measured at a three week interval and found the Pearson correlation

coefficient was .87 for the total scale, .86 for the Intrapersonal Religious Commitment scale, and .83 for the Interpersonal Religious Commitment subscale (Worthington et al, 2003).

Construct validity was found for the measure and was able to distinguish individuals that have high degrees of religiosity from those with lower religiosity. Overall differences from highly religious persons and those of low to moderate religiosity have been found (Worthington et al, 1996). Discriminant and criterion related validity were also found for this scale.

**Health Behavior.** The Health Promoting Lifestyles Profile-II is a self report measure of the frequency of engagement in health practices (HPLP-II: Walker & Hill-Polerecky, 1996). The HPLP-II provided information regarding health behavior in the current project. This is a 52-item scale composed of six subscales: spiritual growth, interpersonal relations, nutrition, physical activity, health responsibility, and stress management. The measure utilizes a 4-point Likert scale ranging from 1 = “*Never*” to 4 = “*Routinely*,” with higher scores indicating increased levels of participation in health behaviors. Walker & Hill-Polerecky (1996) identified “spiritual growth” as the transcendence, connection, and development of an individual’s inner resources. The interpersonal relations subscale was based on the premise that one actively forges intimate, meaningful relationships with others through communication; thereby, contributing to one’s overall health. Nutrition takes into account one’s decision making and consumption of health foods. The physical activity subscale prompts the individual to report behaviors yielding health benefits which range from leisure activity to planned exercise. Health responsibility was defined as an “active sense of accountability for one’s own well-being” (Walker & Hill-Polerecky, 1996). The stress management subscale items were developed to measure physical and psychological resources

for coping with tension. The total measure includes 9 items for each subscale, with the interpersonal relations and stress management subscale containing 8 items. The total scale score is of interest here and the data is continuous.

The scale's construct validity was established by factor analysis, which confirmed the presence of six domains, convergence with the Personal Lifestyle Questionnaire, and non-significant correlation with a social desirability (Mahon et al, 1994; Walker & Hill-Polerecky, 1996). The measure's criterion validity was supported by significant correlations with scales of perceived health and quality of life. The alpha coefficient for internal consistency was .94. Alpha coefficients for the individual subscales ranged from .79 to .82. The test-retest reliability was .89 (Walker & Hill-Polerecky, 1996).

**Mental Health.** The Brief Symptom Inventory-18 is a measure of psychological distress (BSI-18: Derogatis, 2000). This is an 18-item scale which generates scores for three subscales: somatization (SOM), depression (DEP), and anxiety (ANX). There is also a global index which can be generated from data collected, the global severity index (GSI). The respondent is asked to answer each item based on symptoms or feelings experienced "*over the last week, including today.*" The measure employs a 5-Likert scale which quantifies distress on a continuum ranging from "*not at all*" to "*always.*" The total scale score, or the global scale index, consists of all 18 item responses providing scores of 0 to 72. The three subscales scores, composed of 6 items each, range from 0 to 24. There has been high test-retest and internal consistency found for the original scale, with Cronbach alphas ranging from .75 to .89 (Boulet and Boss, 1991). This shorter measure has alpha coefficients of .74 to .84 for the subscales, and .89 for the entire scale score (Derogatis, 2000). The BSI-18 is also highly correlated to the BSI general distress score, .90.



**Social Support.** The Social Support Questionnaire is a measure of perceived social support (SSQ-6: Sarason et al, 1987). The instrument has six items which obtain a global view of one's social support system. The scale is a modified version which has been employed in previous studies (Figueiredo et al, 2004). Each question consists of two parts which yields two scores: a "number" and "satisfaction" score. Unlike the original form in which respondents list the initials of each of those individuals, this version asks only for the number of people. For each item, the respondent is presented with a scenario for which they are asked to identify the number of individuals on whom they can depend for social support. Mean scores are then calculated for the number of supportive people indicated in part one of each question to determine one subscale score of perceived social support. Secondly, in the next part of the item, the participant is presented with a five-point Likert scale and asked to assign a value to the degree of satisfaction that they experienced in conjunction with the social support that they received. The answer responses range from 1 = "*very dissatisfied*" to 5 = "*very satisfied*." The mean is also calculated for these responses to determine the respondent's degree of satisfaction with the social support that they receive from others. Validity has been confirmed for the SSQ-6 by correlations with several social support measures (Sarason et al, 1987). The Cronbach's alpha for the SSQ-6's subscales are .89 and .96 for the supportive persons and satisfaction scales, respectively (Figueiredo et al, 2004).

**Demographics.** The demographic characteristics of the sample were collected by a questionnaire that assessed the gender, race and ethnicity, education, marital status, income, self described religiosity (i.e., religious, nonreligious, or other), and religious affiliation of the study participants. This information will be used to further describe the sample, in addition to controlling for potential confounds where relevant.

## Statistical Analyses

Descriptive statistics analyses were conducted. Means, standard deviations, and internal consistency reliability coefficients were utilized to describe the sample and findings. A correlation matrix for study variables was generated.

Hierarchical and logistic regression models were used to test the hypothesized relationships among religious commitment, physical health, and the proposed mediators. These models allowed for the measurement of both continuous and dichotomous data. This was important because both types of information were collected as a result of the study instruments. For example, in the case of some of the physical health indicators, such as prescription and over-the-counter drug use, alcohol abuse, and drug abuse, dichotomous data was used for analyses. This decision was made in an effort to discriminate normal levels of use of drugs and alcohol, which is expected in a standard college aged population, versus problem use or addictive behaviors that are less typical within this group. Also, logistic regression was acceptable here given that the analysis requires at least 100 cases for each predictor, with an advisable ratio of cases to predictors that range from 10:1-20:1 (Tabachnick et al, 1989).

Statistically, potential confounds of age, race/ethnicity, gender, education, income, marital status, self-reported religious description (i.e., religious, nonreligious, or other), and religious affiliation were explored and controlled for, as necessary. Dummy coding was used for describing the self-identified racial and ethnic heritage of the participants. Individuals who identified as “Caucasian” assumed the majority of the sample and were deemed the reference group. This group was assigned a “0” value. Post-hoc analyses of power were also included for review.

The first hypothesis identified that the independent variable, or religious commitment, would be positively correlated with each potential mediator: health behavior, mental health, and social support. This would satisfy the first condition for mediation (Baron et al, 1996). The second hypothesis sought to satisfy the second condition of mediation, where X, religious commitment, will be positively correlated with Y, physical health. Next, the third hypothesis was that each potential mediator (i.e., health behavior, mental health, and social support) would positively correlate with physical health. Each hypothesis, along with its statistical analyses, is further described below.

**Hypothesis One.** Religious commitment will be correlated with each of the potential mediators: mental health; social support; and health behavior. A mediating variable functions such that it explains the variance between the predictor and criterion variables. As indicated earlier in the proposal, researchers Baron and Kenny (1986) identify three assumptions for ensuring the mediating effects of variables:

- 1) X significantly predicts M;
- 2) X significantly predicts Y; and
- 3) M significantly predicts Y.

**Analysis.** A hierarchical regression was completed to test this hypothesis, with age, race, and gender entered into Step 1 to be control for these variables as potential confounds. Health behavior, mental health, and social support were entered at the second step. The dependent variable was entered as religious commitment. This formed the basis of future analyses to be computed to establish mediation.

**Hypothesis Two.** It was hypothesized that religious commitment was correlated with physical health. In order to identify mediators for the health and religion relationship, the

correlation between religious commitment and physical health must be in place. The analyses to establish this were done accordingly.

**Analysis.** A hierarchical regression and logistic regression models were used for each variable comprised within the construct of physical health proposed here. Several regressions, both hierarchical and logistic regression models, were completed to test this hypothesis. Age, race/ethnicity, and gender were to be entered at the first step and religious commitment was entered at the second step for the proposed hierarchical regressions. BMI and drug use was entered into separate hierarchical regression models as the dependent variable. The remaining variables making up the physical health construct (prescription drug use; over the counter medication use; self reported illness, and alcohol use) were each be used in separate logistic regression models. Just as with the hierarchical regression models, the potential confounds of age, race/ethnicity, and gender were added in the first step of each of the model. The second step included religious commitment.

**Hypothesis Three.** The potential mediating variables health behavior, mental health, and social support were hypothesized to be correlated with physical health. These factors were expected to provide an explanation of the relationship between religious commitment and physical health. If this hypothesis is confirmed, health behavior, mental health, and social support will be established as mediators.

**Analysis.** Hierarchical and logistic regression models were employed to test this hypothesis. Due to the continuous nature of BMI about drug use, hierarchical regressions were computed for each variable to determine its relationship to the mediators. In separate models, the dependent variables BMI and drug use were entered into the field for Y. Age, race, and gender will be entered into Step 1 to be controlled for as a confound. Health

behavior, mental health, and social support were entered at the second step. The remaining variables representing the construct of physical health, including prescription drug use, over the counter medication use, diagnosis with illness, and alcohol use were each used to generate separate logistic regression models. Again, the dependent variable in each individual model was each of the variables: health behavior, mental health, and social support. At the first step, age, race/ethnicity, and gender were entered into each logistic regression model. Step 2 variables were entered and included all potential mediators: health behavior, mental health, and social support.

## **Results**

### **Descriptive Statistics**

**Religious Commitment.** Religious commitment was modest within the current sample ( $M = 21.58$ ,  $SD = 9.42$ ). The highest total score for the instrument was 50. The sample mean of 21 conveys a low to moderate sense of connectedness and dependence upon religiosity/spirituality. This finding is slightly lower, but similar to that of other studies involving this instrument where the mean religious commitment score for a college sample was 25.7 (Worthington et al, 2003).

The subscales of this inventory measured intrapersonal and interpersonal religiosity. The mean for intrapersonal religious commitment, or intrinsic religiosity, was 13.43 ( $SD = 6.03$ ). The highest score that could be achieved on this subscale was a score of 30. The interpersonal religious commitment, or extrinsic religiosity, mean was 8.11 ( $SD = 3.91$ ). The interpersonal religious commitment subscale score could range from 0 to 20. Both mean scores for intrapersonal and interpersonal religiosity suggest moderate religiosity/spirituality. No significant differences between intrinsic and extrinsic religiosity were observed in this

sample. In fact, the findings of this study mirror those of previous research that measured religious commitment in college students (Worthington et al, 2003). Table 3 provides more information regarding this sample's individual responses to questions posed on this measure.

The majority of the sample (63%) denied that they had invested considerable time into learning about their religious group and that they had not allowed their faith to influence their life decisions. Forty- nine percent of the sample indicated an item response of “not at all true about me” when asked about whether they had made financial contributions to any religious organizations to which they were affiliated. This finding conveys the sample's probable lack of importance for financially supporting a religious community or affiliation. Again, this pattern of responding reflects the overall low to moderate degree of extrinsic religiosity within the sample.

Many individuals, approximately 50%, answered in a manner that suggested that intrinsic religiosity, or intrapersonal religious commitment, may be important to them. They endorsed their interest in books and magazines regarding their faith. Seventy-two percent of the respondents reported that they spent time “growing in their faith” and sixty-four percent endorsed a “desire for their religious beliefs to affect other dealings in their lives.”

In reviewing religious commitment and various reported demographic variables, there were a number of significant relationships found. Inverse relationships between education and religiosity have been identified in previous research and have emerged within the current study as well. Religious commitment and education level were found to be significant ( $r = -.177, p < 0.05$ ), but with a weak negative correlation. This suggests that, for this sample, and reflected in the larger body of literature, one's religious commitment may decrease as their level of education increases. Total level of extrinsic religiosity, or interpersonal religious

Table 3

*Religious Commitment Scale Response Distributions*

Item	Not at All True of Me	Somewhat True of Me	Moderately True of Me	Mostly True of Me	Totally True of Me
"I often read books and magazines about my faith." *	75 (50.3%)	43 (28.9%)	25 (16.8%)	6 (4%)	0 (0)
"I make financial contributions to my religious organization."**	73 (49%)	43 (28.9%)	20 (13.4%)	7 (4.7%)	6 (4%)
"I spend time trying to grow in understanding of my faith."**	42 (28.8%)	51 (34.9%)	27 (18.5%)	15 (10.3%)	11 (7.5%)
"Religion is especially important to me because it answers many questions about the meaning of life."*	43 (29.3%)	46 (31.3%)	25 (17%)	17 (11.6%)	16 (10.9%)
"My religious beliefs lie behind my whole approach to life."*	45 (30.4%)	39 (26.4%)	25 (16.9%)	21 (14.2%)	18 (12.2%)
"I enjoy spending time with others of my religious affiliation."**	43 (29.7%)	44 (30.3%)	25 (17.2%)	18 (12.4%)	15 (10.3%)
"Religious beliefs influence all my dealings in life."*	54 (36.5%)	42 (28.4%)	27 (18.2%)	18 (12.2%)	7 (4.7%)
"It is important to me to spend periods of time on private religious thought and reflection."*	53 (36.1%)	43 (29.3%)	30 (20.4%)	13 (8.8%)	8 (5.4%)

(continued)

Item	Not at All True of Me	Somewhat True of Me	Moderately True of Me	Mostly True of Me	Totally True of Me
"I enjoy working in the activities of my religious organization."**	59 (39.9%)	39 (26.4%)	30 (20.3%)	12 (8.1%)	8 (5.4%)
"I keep well informed about my local religious group and have some influence in its decisions."**	93 (62.8%)	29 (19.6%)	14 (9.5%)	7 (4.7%)	5 (3.4%)

*Note.* \*Intrapersonal. \*\*Interpersonal

commitment, was also negatively correlated with education ( $r = -.180, p < 0.05$ ). This finding also appears to translate into the sense that individuals that become more educated may then engage in fewer religious practices, such as church attendance. Again, as previously mentioned, these findings should be interpreted with caution given the lack of clarity with which some respondents indicated their level of education.

Income was correlated to extrinsic religiosity ( $r = .220, p < 0.05$ ). In the current sample, the individuals that were more likely to engage in religious activity were also the persons that had greater income levels. Positive correlations between religiousness and income have been found; however, these relationships are often modest (Ellison & Hummer, 2010). As mentioned earlier, there may be some concerns regarding the manner in which income was determined by respondents in the present study. This requires that this finding be interpreted with caution.

Through an examination of religious commitment and the proposed mediating variables, significant correlations were also identified. Health behavior was positively



correlated to total religious commitment ( $r = .360, p < 0.01$ ), along with both intrapersonal ( $r = .325, p < 0.01$ ), and interpersonal religious commitment ( $r = .370, p < 0.01$ ).

Pearson correlations between religious commitment and mental health yielded a negative relationship ( $r = -.172, p < 0.05$ ) with higher religious commitment corresponding to better mental health as lower BSI scores equal more positive mental health. Interpersonal religious commitment had weak negative correlations with mental health, ( $r = -.199, p < 0.05$ ).

Social support, as measured by the number of persons that individuals could count on for assistance was found to be negatively correlated to overall religious commitment ( $-.181$ ) and extrinsic religious commitment ( $-.253$ ).

**Physical Health.** The participants were relatively healthy. This finding was not a surprise given the fact college students tend to experience fewer health problems as compared to older adults.

**Body Mass Index.** Most of the sample reported a height and weight that characterized their body mass index (BMI) within the normal range (71.9%). Fourteen percent were deemed overweight, 6% were obese, and 7% were underweight. Much of the sample did not report weekly (66.2%) or monthly (63.4%) prescription drug use. About twenty percent of the sample noted their use of one prescription drug in the previous week or month before completing the online survey.

**Medication Usage.** Approximately 7-11% of the sample used two prescription drugs in the previous week or month. The number of participants who used three or more medications was scant, as 7% of the total sample reported weekly use and 8% cited monthly use. Over-the-counter medication use was similar to that of prescription drug use. Sixty

percent of the sample reported use of one medication in the previous week. Forty-three percent took one medication in the month preceding the survey. Twenty five percent of the respondents took over-the-counter medications in the week previous to data collection. Thirty percent of the sample reported use of two of these drugs in the past month. The drug types and specific references are included in Table 4.

Table 4

*Medication Use & Type*

Use	Type	
	Over-the-Counter Drugs	Prescription Drugs
Vitamin/Supplements	Multivitamin Women's Vitamins Fish Oil Prenatal Vitamins Tums	Vitamin D Iron
Pain Relievers	Ibuprofen Tylenol Midol Aleve Excedrin Motrin Alka-Seltzer Aspirin	Ibuprofen Tylenol
Allergy/Nasal	Benadryl Allegra Claritin Loratadine Afrin	Allegra Zyrtec

(continued)

Use	Type	
	Over-the-Counter Drugs	Prescription Drugs
Cold/flu medicines	Nyquil Dayquil Theraflu Robitussin Mucinex Sudafed Delsym Occilococoinum	Benzonatate
Psychotropic	Calms Forte	Zoloft Lamictal
Birth Control	None reported	Yaz NuvaRing Lo loestrin Orthotrycycline Aviane Gianvi Levora
Weight Loss/Management	Metabolife	None reported
Antibiotic	None reported	Minocyclin Levofloxacin
Hormone	None reported	Synthroid
ADHD	None reported	Vyvanse

(continued)

Use	Type	
	Over-the-Counter Drugs	Prescription Drugs
Tuberculosis	None reported	Isoniazid
Skin Treatment	None reported	Wart remover

Prescription drug use was more common among women and was found to be significantly related to gender ( $r = .366, p < 0.01$ ). This could be reflective of the regular use of birth control pills in a college aged population. Prescription drug use was also positively correlated with the number of people that participants found to be supportive ( $r = .308, p < 0.01$ ). Over the counter medication use was also more common among individuals that were regular prescription drug users ( $r = .217, p < 0.05$ ). Greater psychological distress was found for prescription drug users as well ( $r = .199, p < 0.05$ ). Participants who regularly used over the counter medications were likely to report higher numbers of people from whom they thought that they could obtain support. There was a relatively weak positive correlation with social support ( $r = .265, p < 0.01$ ).

***Medical Conditions.*** Most of the sample denied current medical conditions (75%), again reflecting the relative health of the sample. Twenty percent reported an ailment. Some participants (5%) declined to answer this question altogether. This missing data was excluded from analyses as it was considered to be skipped due to reasons that were not

completely random. Respondents who elected to skip this question may have done so due to confidentiality or privacy concerns. The participants reported a number of diseases.

Diseases of the respiratory system (i.e., asthma); neoplasms (i.e., Hodgkin's disease); endocrine diseases (i.e., hypothyroidism); nutritional diseases (i.e., Vitamin D deficiency); diseases of the digestive system (i.e., irritable bowel syndrome); genitourinary system diseases (i.e., endometriosis); diseases of the ear, nose and throat (i.e., allergies); diseases of the skin were reported. Psychological disorders, including Attention Deficit Hyperactivity Disorder and depression were cited by the sample as well. The sample also documented the following medical conditions: Celiac's disease, hearing loss, high cholesterol, vasovagal syndrome, epilepsy, undifferentiated connective tissue disorder, ACL Reconstruction/Meniscus Removal, fibromyalgia, near-sightedness, complex regional pain syndrome, postural orthostatic tachycardia syndrome, hypoglycemia, athlete's foot, common warts, and polycystic ovarian syndrome.

An interesting, but intuitive result, was that individuals that identified medical conditions were more likely to have engaged in fewer health behaviors ( $r = -.240$ ,  $p < 0.01$ ). While disease and illness are not entirely dictated by one's health practices, it has been determined that those who are more ill may also be less active in health behaviors.

Another finding that emerge from the descriptive data was that persons with medical conditions had elevated psychological distress ( $r = .358$ ,  $p < 0.01$ ). This is also corroborated by research which relates psychological disorders, such as depression, with other health problems.

Lastly, social support, as measured by degree of satisfaction with the assistance received, was negatively correlated with the report of an illness by participants ( $r = -.770$ ,  $p <$

0.01). This finding conveys that individuals with greater levels of social support were more likely to be healthy, or more specifically, did not report an illness. Research continues to support the fact that social support lends itself to healthier outcomes. Individuals who have people that they can count on and are satisfied with these networks of persons are more likely to avoid illness or the deleterious effects of illness.

***Alcohol Use/Abuse.*** Slightly less than one half of the participants (49%) denied problem alcohol use, while 41.7% endorsed an elevated degree of alcohol use. Only eight percent of the sample reported alcohol use behaviors that implied problem use. Problem alcohol users in this sample were not necessarily problem drug users ( $r = -.306$ ,  $p < 0.05$ ). While many substance abuse problems are co-morbid, it was the case in the current study that alcohol abuse, or patterns similar to abuse, were not synonymous with drug abuse behaviors.

As suspected, and seen in other studies, negative correlations were found between alcohol abuse and psychological functioning ( $r = -.172$ ,  $p < 0.05$ ). Persons that reported higher rates of alcohol abuse were also those that demonstrated poorer mental health. This finding begs the question of whether one has become mentally ill and self-medicates with large amounts of alcohol or if these persons have suffered from alcohol abuse which has led to poor mental health.

Alcohol abuse was positively correlated with the number of supportive people identified by the sample ( $r = .236$ ,  $p < 0.01$ ) and the degree of satisfaction reported ( $r = .321$ ,  $p < 0.01$ ). This result may allude to the social nature of drinking behaviors, especially for the college aged population. While drinking alcohol can serve many functions, college students are often drinking in conjunction with social events. This finding may be closely related to

the reality that most drinking in this age group is done in the company of others, especially those who may also drink alcohol for social and recreational reasons.

***Drug Use/Abuse.*** Ten percent of the sample indicated drug use behaviors that suggested abuse or dependence. The majority of the sample, about 60%, was not problem drug users and twenty-seven percent had drug use that indicated probable difficulty. Significant findings were found for drug use and other study variables. Drug abuse was negatively correlated with social support ( $r = -.532, p < 0.01$ ). This finding suggests that as drug use among the study decreased, the number of people that they felt that they could rely upon increased. Table 5 includes specific data collecting regarding physical health indicators.

Table 5

*Physical Health Indicators*

Variable	Participants	
	n	%
Body Mass Index		
Underweight	10	7.5
Normal	96	71.6
Overweight	20	14.9
Obese	8	6.0
Prescription Drug Use (Use in Past Week)		
0	88	66.2
1	27	20.3
2	9	6.8
3	5	3.8
4	2	1.5
5	1	0.8
14	1	0.8

(continued)

Variable	Participants	
	n	%
Prescription Drug Use (Use in Past Month)		
0	85	63.9
1	23	17.3
2	14	10.5
3	4	2.9
4	2	1.5
5	2	1.5
6	1	0.8
13	1	0.8
42	1	0.8
Over-the-Counter Drugs (Used in Past Week)		
0	80	60.6
1	33	25.0
2	13	9.8
3	3	2.3
4	1	0.8
Over- the-Counter Drugs (Use in Past Week)		
5	1	0.8
7	1	0.8
Over-the-Counter Drugs (Use in the Past Month)		
0	58	43.9
1	40	30.3
2	24	18.2
3	4	3.0
4	5	3.8
30	1	0.8
Medical Condition		
Yes	29	19.9
No	109	74.7
Decline to Answer	8	5.4

(continued)



Variable	Participants	
	n	%
Alcohol Use		
(0 = No Problem Use, 1-5 = Increased Use, But No Problem Use, 6< = Problem Use)		
0	68	49.6
2	19	13.9
4	36	26.3
5	2	1.5
6	3	2.2
7	2	1.5
9	3	2.2
11	1	0.7
16	1	0.7
17	1	0.7
21	1	0.7
Drug Use		
0	8	5.3
2	8	5.3
3	18	11.9
4	9	6.0
5	6	4.0
6	4	2.6
7	4	2.6
8	3	2.0
9	1	0.7
12	1	0.7
14	1	0.7
17	1	0.7

*Note.* BMI reported in categories. Prescription and Over-the-Counter Drug Use reported by number of medications used. Alcohol and drug use reported in the following terms: (0 = No Problem Use, 1-5 = Increased Use, But No Problem Use, 6< = Problem Use).

Data about the key variables within the current study are outlined in Table 6. The psychometric properties are highlighted in an effort to increase understanding of the sample.

Table 6

*Psychometric Properties of Key Study Variables*

Variable	n	M	SD	Range	
				Potential	Actual
Religious Commitment (Total)	143	21.44	9.31	10-50	10-47
Intrapersonal	144	13.47	6.03	6-30	6-29
Interpersonal	144	8.13	3.91	4-20	4-20
Physical Health					
Body Mass Index	134	22.97	4.32	0-1	16.30-49.30
Prescription Drug Use	133	.33	.47	0-1	0-1
Over-The-Counter Drug Use	131	.53	.50	0-1	0-1
Illness	138	.20	.40	0-1	0-1
Alcohol Abuse	136	2.32	3.36	0-29	0-21
Drug Abuse	138	2.31	2.56	0-28	0-14
Mental Health (Total)	144	14.30	11.20	0-72	0-50
Somatization	146	3.51	3.68	0-24	0-15
Depression	145	6.01	5.10	0-24	0-23
Anxiety	144	4.88	4.29	0-24	0-20
Health Behavior (Total)	136	133.62	20.21	52-208	86-186
Stress Management	145	19.78	3.87	8-32	10-31
Interpersonal Relationships	146	26.63	4.88	9-36	12-36
Nutrition	147	21.61	4.69	9-36	0-32
Physical Activity	140	19.46	5.46	8-32	9-32
Health Responsibility	145	19.07	4.71	9-36	9-31
Spiritual Growth	147	26.82	4.95	9-36	9-36
Social Support					
Support Network	131	30.53	12.46	0-100*	6-54
Satisfaction	144	30.62	5.70	6-36	11-36

*Note.* Open-ended answer response entered by the participant and potential range is not limited.

## Bivariate Analyses

Table 7 shows the major relationships among the study variables of most interest.

Table 7

### *Correlational Matrix*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	---												
2. Gender	-.08	---											
3. Race/ Ethnicity	-.03	-.11	---										
4. Religious Commitment	.02	.04	-.09	---									
5. Body Mass Index	.12	-.06	-.05	.01	---								
6. Prescription Drug Use	.11	.37**	.14	-.12	.18*	---							
7. Over-The- Counter Drug Use	.08	.10	.11	-.10	.02	.22*	---						
8. Illness	.14	-.05	-.04	-.10	.04	-.06	-.09	---					
9. Alcohol Abuse	.02	-.12	-.02	.06	-.02	-.06	-.01	-.07	---				
10. Drug Abuse	.01	-.12	.10	.02	.04	-.20*	-.07	-.06	-.31**	---			
11. Health Behavior	.02	-.01	.08	.36**	-.01	.04	.08	-.24**	.15	.00	---		
12. Mental Health	.03	.11	-.01	-.17**	-.02	.20*	.01	.36**	-.17*	-.13	-.31**	---	
13. Social Support	.00	.03	.02	.15	-.09	.02	.06	.77**	.32**	.00	.27**	-.42**	---

*Note.* \* $p < .05$ . \*\* $p < .01$ . Race/ethnicity is coded 0 = Caucasian and 1 = all others. Social support = Satisfaction with support only

## **Regression Analyses**

Hierarchical regression and logistic regressions were used to test hypotheses and to explore relationships among study variables, including religious commitment, mental health, social support, health behavior, and physical health (i. e., body mass index, illness, prescription drug use, over-the-counter medication, alcohol use, and drug use). Age, gender, and race/ethnicity were the demographic variables emphasized. Missing data were eliminated from analyses.

## **Hypotheses Testing**

***Hypothesis One.*** Religious commitment will be correlated with each of the potential mediators: mental health, social support, and health behavior. Individuals demonstrating enhanced mental health, higher degrees of social support, and more participation in health behaviors will have higher scores of religious commitment. More specifically, low scores on the BSI-18 indicate better mental health status; therefore, mental health will have an inverse relationship with religious commitment. This coincides with research that suggests that one's religiosity/spirituality can be protective because it can act to buffer one from a number of negative outcomes.

Both social support and health behavior will be positively correlated to religious commitment. It is expected that greater perceptions of support from others, in addition to elevated satisfaction with said support, would be related to greater adherence to religiosity/spirituality. This larger sense of religious commitment is also anticipated to be associated with greater conscientiousness in regards to health practices and healthy lifestyle choices.

Hierarchical regressions were performed for Hypothesis One. Age, race/ethnicity,

and gender were entered into Step 1 in this analysis. This model was determined to be significant.

There were significant correlations found between religious commitment and the hypothesized mediating variables: mental health, social support, and health behavior.

In Step 2, mental health; social support; and health behavior were entered. Social support values were entered separately as to account for the amount of support received, in addition to the participants' satisfaction with said social support. The final model was:  $F(11,99)$ ,  $p < 0.01$ .  $R^2 = .312$ . Table 8 shows the results. Post hoc statistical analysis revealed an observed statistical power of .99.

Table 8

*Hierarchical Regression Analysis Summary for Religious Commitment and Mediators (N = 110)*

Variable	Model	<u>B</u>	<u>SEB</u>	<u>β</u>	<u>R<sup>2</sup></u>	<u>ΔR<sup>2</sup></u>
Religious Commitment	1				.18	.18
	Age	.06	.24	.02		
	African American	6.51	2.11	.29**		
	Asian American	11.01	2.89	.34**		
	Biracial/Multiracial	4.76	8.88	.05		
	Latino	3.22	3.77	.08		
	Pacific Islander	2.52	3.79	.06		
	Gender	2.86	1.81	.14		
	2				.31	.14
	Social Support (Amount)	.05	.11	.07		
	Social Support (Satisfaction)	.48	.98	.05		
	Health Behavior	.16	.05	.33**		
	Mental Health	-.04	.08	-.05		

Note. \* $p < .05$ . \*\* $p < .01$

***Hypothesis Two.*** Religious commitment will be correlated with physical health. Each of the indicators of physical health included in the study which are continuous variables, such as body mass index and drugs will have a negative relationship with religious commitment so that as religious commitment increases, both body mass index and drug use will decrease. In addition, the dichotomous physical health indicators, reported medical illness; prescription drug use; over the counter medication; and alcohol use will all predict the physical health status of the participant. Membership to these groups, or endorsement of these indicators, will lead to lower degrees of religious commitment.

Table 9 shows the results in the regression for this hypothesis. There was no significant relationship found between religious commitment and body mass index. Again, age, race/ethnicity, and gender were entered at the first step. Body mass was entered at Step 2. At an observed probability level of 0.01 the statistical power was 0.87 at post hoc statistical analysis. The observed statistical power was 0.96 when  $p < .05$ .

Drug abuse was determined to not have a significant relationship with religious commitment. This means that individuals that reported behaviors that indicated inappropriate drug use patterns were less likely to demonstrate an elevated degree of religious commitment. The final model of the hierarchical regression was:  $F(8, 130) = 6.91$ ,  $p > 0.01$ ;  $R^2 = .03$ . Table 10 includes specific results. Post hoc statistical analysis revealed an observed statistical power of .99.

Table 9

*Hierarchical Regression Analysis Summary for Religious Commitment and Body Mass Index (N = 126)*

Variable	Model	<u>B</u>	<u>SEB</u>	<u>β</u>	<u>R<sup>2</sup></u>	<u>ΔR<sup>2</sup></u>
Body Mass Index	1				.10	.10
	Age	.17	.11	.13		
	African American	2.19	1.02	.20*		
	Asian American	-.10	1.35	.01		
	Biracial/Multiracial	-.72	1.52	-.04		
	Latino	3.82	1.83	.19*		
	Pacific Islander	-.43	1.53	-.03		
	Gender	-.60	.82	-.07		
	2				.10	.00
	Religious Commitment	-.01	.04	-.01		

*Note.* \* $p < .05$ . \*\* $p < .01$ . Reference Group = Caucasian American.

In Table 11, there is evidence of the relationship between religious commitment and reported medical condition. As a result of checking the Omnibus Test of Model Coefficients for the second block of variables, it was determined that this relationship was not significant. Religious commitment was determined to be unable to predict the report of a physical illness by the respondent with statistical significance.

Table 10

*Hierarchical Regression Analysis Summary for Religious Commitment and Drug Abuse  
(N = 138)*

Variable	Model	<u>B</u>	<u>SEB</u>	<u>β</u>	<u>R</u> <sup>2</sup>	<u>ΔR</u> <sup>2</sup>
Drug Abuse	1				.28	.28
	Age	-9.80	11.46	-.06		
	African American	461.48	99.89	.36**		
	Asian American	527.61	122.005	.33**		
	Biracial/Multiracial	647.53	152.52	.32**		
	Latino	346.26	183.33	.14		
	Pacific Islander	477.16	135.29	.27**		
	Gender	-71.38	78.37	-.07		
	2				.30	.02
	Religious Commitment	-7.25	4.05	-.14		

*Note.* \* $p < .05$ . \*\* $p < .01$ . Reference Group = Caucasian American.

The statistical significance of the block chi square for the second block of variables, in which the dependent variable is over the counter medication use and religious commitment is the independent variable, was also not found to be significant. Religious commitment did not successfully predict the report of over the counter medication use. Table 12 includes the data generated by this logistic regression.



Table 11

*Logistic Regression Analysis Summary for Religious Commitment and Illness (N = 130)*

Variable	Model	<u>B</u>	<u>SEB</u>	<u>Wald</u>	<u>Predicted %</u>
Illness	1				
	Age	.01	.06	.02	
	African American	-1.32	.81	2.68	
	Asian American	.56	.69	.01	
	Biracial/Multiracial	-20.19	13376.05	.00	
	Latino	-.63	1.14	.31	
	Pacific Islander	-.66	.84	.62	
	Gender	-.25	.48	.28	
	2				
	Religious Commitment	-.02	.03	.57	79.4

*Note.* \* $p < .05$ . \*\* $p < .01$ . Reference Group = Caucasian American.

There was no significant relationship found for prescription drug use and religious commitment. This physical health indicator also did not demonstrate a strong connection which would legitimate further analyses for the determination of mediating variables. Table 13 includes this data.

Table 12

*Logistic Regression Analysis Summary for Religious Commitment and Over-the-Counter Medication (N = 126)*

Variable	Model	<u>B</u>	<u>SEB</u>	<u>Wald</u>	<u>Predicted %</u>
Over-the-Counter Medication	1				
	Age	.09	.07	1.78	
	African American	-.11	.53	.04	
	Asian American	-.96	.65	2.19	
	Biracial/Multiracial	.87	.88	.98	
	Latino	-2.11	1.14	3.46	
	Pacific Islander	.42	.77	.30	
	Gender	.52	.41	1.61	
	2				
	Religious Commitment	-.02	.02	1.14	60.6

*Note.* \* $p < .05$ . \*\* $p < .01$ . Reference Group = Caucasian American.

Table 13

*Logistic Regression Analysis Summary for Religious Commitment and Prescription Drug Use (N = 126)*

Variable	Model	<u>B</u>	<u>SEB</u>	<u>Wald</u>	<u>Predicted %</u>
Prescription 1					
Drug Use	Age	.18	.08	5.05	
	African American	-.49	.66	.56	
	Asian American	-3.06	1.75	3.08	
	Biracial/Multiracial	.81	1.08	.55	
	Latino	.74	.99	.56	
	Pacific Islander	.06	.86	.01	
	Gender	3.43	.86	15.89	
2					
	Religious Commitment	-.04	.03	2.61	75.6

*Note.* \* $p < .05$ . \*\* $p < .01$ . Reference Group = Caucasian American.

Religious commitment and problem alcohol use were not significantly related. The results of this logistic regression were included below. Table 14 shows evidence pertinent to this analysis.

Table 14

*Logistic Regression Analysis Summary for Religious Commitment and Alcohol Abuse  
(N = 129)*

Variable	Model	<u>B</u>	<u>SEB</u>	<u>Wald</u>	<u>Predicted %</u>
Alcohol Abuse	1				
	Age	-.01	.10	.01	
	African American	-19.84	7959.21	.00	
	Asian American	-20.11	10088.22	.00	
	Biracial/Multiracial	-20.04	12749.94	.00	
	Latino	-19.63	17508.62	.00	
	Pacific Islander	-19.93	11616.27	.00	
	Gender	-1.20	.74	2.64	
	2				
	Religious Commitment	.06	.03	2.75	90.8

*Note.* \* $p < .05$ . \*\* $p < .01$ . Reference Group = Caucasian American.

**Hypothesis Three.** The potential mediating variables mental health, social support, and health behavior will each be correlated with physical health. It is suspected that better mental health, or lower mental health scores, will be negatively correlated religious commitment, such that individuals with greater religious commitment also have better mental health. Also, greater social support satisfaction and increased number of report social supports will be positively correlated to physical health, with positive physical health outcomes also translating to enhances social support. Lastly, participation in an elevated number of physical health behaviors also will be related to higher reported physical health, based on the indicators of interest in the current study.

Unfortunately, all physical health indicators were not determined to have significant relationships with the independent variable of interest here, religious commitment. Due to

this, further analysis could only be completed using the previously identified physical health indicator that was significant, drug abuse. Hierarchical regressions were generated to explore relationships between each mediator (i. e., mental health, social support, and health behavior) and problem drug use.

The relationship between drug abuse and the hypothesized mediators was found to be significant. This substantiates the role of health behavior, mental health, and social support as mediators in the relationship between religious commitment and physical health as measured by the indicator of drug abuse. The final model of the hierarchical regression was:  $F(11, 102) = 4.35, p < 0.01; R^2 = .320$ . Age, race/ethnicity, and gender were entered into Step 1 as with other regression analyses computed here and the hypothesized mediators were entered into Step 2 of the hierarchical regression. Table 15 notes these findings.

Table 15

*Hierarchical Regression Analysis Summary for Mediators and Drug Abuse (N = 113)*

Variable	Model	<u>B</u>	<u>SEB</u>	<u>β</u>	<u>R</u> <sup>2</sup>	<u>ΔR</u> <sup>2</sup>
Drug Abuse	1				.24	.24
	Age	-9.80	11.46	-.06		
	African American	223.12	137.98	.18		
	Asian American	41.12	181.60	.03		
	Biracial/Multiracial	15.93	483.65	.00		
	Latino	-118.53	234.36	-.05		
	Pacific Islander	-165.19	240.83	-.07		
	Gender	-22.85	90.97	-.02		
	2				.32	.09
	Social Support (Amount)	-20.24	5.87	-.50**		
	Social Support (Satisfaction)	-13.38	50.37	-.03		
	Health Behavior	-.14	2.38	-.01		
	Mental Health	-.04	.08	-.05		

Note. \*p < .05. \*\*p < .01. Reference Group = Caucasian American.

### Discussion

The emphasis of this study was the relationship between health and religion. The intent was to replicate earlier findings that there is a connection between health and religion. Furthermore, the thought was that health behavior, mental health, and social support would act as mediators to this health-religion relationship; thereby, gleaning greater insight into specific mechanisms and functioning of said relationship.

These hypothesized relationships were supported by a theoretical model whose aim was to explain the interplay of religion, spirituality, and health (Koenig, 1999). The present research uses this theoretical perspective to explore and explain attitudes and behaviors

related to religion, spirituality, and health within a sample of college students. Religion and spirituality were identified in the original model and have been conceptualized as religious commitment for the purposes of this research. This construct was selected through its ability to describe one's faith in a manner which captured interpersonal and intrapersonal aspects of religiosity and spirituality.

This project remains consistent with this and uses Koenig's (1999) proposed model which conceptualizes health in terms of both health promoting and health compromising behaviors. In the original model, a decline in physical health was indicated by infection, cancer, hypertension, heart disease, stroke, and other illnesses resulting from changes in one's immune system; the presence or absence of stress hormones; the state of one's autonomic nervous system; disease detection and treatment and high risk behaviors, including smoking and substance use had a hypothesized relationships to religion and spirituality (Koenig et al, 2001). More specifically, in the current research, physical health was conceptualized in terms of a number of indicators, including body mass index, over-the-counter medication usage, prescription drug use, medical conditions, problem alcohol use, and drug abuse. These indicators were thought to provide a broad view of one's health and had been previously used as measures of physical health and functioning. Also, the aforementioned theoretical framework influencing this study comprised many of these variables as well (Koenig, 1999).

Many of the theories describing the religion/spirituality and health connection include social, psychological, and behavioral factors. This model identifies health behavior, mental health, and social support as the mediators to this health and religion relationship and offers a rationale for the positive correlation commonly found for health, religion, and spirituality.

The hypotheses and the interpretations of the findings are included here for discussion.

**Hypothesis One.** The first hypothesis for the present study was that religious commitment would be correlated with each potential mediator: health behavior, mental health, and social support. This hypothesis is supported by the Baron and Kenny method which stipulates that the independent variable must significantly predict the proposed mediators in order to establish mediation (Baron et al, 1986). The first hypothesis predicted that elevated religious commitment would be associated with increased engagement in health behavior, less psychological distress, and more social support and satisfaction with said support. Analyses revealed significant correlations between religious commitment and one of the hypothesized mediating variables: health behavior. Religious commitment was higher among individuals who also reported greater participation in health behaviors. Elevations in religious commitment may reflect an individual's attention to other health promoting behaviors, such as spiritual or religious self-care. This relationship also withstood the potential confounds of age, race/ethnicity, and gender. The hierarchical regression revealed a significant relationship between religious commitment and health behavior. While this was a weak positive correlation, the relationship was significant nonetheless. This finding provides only partial support for the first condition of mediation. This means that, within the current sample, an individual's religious commitment was correlated with their practice of health promoting activities, but not with their psychological functioning and receipt of and satisfaction with social support from others. While lower rates of psychological distress and more social support were also hypothesized to be significantly associated with religious commitment, this was not observed. It is possible that there is something unique about this



sample or the college age population that prevented significant results as generated in other research.

**Hypothesis Two.** The second proposed hypothesis for this project was that religious commitment would be correlated with physical health. Affirmative findings for this hypothesis would further substantiate the general relationship between health and religion often found in previous studies. Also, positive results here would allow for further exploration of potential mediators because the second condition for mediation would be satisfied, as dictated by the Baron and Kenny method (Baron et al, 1986). Body mass index, drug abuse, medical illness, prescription drug use, over-the-counter medication usage, and alcohol abuse were all included in separate analyses with religious commitment. When age, race/ethnicity, and gender were controlled for, the hierarchical and logistic regressions revealed that none of the physical health indicators were significantly correlated with religious commitment. This prevents the satisfaction of the second condition for mediation, making it impossible to establish the hypothesized mediators for the present study.

**Hypothesis Three.** Health behavior, mental health, and social support were initially hypothesized to be correlated with physical health. Baron and Kenny (1986) posited that variables thought to act as mediators must also significantly predict Y in order for mediation to occur within the relationship between X and Y. Since the second condition did not hold true within this study, the remaining analysis for this hypothesis was not conducted and the current project was unable to proceed to this last step. This study was unable to substantiate the role of health behavior, mental health, and social support as mediators to the proposed relationship between religious commitment and physical health.

Overall, this study was unable to establish the health and religion relationship. Also, the necessary conditions for mediation of the relationship between religious commitment and physical health by health behavior, mental health, and social support were not satisfied. The results of Hypotheses Two were not significant, making it impossible to conduct further analyses involving Hypothesis Three because all conditions for mediation had not been met. Despite this failure to prove mediation, there were other interesting results yielded from the current study that were highlighted in Chapter 4.

### **Limitations**

A limitation of this research is the correlational and observational nature. Consequently, this research explores relationships among constructs instead of establishing causation, a feat accomplished with more rigorous research design, such as experimental studies or longitudinal studies (Sloan, 2006). While the design chosen for the present project limits the claims that can be made about the findings, this approach to research does not detract from these studies and the important results that can be found.

Sampling issues posed another limitation for this research project. College students were engaged as participants which limited generalizability to the general population. Certainly, the convenience offered by assessing a college aged population has value because it deepens the knowledge about this group and increases insight into how college students understand religion, spirituality, and health. While there was some variation among the participants in this study, its diversity pales in comparison to that of the larger American society. The use of a community sample, as opposed to, or in addition to, a college aged sample, may have been useful in capturing a larger cross section of American society. This approach may have yielded greater diversity among the participants which would have likely

translated to an increased variation in answer responses. For example, a community sample may have provided a view of religion, spirituality, and health in American society that was more representative of the United States. Also, the inclusion of individuals outside of the traditional age range for college students may impact the results and the conclusions that could be drawn. Developmentally, college aged individuals are grappling with a number of issues with identity that can make understanding their perspectives on pivotal issues, such as religion and spirituality, more complicated. Ultimately, these changes may have offered a more enriched perspective and greater insight into the research questions posed.

Another limitation of this project lies in its reliance upon self-report measures. Self-report measures can be affected by the manner in which the data is collected (Woodberry, 1998). For example, persons may respond differently on a computer administered survey which they completed on their own in a private setting as opposed to one that may be administered in a face-to-face context with a researcher present. The current study's use of the former presents the challenge of being unable to determine if respondents answered in a fashion that was truly demonstrative of their behaviors, attitudes, and feelings. There is no way to conclude if this study's participants would have answered differently under alternate conditions. Of course, there is no way to be completely eliminate all of the potential concerns of utilizing self-report measurement issues, but it is important to highlight this as a potential obstacle to collecting data that is objective and representative of a participant's true responses.

Measurement concerns are important to note here as well as a potential limitation. While the measures selected for this study were thought to be appropriate in assessing the religious and spiritual values of a large proportion of college students, the findings were

mixed. This leads to questions about whether the most effective measurement tools were chosen to target the study constructs. This sample appeared to possess a low to moderate degree of religiosity and spirituality. This begs the question of whether an instrument that is more sensitive to the nuances of a wider scope of religiosity and spirituality could have tapped into the study's constructs more effectively or if true estimations of were determined. For example, instruments including a greater range of beliefs and practices indicative of religious and spiritual values may have resulted in more accurate measurement of these values. While some aspects of different religions and spiritual faith views may have been captured by the measures used here, there may have been more effective instruments. While the current study elicited information regarding the affiliations of religious diverse persons, important aspects of these populations' beliefs may have been neglected as the Religious Commitment Inventory was been more widely used with those having a Judeo-Christian background.

Another limitation was the measurement of physical health. Body mass index was selected due to its objective and reliable nature, although it is not the best representation of one's physical health. A potential challenge presented by this study was that the participants' BMI was calculated based on their self-reported height and weight. Accuracy of these numbers could have varied due to the participant's knowledge of their exact height and weight. An additional challenge with this measure was that this study equates increasing BMI with unhealthy outcomes. This neglects the fact that an individual with a lower BMI may also be unhealthy. To this end, an individual may have a BMI that is lower than normal, which classifies them as underweight, but just as overweight and obese classifications can suggest increased health problems, being underweight can imply health issues as well. For

example, individuals with considerably low body weight could imply unhealthy states, such as anemia or complications from disordered eating patterns. While an individual may indicate BMI that is within the normal range, they are not guaranteed to be free of illness and have higher levels of physical health than others.

A remaining limitation was the measurement of particularly sensitive variables, such as physical health, religion, and spirituality. These variables, and the discussion of these characteristics, may evoke a variety of powerful emotion and association for people. This reaction could influence the fashion in which these type of questions are answered. Also, some individuals' reports may have been affected by social desirability factors in which they wanted to appear healthier or "more religious" or "more spiritual" than they actually were. Ultimately, participants may have reported data that conveyed a desired range health, religiosity, and spirituality as compared to what was actual.

By in large, all research efforts have the potential for being hampered by unforeseen circumstances that can change the course of results. There are some factors within observational studies that can simply not be controlled; thereby, presenting a chance for bias. The current project is no different, but the hope is that through responsible articulation of these concerns and adherence to the research protocol, handling of data, and analyses, these issues have been greatly minimized.

## **Implications**

The finding that religious commitment was significantly related to the engagement in health practices implies that one's religious and spiritual values may affect, or at the very least, be associated with, other aspects of their quality of life. This would suggest a need for inclusion of one's religious and spiritual values when dealing with efforts to improve

physical health, particularly among populations who express an affinity to religiosity and spirituality. This does not suggest a mandate that religion, spirituality, or a particular faith belief be included in intervention or prevention efforts, but that this inclusion may provide some means of enhancement of this type of programming. The acknowledgement of religious and spiritual values may have meaning as it pertains to health and decision making regarding one's health.

### **Future Research**

Additional research in this area should include improved measurement of religion and spirituality and health. Specifically with religiosity and spirituality, increased precision and accuracy in measurement may prove fruitful and improve the chances of yielding valuable data that could meaningfully inform prevention and intervention efforts.

Measurement of religious and spiritual values has presented an ongoing challenge as explained earlier in the review of literature. The field, as a whole, demands the need for refinement in the assessment of religion and spirituality to make findings more relevant. Judeo-Christian views have often shaped the religious views in America; however, our country is comprised of a much wider range of religious and spiritual views, beliefs, and practices, along with many different definitions for religiosity and spirituality. Continued research in this area would include more comprehensive measures that would be more applicable to a greater subsection of college students, with the hopes of representing the larger American population as a whole.

Studies similar to the present project can yield valuable information about college aged students and their health practices, particularly regarding what is important to them. Physical health research involving college students can lead to information that can assist

universities and colleges with their efforts to enhance the health of their students. A common aspect of the vision and mission of institutes of higher learning is health and addressing the college student as a whole person. As many colleges move toward taking a public health perspective with its efforts to address student health, these institutes are interested in the physical, emotional, mental, and social health of their students, in addition to how these areas may be affected by the individual college student, along with their environment. There is a desire to isolate resources that would be advantageous to this population in order to best meet the needs of the students. Identifying more information about the characteristics of college students and what influences their decision making regarding health can be valuable to the administration within higher education. It would allow them to make more effective, student- centered decisions. Outreach efforts to this population may also be influenced by this type of research.

Again, the problem of health in our society remains an issue. Information about factors associated with health and health outcomes offer potential solutions for prevention and intervention efforts to effect change in the population. While religion and spirituality within themselves should not be thought of as tools or interventions for improving outcomes, informing these efforts with this culturally relevant domain, for some, may be especially important for success. For example, if there are clear links between one's religious commitment and physical health in a specified population, there may be some validity found in including one's faith beliefs into programming which is designed to address health problems.

Lastly, as the current project includes psychological, behavioral, and social factors in an effort to better understand religion, spirituality, and health, there are other factors that

remain less researched. For example, it has been found that one's physiology may be implicated in this relationship. Reduced activity in the anterior cingulate cortex, a part of the brain stimulated during times of anxiety and involved in behavior modulation during stressful times, has been associated with elevated religious conviction (Maselko et al, 2007). These findings lend credence to there being a physiological component of the religion and health relationship (Ellison & Hummer, 2010).

While the findings of this research are not thought to revolutionize the way that we see health and religion, the results may be another step to understanding religion and spirituality as it relates to health. Research similar to the current project offers an opportunity to include religious and spiritual variables into the conversation about health. Small advances and additions to the literature may provide another analysis of these constructs in an emerging field of religion and health, especially as legitimizing the place of religiosity and spirituality in relation to health has been an ongoing struggle.



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## **Appendix A**

### **Religious Commitment**

#### **Religious Commitment Inventory (RCI-10).**

Directions: Please check the correct response.

- |    |  |                              |                            |                              |                          |                           |
|----|--|------------------------------|----------------------------|------------------------------|--------------------------|---------------------------|
| 1. | I often read books and magazines about my faith. | 1                            | 2                          | 3                            | 4                        | 5                         |
|    |  | <i>Not At All True of Me</i> | <i>Somewhat True of Me</i> | <i>Moderately True of Me</i> | <i>Mostly True of Me</i> | <i>Totally True of Me</i> |

2. I make financial contributions to my religious organization.
- |                              |                            |                              |                          |                           |
|------------------------------|----------------------------|------------------------------|--------------------------|---------------------------|
| 1                            | 2                          | 3                            | 4                        | 5                         |
| <i>Not At All True of Me</i> | <i>Somewhat True of Me</i> | <i>Moderately True of Me</i> | <i>Mostly True of Me</i> | <i>Totally True of Me</i> |
3. I spend time trying to grow in understanding of my faith.
- |                              |                            |                              |                          |                           |
|------------------------------|----------------------------|------------------------------|--------------------------|---------------------------|
| 1                            | 2                          | 3                            | 4                        | 5                         |
| <i>Not At All True of Me</i> | <i>Somewhat True of Me</i> | <i>Moderately True of Me</i> | <i>Mostly True of Me</i> | <i>Totally True of Me</i> |
4. Religion is especially important to me because it answers many questions about the meaning of life.
- |                              |                            |                              |                          |                           |
|------------------------------|----------------------------|------------------------------|--------------------------|---------------------------|
| 1                            | 2                          | 3                            | 4                        | 5                         |
| <i>Not At All True of Me</i> | <i>Somewhat True of Me</i> | <i>Moderately True of Me</i> | <i>Mostly True of Me</i> | <i>Totally True of Me</i> |
5. My religious beliefs lie behind my whole approach to life.
- |                              |                            |                              |                          |                           |
|------------------------------|----------------------------|------------------------------|--------------------------|---------------------------|
| 1                            | 2                          | 3                            | 4                        | 5                         |
| <i>Not At All True of Me</i> | <i>Somewhat True of Me</i> | <i>Moderately True of Me</i> | <i>Mostly True of Me</i> | <i>Totally True of Me</i> |
6. I enjoy spending time with others of my religious affiliation.
- |                              |                            |                              |                          |                           |
|------------------------------|----------------------------|------------------------------|--------------------------|---------------------------|
| 1                            | 2                          | 3                            | 4                        | 5                         |
| <i>Not At All True of Me</i> | <i>Somewhat True of Me</i> | <i>Moderately True of Me</i> | <i>Mostly True of Me</i> | <i>Totally True of Me</i> |
7. Religious beliefs influence all my dealings in life.
- |                              |                            |                              |                          |                           |
|------------------------------|----------------------------|------------------------------|--------------------------|---------------------------|
| 1                            | 2                          | 3                            | 4                        | 5                         |
| <i>Not At All True of Me</i> | <i>Somewhat True of Me</i> | <i>Moderately True of Me</i> | <i>Mostly True of Me</i> | <i>Totally True of Me</i> |
8. It is important to me to spend periods of time on private religious thought and reflection.
- |                              |                            |                              |                          |                           |
|------------------------------|----------------------------|------------------------------|--------------------------|---------------------------|
| 1                            | 2                          | 3                            | 4                        | 5                         |
| <i>Not At All True of Me</i> | <i>Somewhat True of Me</i> | <i>Moderately True of Me</i> | <i>Mostly True of Me</i> | <i>Totally True of Me</i> |
9. I enjoy working in the activities of my religious organization.
- |                              |                            |                              |                          |                           |
|------------------------------|----------------------------|------------------------------|--------------------------|---------------------------|
| 1                            | 2                          | 3                            | 4                        | 5                         |
| <i>Not At All True of Me</i> | <i>Somewhat True of Me</i> | <i>Moderately True of Me</i> | <i>Mostly True of Me</i> | <i>Totally True of Me</i> |
10. I keep well informed about my local religious group and have some influence in its decisions.
- |                              |                            |                              |                          |                           |
|------------------------------|----------------------------|------------------------------|--------------------------|---------------------------|
| 1                            | 2                          | 3                            | 4                        | 5                         |
| <i>Not At All True of Me</i> | <i>Somewhat True of Me</i> | <i>Moderately True of Me</i> | <i>Mostly True of Me</i> | <i>Totally True of Me</i> |

## Appendix B

### Physical Health

#### Body Mass Index (BMI)

1) Please list the following:

a. Height\_\_\_\_\_

b. Weight\_\_\_\_\_

c. Gender\_\_\_\_\_

### **Medication Use**

2) Please list the number of prescription medications that you have taken within the past week. \_\_\_\_\_

3) Please list the number of prescription medications that you have taken within the past month. \_\_\_\_\_

Please list the names of the medications below:

---

---

---

---

---

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4) Please list the number of over-the-counter medications that you have taken within the past week. \_\_\_\_\_

5) Please list the number of over-the-counter medications that you have taken within the past month. \_\_\_\_\_

Please list the names of the medications below:

---

---

---

---

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---

### **Medical Conditions**

6) Do you have any medical conditions?

0	1
No	Yes

7) If you answered “Yes” to number “6,” please indicate what those medical conditions are.

---

---

## Alcohol Use

### Brief Michigan Alcoholism Screening Test (BMAST).

<u>Item</u>	<u>Yes</u>	<u>No</u>	<u>Question</u>
1.	(0)	(2)	Do you feel you are a normal drinker (by normal we mean you drink less than or as much as other people)?
2.	(0)	(2)	Do friends or relatives think you are a normal drinker?
3.	(5)	(0)	Have you ever attended a meeting of Alcoholics Anonymous (AA) for your own drinking?
4.	(2)	(0)	Have you ever lost friends or girlfriends/boyfriends because of drinking?
5.	(2)	(0)	Have you ever gotten in trouble at work because of drinking?
6.	(2)	(0)	Have you ever neglected your family obligations, your family, or your work for two or more days in a row because you were drinking?
7.	(2)	(0)	Have you ever had delirium tremens (DTs), severe shaking, heard voices, or seen things that weren't there after heavy drinking?
8.	(5)	(0)	Have you ever gone to anyone for help about your drinking?
9.	(5)	(0)	Have you ever been in the hospital because of drinking?
10.	(2)	(0)	Have you ever been arrested for drunk driving or driving after drinking?

## Drug Use

### Drug Abuse Screening Test (DAST).

Directions: All questions relate to drugs other than alcohol.

Circle Yes or No.

1. Have you ever used drugs other than those required for medical reasons? Yes No
2. Have you ever abused prescription drugs? Yes No
3. Do you abuse more than one drug at a time? Yes No
4. Can you get through the week without using drugs (Other than those required for medical reasons)? Yes No
5. Are you always able to stop using drugs when you want to? Yes No
6. Do you abuse drugs on a continuous basis? Yes No

7. Do you try to limit your drug use to certain circumstances? Yes No
8. Have you ever had “blackouts” or “flashbacks” as a result of drug use? Yes No
9. Do you ever feel bad about your drug use? Yes No
10. Does your spouse or parents ever complain about your involvement with drugs?  
Yes No
11. Do your friends or relatives know or suspect that you use drugs? Yes No
12. Has drug abuse created problems between you and your spouse (or your parents)?  
Yes No
13. Has any member of your family ever sought help for problems related to your drug  
use? Yes No
14. Have you ever lost friends because of your use of drugs? Yes No
15. Have you neglected your family or missed work because of your use of drugs?
16. Have you ever been in trouble at work because of drug abuse? Yes No
17. Have you ever lost a job because of drug use? Yes No
18. Have you gotten into fights when under the influence of drugs? Yes No
19. Have you ever been arrested because of unusual behavior while under the influence  
of drugs? Yes No
20. Have you been arrested for driving while under the influence of drugs? Yes No
21. Have you engaged in illegal activities in order to obtain drugs? Yes No
22. Have you ever been arrested for possession of illegal drugs? Yes No
23. Have you ever experienced withdrawal symptoms as a result of heavy drug intake?  
Yes No
24. Have you had medical problems as a result of your drug use (e.g. memory loss,  
hepatitis, convulsions, bleeding, etc.)?  
Yes No
25. Have you gone to someone for help for a drug use problem? Yes No
26. Have you been in a hospital for medical problems related to your drug use?  
Yes No

27. Have you ever been involved in a treatment program specifically related to drug use?

Yes No

28. Have you ever been treated as an outpatient for problems related to drug abuse?

Yes No

## Appendix C

### Health Behavior

#### The Health Promoting Lifestyle Profile-II (HPLP-II).

Directions: Please check the correct response.

1. Discuss my problems and concerns with people close to me. (INTRP)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

2. Choose a diet low in fat, saturated fat, and cholesterol. (NUTR)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

3. Report any unusual signs/symptoms to a physician or other health professional. (HR)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

4. Follow a planned exercise program. (PA)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

5. Get enough sleep. (SM)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

6. Feel I am growing and changing in positive ways. (SPRT)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

7. Praise other people easily for their achievements. (INTRP)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

8. Limit use of sugars and food containing sugar (sweets). (NUTR)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

9. Read or watch TV programs about improving my health. (HR)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

10. Exercise vigorously for 20 minutes or > at least 3 times weekly. (PA)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
11. Take some time each day for relaxation. (SM)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
12. Believe that life has purpose. (SPRT)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
13. Maintain meaningful and fulfilling relationships with others. (INTRP)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
14. Eat 6-11 servings bread, cereal, rice, or pasta each day. (NUTR)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
15. Question health professionals in order to understand their instructions. (HR)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
16. Take part in light-moderate physical activity for 30-40 minutes or > 5 times/week. (PA)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
17. Accept those things in my life which I cannot change. (SM)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
18. Look forward to the future. (SPRT)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
19. Spend time with close friends. (INTRP)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
20. Eat 2-4 servings of fruit each day. (NUTR)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
21. Get a second opinion when I question my health care provider's advice. (HR)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |



22. Take part in leisure time physical activity. (PA)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
23. Concentrate on pleasant thoughts at bedtime. (SM)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
24. Feel contentment and at peace with myself. (SPRT)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
25. Find it easy to show concern, love, and warmth to others. (INTRP)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
26. Eat 3-5 servings of vegetables each day. (NUTR)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
27. Discuss my health concerns with health professionals. (HR)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
28. Do stretching exercises at least 3 times weekly. (PA)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
29. Use specific methods to control my stress. (SM)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
30. Work towards long-term goals in my life. (SPRT)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
31. Touch and am touched by people I care about. (INTRP)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
32. Eat 2-3 servings of milk, yogurt, or cheese each day. (NUTR)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
33. Inspect my body at least monthly for physical changes, danger signs. (HR)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |
34. Get exercise during usual daily activity. (PA)
- |              |                  |              |                  |
|--------------|------------------|--------------|------------------|
| 1            | 2                | 3            | 4                |
| <i>Never</i> | <i>Sometimes</i> | <i>Often</i> | <i>Routinely</i> |

35. Balance time between work and play. (SM)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

36. Find each day interesting and challenging. (SPRT)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

37. Find ways to meet my needs for intimacy. (INTRP)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

38. Eat 2-3 servings of meat, poultry, fish, dried beans, eggs, nuts each day. (NUTR)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

39. Ask for information from health professionals about how to take good care of myself. (HR)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

40. Check my pulse when exercising. (PA)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

41. Practice relaxation or meditation for 15-20 minutes daily. (SM)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

42. Am aware of what is important to me in life. (SPRT)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

43. Get support from a network of caring people. (INTRP)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

44. Read labels to identify nutrients, fats, and sodium in packaged foods. (NUTR)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

45. Attend educational programs on personal health care. (HR)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

46. Reach target heart rate when exercising. (PA)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

47. Pace myself to prevent tiredness. (SM)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

48. Feel connected with some force greater than myself. (SPRT)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

49. Settle conflicts with others through discussion and compromise. (INTRP)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

50. Eat breakfast. (NUTR)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

51. Seek guidance or counseling when necessary. (HR)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

52. Expose myself to new experiences and challenges. (SPRT)

1	2	3	4
<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Routinely</i>

Spiritual Growth Subscale (SPRT)

Health Responsibility Subscale (HR)

Physical Activity Subscale (PA)

Nutrition Subscale (NUTR)

Interpersonal Relationships Subscale (INTRP)

Stress Management Subscale (SM)

## **Appendix D**

### **Mental Health**

#### **Brief Symptoms Inventory (BSI-18).**

Directions: Please respond to each of the following item in terms of “how you have been feeling during the past 7 days, including today.”

1. Faintness or dizziness (SOM)

0	1	2	3	4
<i>Not At All</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>

2. Feeling no interest in things (DEP)

0	1	2	3	4
<i>Not At All</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>

3. Nervousness or shakiness inside (ANX)

0	1	2	3	4
<i>Not At All</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>

4. Pain on heart or chest (SOM)

0	1	2	3	4
<i>Not At All</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>

5. Feeling lonely (DEP)

0	1	2	3	4
<i>Not At All</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>

6. Feeling tense or keyed up (ANX)

0	1	2	3	4
<i>Not At All</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>

7. Nausea or upset stomach (SOM)

0	1	2	3	4
<i>Not At All</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>

8. Feeling blue (DEP)

0	1	2	3	4
<i>Not At All</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>

9. Suddenly scared for no reason (ANX)

0	1	2	3	4
<i>Not At All</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>

10. Trouble getting one's breath (SOM)

0	1	2	3	4
<i>Not At All</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>

11. Feeling worthless (DEP)

0	1	2	3	4
<i>Not At All</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>

12. Spells of terror or panic (ANX)

0	1	2	3	4
<i>Not At All</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>

13. Numbness or tingling in parts of one's body (SOM)

0	1	2	3	4
<i>Not At All</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>

14. Feeling hopeless about the future (DEP)

0	1	2	3	4
<i>Not At All</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>

15. Feeling so restless that one could not sit still (ANX)

0	1	2	3	4
---	---	---	---	---

- |  |                   |               |                  |              |               |
|--|-------------------|---------------|------------------|--------------|---------------|
|  | <i>Not At All</i> | <i>Rarely</i> | <i>Sometimes</i> | <i>Often</i> | <i>Always</i> |
|--|-------------------|---------------|------------------|--------------|---------------|
16. Feeling weak in parts of one's body (SOM)
- |                   |               |                  |              |               |
|-------------------|---------------|------------------|--------------|---------------|
| 0                 | 1             | 2                | 3            | 4             |
| <i>Not At All</i> | <i>Rarely</i> | <i>Sometimes</i> | <i>Often</i> | <i>Always</i> |
17. Thoughts of ending one's life (DEP)
- |                   |               |                  |              |               |
|-------------------|---------------|------------------|--------------|---------------|
| 0                 | 1             | 2                | 3            | 4             |
| <i>Not At All</i> | <i>Rarely</i> | <i>Sometimes</i> | <i>Often</i> | <i>Always</i> |
18. Feeling fearful (ANX)
- |                   |               |                  |              |               |
|-------------------|---------------|------------------|--------------|---------------|
| 0                 | 1             | 2                | 3            | 4             |
| <i>Not At All</i> | <i>Rarely</i> | <i>Sometimes</i> | <i>Often</i> | <i>Always</i> |

Somatization Subscale - (SOM)  
 Depression Subscale - (DEP)  
 Anxiety Subscale - (ANX)

## Appendix E

### Social Support

#### The Social Support Questionnaire-6 (SSQ-6).

Directions:

The following questions ask about people who provide you with help and support. Each question has two parts. For the first part, mentally make a list all the people you know, excluding yourself, whom you can count on for support in the manner described. Please select the number of people that you identify for each question. If you have no support and need to answer “No one” for a question, please select “0” .

For the second part, select the option for how satisfied you are with the overall support you reported in the first part. If you have no support for a question, still rate your level of satisfaction with that answer. Please answer all the questions the best you can. All your responses will be kept confidential.

- 1.) Whom can you really count on to distract you from your worries when you feel under stress?

<b>No One</b>	<b>E.</b>
<b>A.</b>	<b>F.</b>
<b>B.</b>	<b>G.</b>
<b>C.</b>	<b>H.</b>
<b>D.</b>	<b>I.</b>

**1**  
*Very Dissatisfied*

**2.) Whom can you really count on to help you feel more relaxed when you are under pressure or tense?**

<b>No One</b>	<b>E.</b>
<b>A.</b>	<b>F.</b>
<b>B.</b>	<b>G.</b>
<b>C.</b>	<b>H.</b>
<b>D.</b>	<b>I.</b>

**1**  
*Very Dissatisfied*

**3.) Who accepts you totally, including both your worse and best points?**

<b>No One</b>	<b>E.</b>
<b>A.</b>	<b>F.</b>
<b>B.</b>	<b>G.</b>
<b>C.</b>	<b>H.</b>
<b>D.</b>	<b>I.</b>

**1**  
*Very Dissatisfied*

**4.) Whom can you really count on to care about you, regardless of what is happening to you?**

<b>No One</b>	<b>E.</b>
<b>A.</b>	<b>F.</b>
<b>B.</b>	<b>G.</b>
<b>C.</b>	<b>H.</b>
<b>D.</b>	<b>I.</b>

1  
*Very Dissatisfied*

**5.) Whom can you really count on to help you feel better when you are feeling generally down- in- the- dumps?**

<b>No One</b>	<b>E.</b>
<b>A.</b>	<b>F.</b>
<b>B.</b>	<b>G.</b>
<b>C.</b>	<b>H.</b>
<b>D.</b>	<b>I.</b>

1 2 3 4 5 6  
*Very Dissatisfied* *Very Satisfied*

6.) Whom can you count on to console you when you are very upset?

No One	E.
A.	F.
B.	G.
C.	H.
D.	I.

1 2 3 4 5 6  
*Very Dissatisfied* *Very Satisfied*

## Appendix F

### Demographics Questionnaire

Directions: Please check the correct response.

1) Gender

- 1 Female
- 2 Male
- 3 Other

2) Age

\_\_\_\_\_

3) Race/Ethnicity

- 1 African American
- 2 Asian
- 3 Caucasian
- 4 Latino/a
- 5 Native American
- 6 Pacific Islander
- 7 Other

4) Highest Educational Level Completed

- 1 High School
- 2 Some college (1-4 years, but no degree)
- 3 Bachelors Degree
- 4 Some graduate school courses
- 5 Graduate degree

- 6 Professional Degree
- 7 Other

5) Marital Status

- 1 Single
- 2 Married
- 3 Separated
- 4 Divorced
- 5 Widowed
- 6 Opposite Sex Cohabiting
- 7 Same Sex Cohabiting

6) Annual Household Income

- 1 Under \$20,000
- 2 \$20,000-\$40,000
- 3 \$40,000-\$60,000
- 4 \$60,000-\$80,000
- 5 \$80,000+

7) Which religious descriptions most closely fits you:

1	2	3	
<hr/>			
<i>Religious</i>	<i>Nonreligious</i>	<i>Other</i>	<i>(If "Other" selected, please specify)</i>

8) What is your religious affiliation?

1	2	3	4	5	6	
<i>Christian</i>	<i>Jewish</i>	<i>Muslim</i>	<i>Buddhist</i>	<i>Hindu</i>	<i>Other</i>	<i>(If "Other" selected, please specify)</i>



## Vita

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### Personal Information

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Date of Birth: October 7, 1979  
Place of Birth: Petersburg, Virginia

### Education

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2012 Doctor of Philosophy, Counseling Psychology and Religious and Spiritual Values  
Sub-Specialization: Community Intervention  
*Dissertation: Health and Religious Commitment Among College Students: The Effect of Health Behavior, Mental Health, and Social Support*  
Virginia Commonwealth University, Richmond, VA

2007 Master of Science, Counseling Psychology  
*Thesis: The Impact of Religiosity and Spirituality on Substance Use Behaviors Among African American Adolescent Groups*  
Virginia Commonwealth University, Richmond, VA

2001 Bachelor of Science, Psychology, Magna Cum Laude  
Minor: African American Studies  
*Honors Thesis: Gender Role Identity- African American Adolescent Females and Risk Behavior*  
Virginia Commonwealth University, Richmond, VA

### Honors and Awards

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2009 Duke University Summer Research Workshop Scholarship Recipient  
2003-2008 Virginia Commonwealth University (VCU) Graduate Student Assistantship  
2001 Outstanding Student Award, VCU, College of Humanities and Sciences  
2001 "Black History in the Making" Award, VCU Psychology Department  
2000 National Institute on Drug Abuse (NIDA) Summer Intern  
1997-2001 VCU College of Humanities and Sciences Dean's List

1997-2001 VCU Honors Program  
1997-2001 Phi Eta Sigma Honor Society  
1997-present Psi Chi Honor Society  
1997-present Golden Key Honor Society

## Clinical Experience

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2012-present *Cornell University, Gannett Health Services, Counseling and Psychological Services, Ithaca, NY*

**Psychologist/Community Consultation and Intervention Specialist**

Supervisors: Wai-Kwong Wong, Ph. D.

- Individual therapy to undergraduate and graduate students for mental illness ranging in severity from mild to severe.
- Crisis assessment and intervention.
- Consultation with university community, including faculty and staff. Also engages other individuals affiliated with students outside of the Cornell University community, as needed.
- Routine outreach activities extended to the university community to meet the psychological and emotional needs of students.
- Staffs “Let’s Talk” consultation hours for students experiencing distress or concern, but uncertain about traditional counseling services, particularly with students of color and underserved populations.
- Participation in preventative efforts to raise awareness regarding mental illness in the college setting.

2011-2012 *University of Missouri-Kansas City (UMKC) Counseling Center, Kansas City, MO*

**Pre-doctoral Intern**

Supervisors: Marita Barkis, Ph. D. & Lynette Sparkman Barnes, Psy. D.

- Provided individual, group, and couples therapy to students, faculty, and staff within a diverse, urban college setting.
  - Individual therapy involving various presenting issues, including mood, anxiety, substance abuse/use, adjustment, eating, and personality disorders.
  - Therapeutic process group co-facilitator with eight members for three semesters.
  - Therapy with married or dating couples from diverse backgrounds.
- Participated in crisis assessment and intervention through weekly walk in hours.
- Conducted psychological assessment for concerns, such as learning disability or attention problems.
- Supervised three doctoral psychology students.
- Participated in outreach to the university community.
  - Crisis intervention with UMKC Athletics team after the death of a team member.

- Panel discussant, as personally requested by Multicultural Student Affairs, for three events involving 30-45 students discussing racial/ethnic stereotypes, internalized racism, relationships, and dating. Also a co-facilitator for college preparation programming with 250 minority high school students.
  - Facilitate presentations about stress management, depression, and homesickness.
- Engaged in one Special Focus Rotation each semester.
  - *MindBody Connection*-Studied mindfulness, provided outreach, and researched and used HeartMath software. Developed an online resource center, “MBC-2-Go”.
  - *Drug and Alcohol Abuse*- Clinical work related to substance abuse, “Partners In Prevention” Conference, review of campus drug and alcohol policy with other campus professionals, and relevant readings.
  - *Early Career Development for Psychologists*-Focus on leadership and career building. Organize professional development event for UMKC Division of Student Affairs staff. Attended UMKC Women of Color Leadership Conference.
- Co-facilitated in-service training session about mindfulness for staff and students.
- Additional training:
  - *Research Psychiatric Hospital Community Education Training, Kansas City, MO*
    - Sex Therapy
    - Trauma and Emotion Focused Therapy
    - Mindfulness in Substance Abuse Treatment
  - *Castlewood Treatment Center for Eating Disorders Webinar: Attachment, Adult Attachment Interview, and Eating Disorders*

***External Practicum:***

2008-2011      *Associated Behavioral Outcomes & Development Experts of Virginia, Richmond, VA*

**Associate Director of Psychological Services**

Supervisor: Rebecca McCracken, Ph.D.

- Provided outpatient therapy services to underserved populations, including psychological evaluation and psychotherapy. Children, adolescents, adults, couples, and families served within a community mental health setting funded primarily by Medicaid.
- Administered test instruments and prepared integrated psychological reports to address consumer needs and treatment planning.
- Assisted Director of Adult Division- Mental Health Case Management and Outpatient Services with administrative tasks.
  - Processed incoming client referrals for psychological evaluations and therapy. Helped with the creation and revision of agency policy regarding outpatient services. Gave clinical supervision to doctoral psychology extern, provided peer supervision, and engaged in staff development efforts.

- Contracted with company's residential treatment center, Battlefield Lighthouse Services, which specializes in sexual trauma treatment for adolescent females. Patient population varied from 2-5 during tenure.
  - Served as lead clinician for residents, provided training to residential staff, and co-led treatment team meetings.

2006-2007 *Central State Hospital, Psychology-Forensics Unit, Petersburg, VA*

**Psychology Assistant**

Supervisors: Rebecca Stredny, Ph.D. & Creighton Hite, Ph.D.

- Conducted psychological testing, and report writing, to include intelligence and personality assessments, in psychiatric setting with a forensic patient population.
- Collected data through semi-structured interview and mini mental status exams.
- Participated in multidisciplinary treatment team, including psychiatrist, psychologist, social worker, and mental health technicians to address patients' clinical issues.
- Facilitated two psychoeducational groups for patients in both acute and long term units with the focus on restoration education to prepare them to stand trial.
- Rendered services as a clinician to provide individual therapy to severely mentally ill client diagnosed with Schizoaffective Disorder.

2006-2007 *Barnabas Counseling Center, Richmond, VA*

**Therapist**

Supervisor: Sonia Banks, Ph.D.

- Provided individual, couples, and group therapy to adolescents and adults as primary staff therapist in a community mental health setting.
- Assisted the Clinical Director/Clinical Psychologist with administrative tasks.
- Helped to plan and coordinate outreach services to the community through initiatives, such as a community health fair, parenting workshop for clinicians in the community, and a six week seminar for couples.
- Exercised crisis management skills, assessed risk for suicide and adhered to agency-specific protocol for hospitalizing clients. Assisted with the hospitalization of three clients experiencing suicidal ideation in conjunction with bipolar disorder and depression.
- Conducted phone screenings.
- Staffed walk in hours.
- Co-facilitated psychoeducational group sessions and workshops.

***On Campus Practicum:***

2005–2006 *Virginia Commonwealth University-Center for Psychological Services & Development, Richmond, VA*

**Therapist**

Supervisors: Jean Corcoran, Ph.D.; Shawn Utsey, Ph.D.

- Provided therapy to individuals presenting with mood, anxiety, adjustment disorders, along with identity, phase of life, and acculturation problems.

- Engaged in couples therapy with a co-therapist for four diverse couples based on race/ethnicity, sexual orientation, age, and socioeconomic status presenting with relational problems involving infidelity, problems with conflict resolution, trust, and parenting.

2005-2006 *Virginia Commonwealth University, University Counseling Services, Richmond, VA*

**Group Therapy- Process Observer/Therapist**

Supervisor: Joy Bressler, Ph.D.

- Documented emergent themes of therapeutic process group work for one ongoing group, for two semesters, in conjunction with group therapy class. Group composed of 6-8 members.
- Participated in weekly group supervision sessions with facilitators to explore pertinent themes and strategies for treatment.
- Served as a speaking group therapist for the final group session.

2004-2005 *Virginia Commonwealth University, University Counseling Services, Richmond, VA*

**Therapist**

Supervisor: Brooke Watanbee, M.S. (As supervised by Joy Bressler, Ph.D.)

- Provided individual therapy to a college age population to address presenting issues including mood; anxiety; and substance abuse disorders, in addition to academic and identity problems.
- Completed weekly intakes with new clinic clients.
- Participated in counseling center outreach activity to facilitate psychoeducation.

***Graduate Assistantship:***

2005–2006 *Virginia Commonwealth University-Center for Psychological Services & Development, Richmond, VA*

**Assistant Director**

Supervisor: Sonia Banks, Ph.D.

- Processed incoming requests for therapy and psychological testing in a university run clinic serving 100-150 clients.
- Screened new clients for appropriateness for receiving treatment in training clinic environment.
- Supervised 30 student therapists in their adherence to clinic policy and procedure regarding clinical paperwork.
- Developed and co-facilitated staff trainings with co-assistant director.
- Assisted with the development and planning of proposal for Mind-Body-Spirit clinic.

***Work:***

2002-2004 *Family Preservation Services, Richmond, VA*

**Intensive In-Home Counselor**

Supervisor: Andy Slabaugh, MSW

- Employed individual and family interventions within the home, school, and community with at-risk adolescents in danger of out of home placement.
- Initiated case management and mentoring services, when relevant for treatment.
- Coordinated community resources to ensure the maximum supports available to the client and family.

2001-2002 *United Methodist Family Services, Richmond, VA*

**Residential Counselor**

Supervisor: Renita Simons, MSW

- Taught and supervised daily living skills of adolescent female residents, approximately 6-8 teens.
- Executed behavior modification plans.
- Engaged in conflict resolution and crisis management.
- Led psychoeducational groups to enhance personal development and support of the therapeutic milieu.

## Teaching Experience

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2009-2011 *John Tyler Community College, Mathematics, Natural and Behavioral Sciences, Department of Psychology, Chester, VA*

**Adjunct Faculty**

Supervisor: Gena Britt, Ph.D.

- Instructed undergraduate developmental psychology course, Lifespan Development to assist students with central learning goals. Included 20-25 students per semester.
- Developed course to maximize the use of the course textbook, electronic resources, and supplementary tools.

2007-2008 *Virginia Commonwealth University, Richmond, VA*

**Graduate Teaching Assistant**

Supervisors: Virginia Mackintosh, Ph.D. & Jennifer Menzel, Ph.D.

- Worked with upper-level psychology course instructor to manage undergraduate students in Child Psychology, Lifespan Development, and Abnormal Psychology. Classes of approximately 50-150 student per course.
- Facilitated some of the in-class activities and discussions.

## Research Experience

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2004-2009 *Baptist General Convention of Virginia, S.P.I.C.E. S. for Life Health Grant, Richmond, VA*

### **Program Evaluator**

Supervisor: Micah McCreary, M. Div, Ph.D.

- Identified appropriate evaluation tools for a community agency implementing prevention program targeted to reducing health disparities.
- Oversaw data collection, data entry, and data analysis.
- Collaborated with the project director, grant staff, and evaluation supervisor to review and revise evaluation protocol.
- Provided feedback and consultation regarding the program implementation.

2003–2005 *Virginia Commonwealth University- Center for Cultural Experiences in Prevention, Richmond, VA*

### **Senior Group Facilitator/Graduate Research Assistant**

Principal Investigator: Faye Z. Belgrave, Ph.D.

- Functioned as lead group facilitator for a culturally appropriate prevention program focused on the prevention of HIV/AIDS; sexually transmitted disease; and substance abuse.
- Supervised four to five group facilitators implementing program.
- Worked collaboratively with the Boys and Girls club facility staff and VCU facilitators.
- Led psychoeducational groups focused on the culture of being a female and of African descent. Dealt with relevant issues, such as self esteem, identity, and critical thinking skills.

2000–2003 *Virginia Commonwealth University- Department of Psychology-Cultural Enhancement Project, Sisters of Nia Program, Richmond, VA*

### **Research Assistant/Program Facilitator**

Principal Investigator: Faye Z. Belgrave, Ph.D.

- Co-facilitated culturally appropriate intervention for at-risk African American girls in urban environment.
- Conducted psychoeducational groups about relationship building and prosocial behavior through a model of mentoring and support.
- Taught life skills, such as conflict resolution, drug refusal, negotiation of healthy decisions, and hygiene practices through group discussion and cultural activities.

1999–2001 *Virginia Commonwealth University- Department of Psychology-Project IMPACT, Richmond, VA*

### **Research Assistant**

Principal Investigator: Micah McCreary, M. Div., Ph.D.

- Collected data and performed data entry for a federally funded grant designed for substance abusing parents and their children, Project IMPACT.
- Provided assistance during intervention activities of a culturally appropriate program for eliminating substance abuse, bolstering mental health, and increasing the coping

resources.

1998–2000 *Virginia Commonwealth University- Department of Psychology-Richmond, VA*

**Research Assistant**

Principal Investigator: Faye Z. Belgrave, Ph. D.

- Transcribed interviews for qualitative psychological research with at-risk African American teenage mothers to identify emergent themes as a part of grant supported research.
- Performed research tasks, such as literature reviews and procurement of reference materials.

## **Publications**

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### **Article:**

McCreary, M.L., Young, J., **Jones, M.Y.**, Fife, J., & Pasquariello, C. (2011). Project I.M.P.P.A.C.T: A Psychoeducational problem-solving intervention for children. *Journal of Instructional Psychology*.

### **Book Chapter:**

McCreary, M.L., **Jones, M.Y.**, Fife, J., & Tademy, R. (2009). A partnership between the African American church and the university: I.M.P.P.A.C.T and S.P.I.C.E.S. In S. Evans, C. Taylor, M. Dunlap, & D. Miller (Eds.), *African Americans and community engagement in higher education* (pp. 173-188). Thousand Oaks, CA: Sage Publications.

## **National and Local Conference Presentations**

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**Jones, M.Y.**, Tademy, R., Young, J., Tinsley, T., & Surles, J. (2009, August). S. P. I. C. E. S. for Life. In M. L. McCreary (Chair), *Research that works: Using quality engagement as a framework in teaching and scholarship*. Symposium conducted at the national meeting of the Association of Black Psychologists, Atlanta, GA.

**Jones, M.Y.** (2009, April). *Religion and spirituality and health: Substance abuse and adolescents*. Poster session presented at the meeting of Virginia Commonwealth University Graduate School, Richmond, VA.

**Jones, M.Y.**, Tademy, R., Young, J., Johnson, M., Tinsley, T., Surles, J., & Hart, A. (2009, April). S. P. I. C. E. S. for Life: The Birth of a community-university partnership. In M. L. McCreary (Chair), *Research that works*. Symposium conducted at the meeting of the American Psychological Association- Division 36, Columbia, MD.

**Jones, M.Y.** & Reed, M.C. (2004, August) . *Culturally tailored substance use and HIV/AIDS prevention program for urban African American girls*. Paper presented at the meeting of the Association of Black Psychologists' Association, Washington, D.C.



McCreary, M.L. & **Jones, M.Y.** (2004, August) . *Teaching a multicultural prepracticum course to graduate Students*. Paper presented at the meeting of the American Psychological Association, Honolulu, HI.

Reed, M.C., Wilson, J., Reid, M. & **Jones, M.Y.** (2004, March). *A culturally appropriate drug prevention program for urban African American adolescents*. Poster presented at the Lonnie Mitchell National Conference, Washington, D.C.

**Jones, M.Y.** (1999, August) . *The role of gender role and sexual refusal self efficacy on substance use in African American adolescent girls*. Poster presented at the Association of Black Psychologists' Association Conference, Charleston, South Carolina.

## **Professional Memberships**

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- American Psychological Association
- Association of Black Psychologists

## **University Service**

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- Student Representation, *Counseling Psychology Student-Faculty Retreat Planning Committee*, 2007
- Student Reviewer, *Counseling Psychology Admissions Application Review*, 2007
- Student Representative, *Counseling Psychology Program Faculty Council*, 2006
- Student Representative, *Center for Psychological Services and Development Steering Committee*, 2005-2006