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Spirituality And Systemic Lupus Erythematosus

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SPIRITUALITY AND SYSTEMIC LUPUS ERYTHEMATOSUS

by

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Kara A. Richardson-Cline
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I want to thank God. For, without Him, I could not have completed this project. I also want to thank my daughter. She had to put up with and sacrifice much on this journey. I thank her for her patience and understanding. May it all be worth it.

ABSTRACT

Problem: The positive relationship between spirituality and physical, psychological, and social well-being has been well established. However, beyond quality of life measures, this construct has yet to be more deeply studied in a sample of individuals diagnosed with Systemic Lupus Erythematosus (SLE). Furthermore, relational spirituality has yet to be studied in a chronically ill population. Meeting these gaps in the literature, this study compared the explicit domains and latent constructs measured by a relational spirituality instrument and examined their associations with a measure of biopsychosocial-spiritual well-being and quality of life measure.

Results: Utilizing nonrandom online surveys, this study included 305 participants, with 85 reporting a SLE diagnosis. Results indicated the BioPPSI did not maintain its original factor structure, with the psychological and spiritual items loading onto one domain. The SLE sample reported lower levels of physical well-being and higher levels of secured attachment to God. However, ATG style was only significantly related to emotional health as those with more secured attachment reported high emotional health.

Implications: This study highlights the need to further develop the BioPPSI and to better understand the relationship of relational spirituality for those with a chronic illness. Furthermore, the study emphasizes the need to better understand the needs of individuals with SLE and methods of intervention.

CHAPTER 1

INTRODUCTION

Spirituality is a multi-faceted construct which has only entered into the medical literature in the last few decades. Spirituality and religion have been studied in various populations and both have been associated with increased social support, ability to cope, and psychological well-being (Larson & Larson 2003; O'Neill & Denny, 1998), as well as with longevity and positive health habits (Seybold, 2007; Koenig, McCullough, & Larson, 2001). In examining the relationship between spirituality, and religion and various diseases, researchers have also found negative correlations with mortality, heart disease, stroke, cholesterol levels, and depression (Seybold, 2007; Koenig et al. 2001). Similarly, spirituality and religiosity have been shown to negatively relate to suicide, substance abuse, and risky sexual behaviors (Larson & Larson 2003).

Due to these results, it has been proposed that spirituality has a mediating effect on life stressors (O'Neill & Denny, 1998). When studying the chronically ill, spiritual focus and spiritual well-being was found to increase with age and the progression of chronic illness (O'Neill & Denny, 1998). Other studies have also verified the relationship between an increased ability to cope with loneliness, stress and illness, and decreased anxiety and depression and aspects of spirituality (O'Neill & Denny, 1998).

While spiritual well-being has been explored in the chronically ill, relational spiritualty has yet to be assessed. Relational spirituality is an aspect of spirituality which is concerned with the relationship an individual has with the sacred (Beck, 2006).

Considering many individuals hold beliefs in the sacred, and the importance of spirituality in health outcomes, it is important to understand how relational spirituality is related to health.

While the relationship between spirituality and various diseases, such as cancer, heart disease, and fibromyalgia, has been studied, the relationship of spirituality and systemic lupus erythematosus (SLE) has yet to be fully examined. Only one study has examined spirituality, as a domain within health related quality of life, and found it to be a possible coping mechanism (dos Reis & da Costa, 2010). In addition, when surveyed, patients with lupus have identified spiritual concerns as a pressing need (Moreira-Almeida & Koenig, 2007; Moses, Wiggers, Nicholas, & Cockburn, 2006).

SLE is a chronic, often disabling disease, which may to lead to disability, hospitalization, death, and increased health care costs in the United States (Mallavarapu & Grimsley, 2007). The Lupus Foundation of America estimates that 16,000 patients are diagnosed in America each year. Unique to this disease, those with SLE often experiences relapses and remissions, causing variability in disease activity (Khanna, Pal, Pandey, & Handa, 2004). These relapses have been associated with worse physical functioning, poorer quality of life, and higher medical costs and mortality.

SLE has been found to effect individual's physical, psychological, and social functioning (Grootscholten, Ligtenbert, Derken, Schreurs, de Glas-Vos, Hagen, et al., 2003). As such, it is important to get a better understanding of the role of spirituality in SLE (Grootscholten, Ligtenbert, Derken, Schreurs, de Glas-Vos, Hagen, et al., 2003). It will be necessary to understand the role of spirituality holistically, in relationship to the physiological, psychological, and social constructs (Sulmasy, 2002). Some researchers are

proposing a biopsychosocial-spiritual model to best conceptualize this relationship (Sulmasy, 2002).

Because of SLE's long-term effects, strategies for coping and managing the disease are particularly important to understand (Drukker, Dillen, Bak, Mengelers, Os and Delespaul, 2008). Given the role of spirituality in positive health and coping (Larson and Larson, 2003), it is necessary to explore the relevance of spirituality to outpatients with SLE.

Purpose of Study

The purpose of this study is to examine the role of spirituality, both in relational spirituality and spiritual well-being, as it relates to the biological, psychological, and social domains of living. This will help to better understand the role of spirituality in the lives of lupus patients. In order to do so, this study will compare the explicit domains and latent constructs measured by two spirituality instruments and will examine their associations with a measure of biopsychosocial-spiritual well-being. In addition, the relationship between spirituality and health outcomes, as measured by disease activity and quality of life, will be examined in both a SLE population and those without a medical diagnosis.

It is hypothesized that spirituality is independent of the biological, psychological and social domains and that there is a relationship between the participants' level of spiritual well-being and health outcomes. Similarly, a measure of relational spirituality will also be significantly related to health outcomes. Another goal of this study is to understand the relationship between spirituality, health outcomes, and extraneous variables.

Research Questions

Question 1: Will the Biopsychosocial-spiritual model accurately portray the relationship of spirituality, psychological, psychological, and social interactions?

Question 2: Does the spiritual well-being of persons with SLE differ from that of a non-SLE population?

Question 3: How does the variable nature of SLE interact with spiritual well-being?

REVIEW OF THE LITERATURE

In the course of modern psychology, spirituality has only recently become the focus of empirical research. Earlier theorists and researchers viewed spirituality as a purely theological or philosophical concept, not considering it as an appropriate construct for empirical research (McGrath, 2006). Because of concerns of objectivity and proper measurement, spirituality was considered inappropriate for research and discarded by researchers, including those in psychology and health. When it was taken into account, spirituality was often incorporated into the definition of religion and the two concepts were incorporated and studied as a single entity (Hill, 2005).

More recently, religion and spirituality have begun to be identified as two distinct constructs, with measures designed to assess for each construct, leading to quantitative studies being published in the last two decades (McGrath, 2006; Hill, 2005; Hill et al., 2000). While the exact nature of spiritually, like many psychological conditions, is difficult to measures and examine, more recently it has become accepted as an appropriate topic to explore (Larson & Larson, 2003).

However, relative to other multicultural variables studied in psychology, such as gender, social support and economic status, spirituality is still an under-studied variable (McGrath, 2006). The majority of medical fields have overlooked the spiritual dimension of health and well-being in their published research (Puchalski, 2006). In a systematic review of religious variables in palliative medicine, Puchalski, Kilpatrick, McCullough, &

Larson (2003) found only 1 to 3% of the studies published in the major medical journals quantitatively measured spirituality or religion. Through these studies, the importance of spirituality upon the human condition has become more evident, thus supporting the need for further research in this arena (Brady, Peterman, Fitchett & Cella, 2000).

Spirituality and Religion

Historically, a detriment to the study of spirituality has been the enmeshment of the constructs of both spirituality and religion, as they have often been confused or used interchangeably. This is due in part because many people have often found spiritual meaning through religious constructs and some researchers assume spirituality is associated with religious variables (McGrath, 2006). Moreover, for many, religion may be the only method they know to reach a spiritual state.

In the 1980's, it became more common to separate the two concepts with religion being considered more focused on the specific aspects of dogma and belief systems (Hill & Paragament, 2008). Religion has been referred to as ''the means and methods (i.e., rituals or prescribed behaviors) of the search that receive validation and support from within an identifiable group of people'' (Sawatzky, Ratner, Chiu, 2005).

While religion is considered a method to obtain spirituality, it is possible to have spiritual or existential experiences without participating in a religious process. This is seen in people who consider themselves to be spiritual but not necessarily religious (Sawatzky, Ratner, Chiu, 2005). Just as valid, it is possible to be religious without seeking a higher connection (Felgoise, Becker, & Jebitsch, 2010).

The differentiation between the construct of religion and spirituality can change as we grow older. While adults will make distinctions between religion and spirituality,

children generally do not (Barnes et al., 2000). This may be due to the increasing complexity and advancement of the child's cognitive development, thus the constructs of spirituality and religion become more complex (Fowler, 1981). For example, newborns are not equipped with cognitive, emotional, or behavioral characteristics that operationalize spirituality and this ability develops across the lifespan (Lerner, Alberts, Anderson, Dowling, 2006).

Defining Spirituality

The first part of defining spirituality will focus on the development of the definition in the field of psychology. This will encompass the various prominent figures, theories, and conceptualizations of the domain. Secondly, this section will discuss the general definition used in the current research. Finally, the definition used in this project will be discussed.

To best understand the current redundant view of spirituality in psychology, it is important to know how the concept has developed in the field. In approaching a historical review, an awareness of several key concepts will be helpful in understanding how the definitions have developed. One key concept is that spirituality is an intrinsic awareness of connectedness to an external force or focus (Hall, Fujikawa, Halcrow, and Hill, 2009). There is much debate as to how that connection is developed, maintained, and to whom individuals are connected. Furthermore, spirituality is generally seen as a positive force in an individual's life and it tends to be seen as a marker of a person who is reaching, or attempting to reach, their full potential. Finally, spirituality is something considered innate to humans and has not been observed in other species.

Development of Spirituality in Psychology

While many prominent psychologists have discussed spirituality and its relationship to the human condition, it has only been in the last thirty years that it has been explored as a valid research topic. This may have been due to Freud's early influence upon the field of psychology, during a time in which it was attempting to prove itself as a valid field of study. His influence on early psychology has had long lasting effects, as he viewed religion as irrelevant and possibly harmful, labeling it as "an obsessional neurosis." (Blanch, 2007). Possibly driven by his own atheistic worldview, rather than science, he felt individuals who had a religious focus were weak and needed to create a deity rather than to deal with their stressful lives (Josephson, 2000).

Many other prominent psychologists were more supportive and spoke or wrote about spiritual and existential issues, laying the foundations for the study of spirituality later in the century. William James, considered a father to American psychology, was one of the first notable psychologists to focus on religious and spiritual issues. In his lectures given at the University of Edinburgh from 1901-1902, and in the book entitled *The Varieties of Religious Experience*, James examined the spiritual experiences of individuals and attempted to understand them (Powers, 2005). He believed these religious experiences should and could be studied empirically and gave examples, such as conversion, saintliness and mysticism (Blanch, 2007).

Another prominent psychiatrist who espoused spirituality, Carl Jung, the founder of Analytical Psychology, is also credited for asserting that all human problems are spiritual in nature (Standard, Sandu, & Painter, 2000). He felt healing was not possible without spiritual growth or an understanding of issues causing spiritual distress. He placed

equal emphasis on spiritual functioning as he did with physical, cognitive, or emotional functioning (Standard, Sandu, & Painter, 2000).

However, in the early part of the 20th century, the majority of published research focused more on the quantifiable constructs and observable phenomena (McGrath, 2006). B.F. Skinner's work is an example of this trend, and psychology focused on cognitive and behavioral studies for the next five decades (Powers, 2005). Nonetheless, during the same period of the 50's and 60's, Maslow developed the hierarchy of needs model and, along with it, utilized Kurt Goldstein's concept of self-actualization (Schultz & Schultz, 2004). The concept of self-actualization, defined as a basic force which drives the person forward and onwards, was later widely used by Carl Rogers.

Spirituality has also commonly been equivalently associated with existentialism, or the quest to find meaning in one's life (Sawatzky, Ratner, Chiu, 2005). Concepts included in existential spiritualty is feeling at peace, having meaning in life, and having purpose. Early work in spirituality by Frankl (1963) defined the spiritual task at the core of one's existence as one of finding meaning in life via self-transcendence and by connecting with others (O'Neill & Denny, 1998).

Frankel's work began the foundational theory for spirituality. Several later researchers suggest that spirituality can be distinguished from other existential pursuits, ideologies, or life-giving practices by its orientation toward the sacred. Sacred refers to those aspects of life that are either transcendent in nature or related to a transcendent dimension (Larson et al., 1998Hill et al., 2000; Sawatzky, Ratner, Chiu, 2005).

Frankel, along with Maslow, Stanislov Grof, and others explored aspects of spirituality (Blanch, 2007). This led to the development of the *Journal of Humanistic*

Psychology in 1961, later the *Journal of Transpersonal Psychology (JTP)* in 1969, and eventually to the establishment of the field of transpersonal psychology (Blanch, 2007; Powers, 2005). Many of the articles since published have had a focus on spiritual issues, thus leading to a legitimization of the construct for psychology.

Due to the growing interest in the construct, various schools of psychology have attempted to describe spirituality, each taking a different approach. Currently, a popular theory for spirituality is attachment theory. This theory originates in the 1950's and was developed by Bowlby (2005, 1980). He postulated humans had an innate need for love and attachment. Ainsworth's work in the 1960s-enriched the theory when she introduced attachment styles. When related to spirituality, attachment theory dictates we learn how to love and be attached to God by how we are attached to our primary care givers (Beck, 2006; Beck & McDonald, 2004). For example, if a child develops an insecure attachment to her caregiver, she may have similar difficulties trusting God.

Object-relations theory began focusing on the God relationship, in 1979, when Rizzuto used this theory as a framework in examining how individuals develop private representations of God (1979). She proposed an individual's God representation is developed from the meshing of the representations from his or her primary objects. She also viewed this as an ongoing process with the God image changing over time. When viewed toward spiritual maturity, object relations examines how an individual develops and views relationships with others as a basis for how that person will develop a relationship with God (Beck, 2006; Hall, Brokaw, Edward & Pike, 1998).

Structure of Spirituality.

Over the decades in which spirituality has been studied, debate has occurred on the breadth of the concept. In 1962, Charles Glock, a sociologist, proposed five religious dimensions (as cited in Haber, Jacob, & Spangler, 2007). They are as follows: ideological (belief), ritualistic (practice), intellectual (knowledge), experiential (feeling), and consequential (effects). Two experiments provided the initial evidence to support his model, demonstrating modest scale intercorrelations between the dimensions with adequate discriminate validity to support a multidimensional view of spirituality. Subsequent research did not replicate these results and supported a unidimensional construct instead (e.g., Clayton & Gladden, 1974). However, later studies over the next twenty years, utilizing larger and more diverse groups and more in-depth and developed questionnaires, supported the more complex model with six to eight factors emerging (Haber, Jacob, & Spangler, 2007).

Researchers have also explored other variables related to spirituality, such as daily spiritual experiences, spiritual well-being, relational spirituality, negative spiritual experiences, and spiritual maturity. These constructs have developed assessment measures developed and which found to generally be recognized as individual dimensions to the larger construct of spirituality (Underwood, 1999; Pargament, 2005; Kendler et al. 1997; D'Onofrio et al. 1999). Haber Jacob, & Spangler (2007), found many scales measuring religiosity and spirituality, daily spiritual experiences, and religious coping were highly correlated with spirituality. This lends support that the positive quality of the relationship one has with God leads to an experience of a number of health related benefits (Haber, Jacob, & Spangler, 2007).

Daily spiritual experiences is a domain intended to measure the individual's perception of the transcendent (God, the divine) in daily life and the perception of interaction with, or involvement of, the transcendent in life (Fetzer Institute/National Institute on Aging Working Group, 1999). These experiences are difficult to measure because they are aspects of an internal relationship with something that is not visibly present. However, there are some behaviors associated with it. An example of a person's spiritual experience is prayer. This is considered an activity that people use to connect to the sacred and in many cultures is viewed as important in communicating with God (Felgoise, Becker, & Jebitsch, 2010; Pargament, 1997). It can be defined as uniting with a higher power, and having a personal relationship with this power (Pargament, 1997).

Spiritual well-being is considered a general measure of perceptions of one's general spiritual state. In 1983**,** C. W. Ellison developed the Spiritual Well-Being Scale. It measured Religious Well-Being (associated with "God" attributions) and Existential Well-Being (or one's life's purpose, goals, and future without any reference to God) and they were found to be related. The latter construct could be considered a humanistic rather than theistic version of religious and spiritual variables (Helminiak, 1996) and appeared to encompass those who consider themselves spiritual but not religious and those of monotheistic religions.

More recently, quality-of-life (QOL) instruments have attempt to measure an existential domain that addresses purpose, meaning in life, and capacity for self-transcendence; domains included in spiritual well-being. Several studies have demonstrated a relationship between these existential items and overall QOL (WHO, 1995). Cohen, Mount, Strobel, and Bui (1995) found patients' quality of life correlated

with their feelings of fulfillment from life goals, if their personal existence is meaningful, and if their life to this point has been meaningful.

Spiritual Maturity.

In addition to the individual's present state of spirituality, many theorists are interested in how spirituality develops over time. A person's spiritual nature can also change over time, as conceptualized as an individual's spiritual maturity (Hall & Edwards, 2005). In essence, newborn babies, while spiritual entities, are not capable of engaging in spirituality because they have not developed the cognitive structures, their personal schemas, to understand the nature of their spiritual connection (Fowler, 1981). They are not equipped with cognitive, emotional, or behavioral characteristics that operationalize spirituality and this ability changes across the lifespan (Lerner, Alberts, Anderson, Dowling, 2006).

Just as racial or gender identity is unique to each individual, a person's spiritual identity is distinctive (Poll & Smith, 2003). Similarly to spiritual maturity, it is also important to understand how an individual's spiritual self-concept develops over time. Many factors play into how a person views their spiritual self and it is influenced by their upbringing, exposure to religious groups, social messages, and possibly by their genetic make-up (Poll & Smith, 2003). To better understand this progression, Poll and Smith (2003) tentatively identified four levels of spiritual identity development: pre-awareness or when a person is not aware of themselves in spiritual terms. They have no or minimized spiritual experiences. The second phase,-awakening, is a time of learning, crisis, or conflict where the events begin to take on spiritual meaning. This can be a time of great inconsistency. The third phase is recognition when spiritual experiences are generalized

and is a time of reflection. The final phase is integration when a spiritual self-concept is internalized.

Not all individuals progress along this developmental timeline. Some individuals may not value spiritual development, thus exhibit little change. Similarly with self-actualizing, some individuals may be too concerned with maintaining basic life functions, such as acquiring housing and adequate income, to focus on spiritual development. Furthermore, certain life events can impede spiritual development. For instance, it is reported that those who experience a trauma can develop a spiritual wound and report feeling numb and unable to achieve a fulfilling spiritual state. Additionally, those who experience higher levels of spiritual distress possibly have slower development or movement to another level of spiritual development (Wink and Dillon, 2002)

Spiritual maturity has also been related to Kohlberg's theory of moral reasoning. He developed this framework of moral and spiritual development from Piaget's theory for moral reasoning (Walker & Reimer, 2006). He proposed a three level, six-stage theory with momentum taking a person from a focused on punishment and obedience to one whose moral standards are internalized with the person defining right and wrong on the basis of self-chosen ethnical principles (Gibson, 2004).

A more modern, and decidedly Christian-based, version of Kohlgerg's stage model is Gibson's (2004) model for Christian spiritual Development. He builds off Kohlberg's model and corrects for what Gibson viewed as a lack of focus on God as the reason for humanity's moral anchor (2004). Kohlberg's model was based upon children learning morality from their environment rather than assuming it was innate. Gibson also felt Kohlberg ignored the natural "sinful" nature of humanity (Gibson, 2004) and the corollary

that God is necessary in order to overcome this basic state before one can move and engage in improving the greater good.

Gibson's model is based on four levels of individual focus with each level maintaining a different source of authority. He viewed people moved from a self-centered source of authority to a Kingdom-Centered source. In doing so, a person transforms from obeying God's law out of fear of punishment to one focused on active promotion of corporate piety and the improvement of society (Gibson, 2004).

Another theory, attribution theory, endeavors to understand how individuals attempt to explain everyday occurrences (Spilka, Shaver, & Kirkpatrick, 1985). Beginning in the 1960's, researchers in attribution theory utilized the subcategories of emotion, self-perception, and task performance to understand how individuals understood religion. Researchers have also examined how individuals use religious attributions as a part of their overall explanatory efforts. In this way, they feel religion provides a broad meaning system and is a frame of reference for a majority of life events (Spilka, Shaver, & Kirkpatrick, 1985).

Spirituality Defined

Within psychology, there is little consensus on how to operationally define spirituality and over 300 descriptions and definitions of spirituality have been identified in the literature (Zinnbauer et al., 1997). This may be due to spirituality being a multi-dimensional construct which varies across demographic groups (Hill, 2005). Some have simply described spirituality as a feeling (Domasio, 2003), while some view it more as a stable personality trait (Davis, Hook, Worthington, Van Tongeren, Gartner, Jennings, & Norton, 2010; Cloninger, Svrakic, & Przybeck, 1993). Another important attribute of

spirituality pertains to the notion that spirituality is defined by a person's subjective experiences that may not necessarily be expressed through predefined behaviors and practices Larson et al., 1998; Sawatzky, Ratner, Chiu, 2005). As such, it is an intrinsic experience and an internal process. While some aspects of it may be examined behaviorally, such as prayer or meditation, there are parts of it that cannot be studied objectively.

Another important consideration in spirituality has also been defined as an idea of believing in, valuing, or devoting oneself to some higher power without necessarily holding religious beliefs to be true (Worthington et. al., 1996). As such, while religious people can be spiritual, one does not need to be religious to be spiritual. Because of this, it is important to be able to study spirituality in a context which does not include religious language or undertones, especially as many individuals do not hold religious world-views. In order to assess spirituality in all groups of individuals, regardless of their spiritual, religious, or secular worldviews, researchers have incorporated a more generic definition in an attempt to measure the construct across groups, seeking to tap into the core constructs of the domain. Areas they assess tend to be meaning in life, feelings of peace, transcendence, and purpose in life.

In addition to these basic themes, an important aspect of spiritualty is “the search for the sacred" (Pargament, K. I., & Mahoney, A. 2009). The term “sacred” encompasses not only-concepts of God and higher powers, but also-other aspects of life that are perceived to be manifestations of the divine or imbued with divine-like qualities, such as transcendence, immanence, boundlessness and ultimacy. Beliefs, practices, experiences, relationships, motivations, art, nature, war, virtually any part of life, positive or negative,

can be endowed with sacred status. Conversely, the search, has been described as an ongoing journey, a process that begins with the discovery of something sacred followed by attempts to build and conserve a relationship with the sacred, and, when necessary, efforts to transform the nontraditional; they can follow worldviews established by traditional institutions or they can consist of novel concepts that, as discussed above, have little relationship with established religions.

Understanding the relationship between an individual and the sacred has been described as relational spirituality. This aspect of spirituality is generally considered an internal relationship one has with something that lies beyond the physical, psychological, or social dimensions of life (Sawatzky, Ratner, and Chiu, 2005). Relational spirituality postulates spirituality is related to how an individual connects with the community, culture, and cosmos (Harteliu and Harraby, 2010). It is focused on the relationship an individual has in those areas as seen through the lenses of spirituality

Several psychological theories have explored relational spirituality, such as object-relations (Hall & Edwards, 2005), attachment theory (Beck, 2004), and those investigating the biopsychosocial-spiritual relationship (Sulmasy, 2002; Katerndahl & Oyiriaru, 2008). This transcendent relational entity of spirituality has been labeled in many ways with the following, but not all inclusive, examples: ‘‘divinity’’, ‘‘a higher power’’, a ‘‘divine being’’, ‘‘ultimate reality’’, ‘‘God’’ or ‘‘god-being’’.

Furthermore, dependent upon multicultural or multi-religious factors, spirituality can be experienced or expressed differently, Differing religions view spirituality differently. Even within large religious groups, smaller group differences emerge. For example, within the Christian belief systems individuals of the Pentecostal denomination

may find spirituality to be more related to having a relationship with the Holy Spirit (an aspect of God) as a vital aspect of spiritualty and dismissing works, while those of the Catholic faith may view engaging in works as important acts to bring one closer to God, while minimizing the influence of the Holy Spirit. Similarly, within Islam, various sects hold differing beliefs on how to best reach and obtain the five pillars of faith.

When exploring relational spirituality, it is as beneficial as it is important to understand how individuals are in their relationship with the sacred. Even when individuals do not have a religious association with the sacred, being in relationship with the-world at large and community-is important to understand. It is also important to assess relational spirituality in a manner which will allow the largest group of world-views to be included. As such, it is important to utilize generic wording when addressing the sacred. However, much research in this domain, as well as the assessment tools designed to measure the construct, are worded in monotheistic themes.

Attachment theorists propose a person's relationship with God is associated with the maturity of one's relationships with others (Beck, 2006). This relationship between the two is parallel with the more people matured in a spiritually motivated relationship with God, the more people tended to mature in a spiritually motivated relationship with one another. (Froehlich, Fialkowski, Scheers, Wilcox, & Lawrence, 2006)

Attachment Theory

Based upon these definitional criteria, attachment theory's view on spirituality best conceptualized the construct of relational spirituality. This theory originates in the 1950's and was developed by Bowlby (2004, 1980). He felt psychoanalysis focused too strongly on children's fantasy life and not enough on trauma and separation in their family life

(Bergen, 2008). Ainsworth also was an important figure in attachment theory and viewed humans as having an innate need for love and attachment. Her work in the 1960s enriched the theory, when she postulated the caregiver is considered to be a secure base of exploration and a haven of safety for the child, and introduced attachment styles (Ainsworth, 1985). Attachment styles are considered emotional and behavioral responses to the child being separated, reunited, and exposed to the presence of strangers (Beck, 2006). These styles are described as secure, anxious, avoidant, and disorganized (Beck, 2006).

The research in attachment styles was expanded from the pediatric literature to the adult love relationship literature in the 1980s. In both arena's research has shown how as children grow and develop attachments to primary care givers, they form internal models of themselves, their caregivers, and the interaction between them (Beck, 2006). Thus, if a child has developed the world view that their caregivers are unreliable and are unresponsive (a negative view of the caregiver), they will tend to be more self-reliant and depend less on external emotional support (Beck, 2006). This style of attachment has been considered the avoidant attachment style. Research has demonstrated these childhood schemas can then be carried over into adulthood and effect adult love attachments (Hazan & Shaver, 1990).

In the 1990's, Brennan, Clark, and Shaver (1998) continued to add to Attachment Theory when they reduced the four-fold attachment typology into two underlying dimensions: Anxiety about Abandonment and Avoidance of Intimacy. These dimensions can then be broken down into four attachment types and are described below in table 1.

Table 1.
Attachment Styles

Attachment Dimension		Attachment Style Labels	
Anxiety about Abandonment	Avoidance of Intimacy	Childhood Literature (Parent/Child Bond)	Adult Literature (Adult Romance)
Low	Low	Secure	Secure
High	Low	Anxious	Preoccupied
Low	High	Avoidant	Dismissing
High	High	Disorganized	Fearful

Attachment Theory and Spirituality.

When related to spirituality, attachment theory dictates we learn how to love and be attached to God by how we are attached to our primary care givers (Beck, 2006; Beck & McDonald, 2004). For example, if a child develops an insecure attachment to her caregiver, she may have similar difficulties trusting God. Kirkpatrick (1999) theorized that believers experience a relationship with God as an attachment bond. His further research, as well as work completed by Granqvist (1998) and TenElshof and Furrow (2000) helped to build this argument.

Later work in developing a measurement tool to assess for this relationship was completed by Beck and McDonald (2004). Adapting a prior well-validated tool to assess for adult relationship attachment styles, the Attachment to God Inventory supported the Brennan, Clark, and Shaver's (1998) two-dimensionality model when the initial and confirmatory factor analysis identified the Avoidance of Intimacy and Anxiety subscales.

There are two hypotheses in attachment theory as to why and how people develop their attachment style with God (Hall, Fukawa, Halcrow, Hill, & Delaney, 2009; Beck, 2004). The first is the correspondence hypothesis and it states individuals develop a relationship with God that is similar to the relationship with the primary caregiver. On the other hand, the correspondence hypothesis, or whether the relationship with God helps the

person compensate for deficits in the caregiver bond and the relationship with God helps the person fill the attachment void. There have been numerous studies supporting both hypotheses (Hall et. al, 2009). Further information is needed on other variables which may have an influence on ATG and how individuals develop this attachment.

Another model attempting to explore these hypotheses was proposed by Hall et al. (2009). They suggest it is necessary to make a conceptual distinction between implicit spiritual functioning and explicit spiritual functioning needs to be made before assessing for correspondence or compensation, as implicit and explicit spiritual functioning are determined by two methods of processing information: explicit knowledge and implicit relational knowledge (Hall et. al., 2009). Based upon this model, their research supported that correspondence operates at implicit levels of spiritual experience and human attachment patterns are not related to explicit spiritual functioning.

One major limitation of the use of attachment theory in understanding spirituality is that the majority of work in attachment theory and God is performed on a Christian population. Furthermore, measures are also written in this perspective. This makes it difficult to generalize the theory to other religious populations. This is especially true for religions that do not emphasize a parent/child or spouse relationship between the individual and the deity, like those described in the Biblical passages found in Judeo-Christian traditions (Beck & McDonald, 2004).

Other Theories

Closely related to attachment theory is object-relations theory. This theory examines how children form internal representations of both God and individual relationships with God (Beck, 2006; Hall & Edwards, 2005). Object-relations theory

began focusing on the God relationship in 1979 when Rizzuto used this theory as a framework in examining how individuals develop private representations of God (1979). She proposed that an individual's God representation is developed from the meshing of the representations from his or her primary objects. She also viewed this as an ongoing process with the God image changing over time. When applied to spiritual maturity, object relations examines how an individual develops and views relationships with others as a basis for how that person will develop a relationship with God (Beck, 2006; Hall, Brokaw, Edward & Pike, 1998). The Spiritual Assessment Inventory, developed by Hall and Edwards (2005) investigates many of the constructs needed to examine relational spirituality and has sound psychometric properties.

Thus, Beck's (2006) investigation on the underlying empirical connections between attachment theory, object-relations theory, and Sternberg's (1997) love triangle theory is helpful in understanding the similarities and differences of these two theories. While Sternberg's theory had never been explored as related to religion or spirituality, attachment theory is similar to Sternberg's-triangular love theory, in that this theory examines relationships and includes the components of intimacy, passion, and decision/commitment (Beck, 2006). Beck (2006) performed a factor analysis on both the Attachment to God Inventory, in conjunction with the Object-relations measurement tool Spiritual Assessment Inventory (which measures how one handles disappointment with God) and the Sternberg Triangular Love Scale, and found they assessed individuals' level of communication and complaint with God. He goes on to argue that these results indicate the three theories share common structural linkages and suggests the individual theories can use the results as a common language to discuss spirituality. While he identified these

common connections, Beck goes on to support the individual theories, as each will have their own view of the etiology of the complaint and communication.

Current Definition

For the purpose of this study, spirituality will be defined as having three main factors. These factors do not all have to be present in order to be spiritual. However, they can be. First, spirituality can be understood as having an internal connection with an external factor. This factor can be described as the divine, the scared, God, Allah, Gia, Great Spirit, Creator, higher power, etc. Relatedly, in addition to the connection to a higher power, individuals can feel a connection with other factors, such as the universe in general, communities, or aspects of the natural world.

Secondly, spirituality is defined as a person's feeling of purpose derived from engaging in meaningful activities. This meaningfulness can be attached to divine guidance/connection or, in some individuals, it may not be. It is acknowledged that some individuals do not hold personal beliefs about a higher power. As such, they may find more personal meanings for their behaviors and connections. For instance, individuals can find meaning for their lives via their vocations, raising children, or helping their community.

Thirdly, spirituality is also defined as having a feeling of peace and serenity. This could include the ability to reach an internal quiet and rest, in spite of external stressors or turmoil. Some individuals achieve this peace by having faith a higher power has a plan, while others are able to reach an internal peace due to personal acceptance and mindfulness.

Considering the growing number of Americans who do not hold strong religious beliefs, it is important to utilize non-religious language when assessing differences in spirituality across belief groups. As such, for the purpose of this study, spirituality will be explored using non-religious terminology and will explore constructs of spirituality which are present in both those who view spirituality as being connected with a higher power and those who view spirituality in more existential terms.

Biopsychosocial-Spiritual Model

Spirituality has been found to have a relationship with physical, social, and psychological constructs. As such, when examining spirituality, as it relates to a medical condition, it is best to examine it holistically (Katerndahl & Oyiriaru, 2007). Biological, psychological, and social factors were not integrated until George Engel proposed the biopsychosocial model in 1977, which contains all of these constructs. This model placed high importance on the individual's affective and other psychological states, as well as the significant interpersonal relationships that surround that person. This was in contrast to the normative view, which focused solely on the individual as a patient, who was then viewed objectively in isolation.

Almost two decades later, White, Williams, and Greenberg (1996) added to the concept when they introduced an ecological model of patient care that included attention to their environment, a public health model of primary care. While both of these models view the patient holistically, neither addressed either spirituality or existential issues. However, research lends support to including spirituality as a separate construct (Sulmasy, 2002).

To address this deficit, some researchers (Sulmasy, 2002; King 2000; McKee and Chappel 1992) have supported expanding the model's basic constructs to include spiritual issues. However, others do not feel it is appropriate to simply expand the model, but rather suggest a new dimension is needed to fully encapsulate the impact of spirituality on the physical, psychological, and social domains.

Sulmasy (2002) has suggested utilizing the Biopsychosocial-spiritual (BioPSS) model. While he first proposed it as useful for patient care at the end of their lives, it can also be applied in other contexts. This model views each dimension separately and does not view individuals isolated from their spirituality (Sulmasy, 2002). Rather, it takes a holistic approach. Sulmasy proposes that the patient does not present with only physical, psychological, and social needs; they have a spiritual history, a manner of spiritual/religious coping, a state of spiritual well-being, and concrete spiritual needs, which will impact how the patient will endure spiritually in the face of illness. He postulates the spiritual state will be affected by the biopsychosocial state of the person, and vice versa (Figure 1). These constructs combined then constitute the individual's quality of life (Sulmasy, 2002).

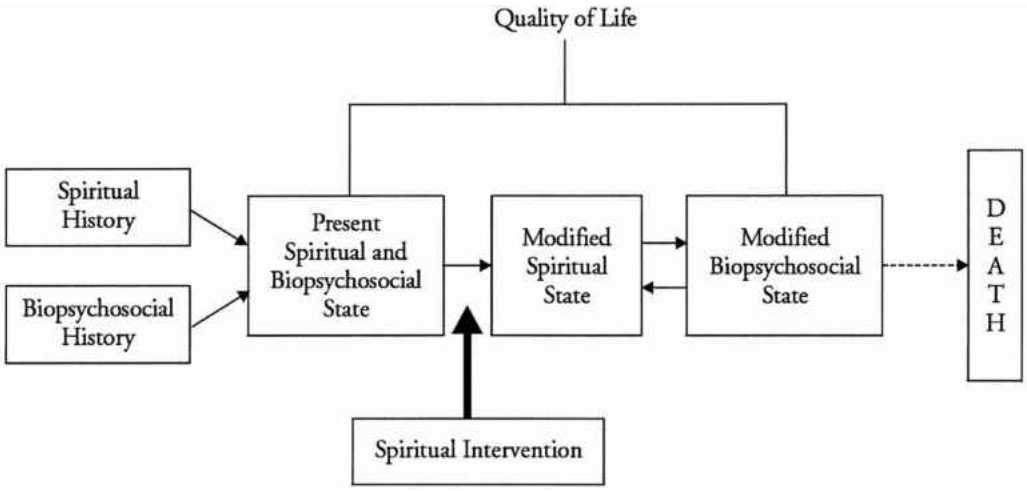

Figure 1. Sulmasy's view of the biopsychosocial-spiritual model at the end of life.

The BioPPS model is also congruent with other organizations that assess these interrelated constructs. The World Health Organization (WHO, 1995) recognized the importance of spirituality when it included it along with the physical, psychological, and social dimensions in their well-validated quality of life assessment. Furthermore, this BioPPSS Model is consistent with the European Academy of Teaching of General Practice (EURACT) definition of holism which "deals with health problems in their physical, psychological, social, cultural, and existential dimensions" (Freeman, 2005).

Spirituality has been associated with each of the individual domains of the biopsychosocial model and has been found to inter act independently when controlling for demographic variables, such as age, race gender, and social economic status (Katerndahl & Oyiriaru, 2007). The following is a brief review of these interactions between each domain:

Psychological .

Spirituality has been associated with the psychological domain and is related to lower rates of depression, anxiety, and addictive disorders (see Larson, Swyers, &

McCullough, 1997; McCullough, Hoyt, Larson, Koenig, & Thoresen, 2000, for reviews). It is also associated with higher levels of optimism and positive self-esteem. In addition, individuals who endorse spirituality often present with greater resilience from disappointment or tragedy. A considerable number of studies indicate a positive relationship between religious beliefs and psychological outcomes (Strelan, Acton, & Patrick, 2009). For example, religious people are more likely to report higher levels of self-esteem, life satisfaction, hopefulness (Ayele, Mulligan, Gheorghiu, & Reyes-Ortiz, 1999), and physical health (George, Ellison, & Larson, 2002) and are less likely to experience periods of psychological distress (Larson et al., 1992).

Depression is often negatively related to spirituality in health research. In a sample of 162 terminally ill cancer and AIDS patients, Nelson, Rosenfeld, Breitbart, and Galietta (2002) found a negative relationship ($r=-0.40$) between spiritual well-being and depression. This relationship remained significant ($\beta=-0.30$) in a multivariate model after controlling for religiosity, number of physical symptoms, social support, and physical functioning. In a subsequent analysis, after replacing total spiritual well-being scores with the two subscales measuring meaning/peace and faith in the multivariate model, found that the meaning/peace subscale ($\beta=-0.34$), as opposed to the faith subscale, accounted for the association between spirituality and depression. McClain, Rosenfeld, Breitbart (2003) also found a similar negative relationship between spiritual well-being and depression.

A more recent study of over 300 hundred men diagnosed with prostate cancer found a small relationship between intrinsic religiosity and depression ($r=-0.23$, $p<0.05$) but a strong association between spirituality and depression ($r=-0.58$, $p< 0.01$) (Nelson, Jacobson, Weinberger, Bhaskaran, Rosenfeld, Breitbart, & Roth, 2009). After using a

mediation model, the meaning/peace subscale of the spirituality measure mediated the relationship between intrinsic religiosity and depression. This model controlled for age, marital status, stage of disease, time since diagnosis, hormone therapy, quality of life, and anxiety. As such, among men with prostate cancer, spirituality, specifically meaning/peace, was the salient variable that accounted for the relationship between religiosity and depression.

Social.

Several various forms of social support have been explored in the literature. However, five common types of social support are more prominent: informational, emotional, tangible, esteem, and social network support (Mo & Coulson, 2008). In this modern cyber age, many people are also turning to cyber support groups to receive support. Mo and Coulson (2008) found many of the messages offered informational and emotional support, followed by esteem support and network support, with tangible assistance the least frequently offered.

Social relationships have been found to be important for long term health and general well-being. Sherbourne et al. (1992) demonstrated older individuals living within communities with higher levels of social support are more likely to enjoy better health status. Importantly, the effects of lower levels of social support were more pronounced for older adults (Ashida & Heaney, 2008). Further, older adults with strong social ties are able to maintain independence longer than those who are socially isolated (Ashida & Heaney, 2008). The increase in health outcomes may be related to better disease management. Rosland, Kieffer, Israel, Cofield, Palmisano, Sinco, and Heisler, (2008) found family

support and professional support as important factors in increasing self-management behaviors.

Because of the strong impact of social support on health, many have theorized those who are spiritual are more likely to be active members of religious organizations. Beal (2004) found, when exploring social support with spirituality, individuals endorsing higher spirituality tended to have a broader expansion of social connections and maintained a strong sense of meaning, purpose, and altruism toward others. Because of this, social support may be more responsible for differences in health status than spirituality (Koening, Cohen, George, Hays, Larson, Blazer, 1997).

It can be difficult to discern the effects of spirituality and social support on health because both are difficult to study due to the subjective nature of the constructs. However, factor analysis of several questionnaires has demonstrated they are independent domains, both related to health issues (Wils, 2009). Analysis of the BioPPSI (Sulmsay, 2002) the World Health Organization Quality of Life Questionnaire (WHOQoL-100) (WHO, 1995), Functional Assessment of Chronic Illness Therapy--Spiritual Well-Being (FACIT-Sp) (Whitford, Olver, & Peterson, 2008), and the Personal Well-Being Index (Wils, 2009) all identified the independence of the two domains. These measures have been used in other populations, and specifically for the WHOQoL-100, consistently demonstrate a set structure, thus supporting the independence and importance of each domain.

When examining both the social and spiritual domains together, both have been found to have an effect on overall health (Paranjape & Kaslow, 2010). In a study examining over 200 African American women, higher levels of spirituality and social support were both significantly correlated with better mental health status in a multivariate

model (F¼13.45, p<0.0001) that controlled for lifetime FV levels and demographic factors. Furthermore, spiritual well-being has proven to be a significant, unique contributor to QOL beyond the core domains of physical, social/family, and emotional well-being (Shah, Kulhara, Grover, Kumar, Malhotra, & Tyagi, 2011; Whitford, Olver, & Peterson, 2008). Thus, both spirituality and social support have been linked to better physical and mental health outcomes and may positively influence the health status.

Biological .

Many studies have attempted to make a link between spirituality and biological processes. When attempting to understand how the brain processes spiritual experiences Ramachandran and Blakeslee (1998) demonstrated the electrical activity in the temporal lobes increases to a level comparable to that experienced during epileptic seizures when individuals are exposed to evocatively religious or spiritual words or ideas. They called the activated area the "God Spot" or the "God Module." When people experience seizures, or when normal subjects have areas of their temporal lobes stimulated with magnetic activity, they have reported experiencing mystical-type states of consciousness (Fontana, 2003). This can include a feeling of oneness with the Divine, moments of intense rapture, or other worldly experiences.

In addition to understanding how spirituality may interact with the nervous system, researchers have attempted to identify how it is related to the immune response. In a study of 1,700 older adults, Koenig, Cohen, George, Hays, Larson, and Blazer (1997) attempted to understand how spirituality is related to health and recovery. They proposed an immune-related mechanism that might mediate the stress response when they found a weak relationship between religious attendance and high levels of IL-6, an interleukin

associated with stress and disease. This relationship could not be explained by other covariates, depression, or negative life events, supporting the hypothesis that older adults who frequently attend religious services have healthier immune systems. While they did not fully identify the mechanism of effect, the researchers postulated that those engaged in religious commitment and spiritual practices may improve stress control by establishing better coping mechanisms, richer social support, and strengthening of personal values and worldviews. Individuals who practice spiritual and religious behaviors, such as prayer, or attend social gatherings can use these rituals to reduce stress (Koening et al., 2001).

Other studies have explored relaxation responses, which relates to the stress response and may counter act the effects of stress. The relationship between the relaxation response and stress has been studied in a number of physical and mental health conditions, such as chronic pain, cardiac arrhythmia, hypertension, insomnia, depression, and anxiety (Puchalski, 2006). Results found it to be beneficial by engaging the parasympathetic nervous system.

Spirituality and the immune system function have been implicated in other diseases as well. In women with metastatic breast cancer, when controlling for disease status, treatment variables and demographics, those who reported greater spirituality had higher numbers of circulating helper and cytotoxic T cells (Sephton et al., 2001). Additionally, a study of HIV-positive gay men found their CD4 cell count and percentages were higher in the participants who engaged in more religious behavior, such as church attendance, prayer, and spiritual discussion. This relationship was independent of depression.

Spirituality and Health

The research published on religious and spiritual issues in connection with health and medicine has expanded greatly since 1990 (Blanch, 2007). Little work was focused on these religious and spiritual variables until Larson (1993) and Levin (1994) published systematic reviews, which highlighted the benefits of religious and spiritual variables (Haber, Jacob & Spangler, 2007). Since then, the medical communities have been focusing an increasing number of studies on the relationship between religion and health with results supporting the positive relationship (Haber, Jacob & Spangler, 2007).

The influx of articles published after 1990, which number up to 1,500 research studies, is equal to the total of all other articles published before 1990 (Blanch, 2007). This has led to a number of organizations incorporating spirituality as an important aspect of health and patient care. Some of these organizations are the World Health Organization (WHO), Accreditation of Healthcare Organizations (JCAHO), and the American College of Physicians, and Association of American Medical Colleges (Felgoise, Becker, & Jebitsch, 2010).

Religious and spiritual influence on physical disease processes have been increasingly studied regarding heart disease, hypertension, cerebrovascular disease in the brain, immune system functioning, cancer, disability, chronic pain, and mortality (see Haber, Jacob & Spangler, 2007 for review). They have identified negative correlations between spirituality and mortality, heart disease, stroke, cholesterol levels, depression (Nelson, Jacobson, Weinberger, Bhaskaran, Rosenfeld, Breitbart, & Roth, 2009), suicide, substance abuse, and risky sexual behaviors (Seybold, 2007; Koenig et al. 2001; Larson & Larson 2003). Inversely, spirituality and religion have been identified as strong positive correlates with longevity and positive health habits (Seybold, 2007; Koenig et al. 2001;

Larson & Larson 2003; O'Neill & Denny, 1998). In addition, in a study of cancer patients, spirituality was found to be associated equivalently as physical well-being (Bradly, Peterman, Fitchett, Mo, & Cella, 2000).

Effects of Illness.

It is important to understand how a person's spiritual needs change over time and this can look different depending on the demands of various illnesses. Times of lower spiritual well-being has been identified at various points in the illness trajectory and this trajectory can look differently in various diseases. In 2007, Murray Kendall Grant, Boyd, Barclay, and Sheikh found cancer patients generally reported lower spiritual wellbeing when they are diagnosed and when the disease progressed whereas cardiac patients reported a more gradual decline that was associated with a loss of identity and increasing dependence on others.

Severity of a person's illness or disease activity can also have a negative relationship with spiritual well-being. When examining the need for palliative care, a 2009 article identified that patients with symptomatic heart failure and advanced cancer had a similar burden of symptoms, depression, and low spiritual well-being (Bekelman, Rumsfeld, Havranek, Yamashita, Hutt, Gottlieb & et al., 2009). However, they found those heart failure patients with worse heart failure-specific health status had more symptoms, more depression, and lower spiritual well-being compared to advanced cancer patients. These differences between the conditions support the need to understand how spirituality is related to various illnesses.

Coping.

One reason for examining the relationship between spirituality and health is because it is believed spirituality has a mediating effect on life stressors (Puchalski, 2006; O'Neill & Denny, 1998) and is associated with several positive coping mechanisms in persons with chronic illness (Harvey & Cook, 2010). Drawing from forty studies, Johnson, Elbert-Avila, and Tulsky (2005) reviewed available literature drawn from Medline 1966 to February, 2003 on the spiritual beliefs of African Americans and how they influence their treatment preferences. They identified the following themes: spiritual beliefs and practices were considered a source of comfort, support, coping and seen as the most effective way to influence healing.

When studying the chronically ill, spiritual focus and spiritual well-being have been found to increase with age and the progression of chronic illness (O'Neill & Denny, 1998). Other studies have also verified the relationship between an increased ability to cope with loneliness, stress and illness and decreased anxiety and depression with aspects of spirituality (Larson & Larson 2003; O'Neill & Denny, 1998). For example, ninety-three percent of patients with gynecologic cancers said their spiritual beliefs helped them cope with their cancer (Roberts, Brown, Elkins, & Larson, 1997).

In addition, rheumatoid arthritis patients reported spiritual coping helped in their pain management (Keefe, Affleck, Lefebvre, et al., 2001). Various coping strategies have been identified to help overcome the physical limitations of their illness. The specific coping strategies included relating with healthcare providers, medicating, exercising, changing dietary patterns, seeking information, relying on spirituality and/or religion, and engaging in life (Loeb, Penrod, Falkenstern, Gueldner, & Poon, 2000).

Focusing on patients' spiritual needs can also help patients cope with hospitalizations. A 2003 systematic review of the literature conducted by Clark, Drain, and Malone examined the importance of inpatients' emotional and spiritual needs, hospital effectiveness in addressing those needs, and the strategies for improvement. They found a strong correlation between the degree to which staff addressed the patients' emotional and spiritual needs and overall satisfaction in relation to the staff's response to concerns/complaints, the staff's efforts to include patients in decisions about treatment, and staff's sensitivity to the inconvenience that health problems and hospitalization can cause.

Other coping behaviors associated with increased spirituality are prayer and meditation, both of which have been found to have an effect on biological issues or processes. Prayer has been reported to be a central activity in helping individuals with varying forms of chronic illness cope with their physical conditions (Harvey & Cook, 2010). A recent study on individuals with various chronic health conditions found individuals would pray throughout the day and in various locations (Harvey & Cook, 2010). Prayer has been viewed by African-Americans and non- Hispanic Whites as a major component of their self-management of chronic disease (Loeb, 2006). A study on Type-II Diabetes patients also found that God played a central, supportive role in the management of chronic illness among Black women (Samuel-Hodge et al., 2003).

An extensive study (n=9,187) exploring the interaction of religious and spiritual practices to perceived health status in patients with cancer and other chronic illness found 46% identified as religious or spiritual and that 45% of them used self-directed prayer (Ambes, Miller, Smith, Goldstein, Hsiao, & Ballard-Barbash, 2007). The use of prayer

increased as perceived health status decreased, indicating prayer may have been used as a coping strategy to alleviate suffering.

Another study, utilizing a population-based case-control for those reporting praying and practicing yoga regularly among an Indian population, found that men had a reduction in coronary heart disease cases, but not women (Gupta et al., 1997). Furthermore, a study with an Italian population found a relationship between powerful and synchronous increases in existing cardiovascular rhythms and baroreflex sensitivity with rosary prayer and yoga mantras (Bernardi et al., 2001). As prayer and recitation of mantras have a quieting effect that is likely to trigger parasympathetic relaxation, a biologically plausible mechanism for such an association exists (Seybold, 2007).

Health Outcomes.

Spiritual factors have been shown to be related to various outcome measures. A meta-analysis of 69 studies (28 articles) of healthy individuals and with 22 studies (11 articles) of individuals diagnosed with an illness attempted to understand the association between religiosity/spirituality and mortality (Chida, Steptoe, & Powell, 2009). Results of the meta-analyses indicated that religiosity/spirituality was associated with reduced mortality in healthy population studies (combined hazard ratio = 0.82, 95% CI = 0.76–0.87, p = 0.001). However, this effect was not found in those diagnosed with an illness (combined hazard ratio = 0.98, 95% CI = 0.94–1.01, p = 0.19).

Of important notice, relationship with religiosity/spirituality in the initially healthy population studies was independent of behavioral factors (smoking, drinking, exercising, and socioeconomic status), negative affect, and social support (Chida, Steptoe, & Powell, 2009). Within the healthy population, they found that organizational activity (e.g. church

attendance) was associated with greater survival and religiosity/spirituality was negatively associated with cardiovascular mortality.

When examining surgical outcomes, a study investigating the psycho- social-spiritual factors in recovery from 232 patients undergoing elective heart surgery found patients were less likely to die in the six months following surgery if they found strength and comfort in their spiritual/religious faith and were also socially involved in some type of organized social activity (Oxman, Freeman, & Manheimer, 1995).

Another study followed elderly women undergoing surgery for hip fractures (Pressman, Lyons, Larson, & Strain, 1990). Results indicated, after controlling for severity of the fractures, the patients who reported having God being a strong source of strength and comfort, and who frequently attended religious services, had the best surgical outcomes. They also tended to be less depressed and tended to walk farther when discharged from the hospital than other patients. The researchers hypothesized that the participant's spiritual resources helped lower risk of depressive symptoms, which enhanced recovery from the surgery.

Despite these positive relationships, some providers are anxious about broaching spiritual issues with patients. However, many patients report having spiritual needs and would like their providers to inquire or refer them to resources. For example, in one study, oncologists, when asked to rate clinical concerns they were responsible for addressing, rated spiritual distress low compared with 17 other clinical concerns (Kristeller, Zumbrun, & Schilling 1999). In fact, in one survey, even 45% of nonreligious patients thought that physicians should inquire politely about patients' spiritual needs (Moadel et al. 1999). Furthermore, a study of cancer patients (Moadel, Morgan, Fatone, Grennan, Carter,

Laruffa, Skummy & Dutcher, 1999) explored the nature, prevalence, and correlates of spiritual/existential needs among an ethnically-diverse and urban sample (n=248). They found patients wanted help with overcoming fears (51%), finding hope (42%), finding meaning in life (40%), and finding spiritual resources (39%). They also reported wanting to find someone to talk about finding peace of mind (43%), the meaning of life (28%), and dying and death (25%).

Negative Effects of Spirituality on Health.

While spirituality can be a positive influence on health, there can be times when a person can experience a spiritual crisis or dilemma which can then negatively affect one's functioning (Underwood & Teresi, 2002) and this can result in spiritual distress. For example, a person can experience anger with a divine entity, holding it responsible for the negative events of the world (Strelan, Acton, & Patrick, 2009). This can lead to distress and dissidence, believing God should have intervened. In addition to those with religious beliefs, agnostics and atheists have also been found to blame God for negative life or world events (Strelan, Acton, & Patrick, 2009). These negative feelings can then result in a lack of forgiveness for the divine (Worthington, 2001). This can result in possible decreased psychological and physical well-being, including reduced hope and self-esteem and increased anger, bitterness, depression, dysfunction, distress, physiological stress, and coronary heart disease (Strelan & Covic, 2006; Strelan, Acton, & Patrick, 2009).

When exploring how disappointment with God interacts with depression in a religious sample, Strelan et. al., (2009) found disappointment with God was positively related to stress and depression and was negatively related to spiritual well-being, dispositional forgiveness, spiritual maturity, and relationship commitment.

Religious conversions or changes in a person's level of faith can also cause distress to an individual (Strelan, et al., 2009). These changes may take the form of the new beliefs affecting social interactions with peers and family members in various ways as the individual may abstain from drugs or alcohol, begin attending religious services or increase attendance, etc. It can also affect a person's vocational pursuits, if the newfound values are in contrast with the current job requirements. In addition, the practices of daily living may cause stress in adapting to the new routines.

Age can also play a role in how susceptible an individual is to spiritual distress with those younger being more susceptible to the distress. A recent analysis of an acute palliative care population found 44% of the patients reported spiritual distress and this distress was more common in younger patients (Hui, de la Cruz, Thorney, Parsons, Delgado-Guay, & Bruera, 2010).

Spirituality in Chronic Illness.

Spirituality is commonly studied in serious, life threatening diseases. However, less is known about how patients with chronic illness view spirituality and how it interacts with disease outcomes. Chronic illness brings with it numerous stressors and obstacles and can cause interference in a person's work, family, and daily living activities (Harvey & Cook, 2010; Larson & Larson 2003). It has also been associated with diminished physical health and psychological wellbeing. Prior to even receiving a diagnosis, a person can have spent years suffering with symptoms resulting in distress. Once diagnosed, the fear from having a chronic illness can also be quite intense, the treatment may interfere with daily activities, and a person may question their future (Larson & Larson 2003). Furthermore,

those with chronic illness generally view death as being more salient than those in the healthy population.

The illness itself can result in a spiritual crisis as a person can question God's reason for letting them get the illness and feel distress when God does not release them from their suffering (Strelan, Acton, & Patrick, 2009). A person may also feel angry with God for making them endure the disease when others do not. Even when accepting the illness has a purpose, a person may wonder why God saw fit for them to learn the lesson through the illness.

During the onset of chronic illness, a person's religious, spiritual and cultural beliefs may be particularly important (Harvey & Cook, 2010). In fact, being diagnosed with a chronic illness may bring a person closer to God. This is not surprising as some view life's struggles as ways to grow closer to the divine and self-reported levels of spirituality tends to increase with severity of illness (Bekelman et al., 2009). Reed (1987) found hospitalized terminally ill adults indicated a greater spirituality than both hospitalized non-terminally ill as well as healthy adults did. Furthermore, after receiving a life threatening diagnosis, individuals tend to become more spiritual. Forty-nine percent of women diagnosed with gynecological cancers endorsed becoming more spiritual after their diagnosis (Roberts, Brown, Elkins, & Larson, 1997).

Mediating Variables.

The role of spirituality in a person's life may be mediated by other variables (Seybold, 2007). Considering many of these variables have been found to have a mediating effect on health, it is important to control and examine any interaction effects they may contribute to health outcomes (Seybold, 2007; Kiecolt-Glaser et al. 2002;

Uchino 2006). These variables can confound results, making spirituality appear to have more or less of an effect than it truly does. For example, while spirituality has been found to have a relationship with well-being, social connectedness, and better health outcomes, many highly spiritual individuals also are also engaged in religious participation which can provide social support (Seybold, 2007; O'Neill & Denny, 1998). This social support may help alleviate the stress of a chronic illness.

In addition to receiving social support, through regular church/service attendance individuals may gain a sense of self-worth and purpose though the act of helping when engaging in meaningful social roles (Powell et al., 2007). Several studies have demonstrated the positive effect of having a purpose on longevity. The work of Langer and Rodin (1976) established that nursing home residents who were given work responsibilities lived longer than those who held roles that were more passive. Research that is more recent has identified helping others as a mediating factor for depression as it increases feelings of personal control (Krause, Herzog, & Baker, 1992). For example, upon examining volunteerism and other activities focused on being helpful to others, which are common among congregation members, these behaviors have been identified to be associated with mortality rates (Musick, Herzog, & House, 1999; Oman, Thoresen, & McMahon, 1999).

Another factor which may account for significant results is the tendency for religious persons to engage in healthy behaviors due to the requirements of their religion. One possible explanation for this relationship is that the tenants of some religions encourage members to abstain from unhealthy behaviors, such as alcohol or tobacco use and encourage healthy behaviors, such as caring for and respecting the body by exercising

regularly and eating a nutritious diet. (George, Ellison, and Larson, 2009; Larson and Larson, 2003; McCullough, Larson, & Hoyt, 2000).) These healthy behaviors could then presumably lead to a healthier and longer life.

For example, Koenig et al. (2001) described how Seventh-Day Adventists and Mormons tend to have lower blood pressure when compared with other populations. This may be due to the healthy lifestyle practices that are related to these faith traditions as they support vegetarianism, and abstinence from smoking and alcohol. Mormons and Seventh-day Adventists also tend to have lower cancer rates at one-half to two-thirds less than the general population (Koening et al., 2001).

Finally, some have postulated the relationship between spirituality and health is more due to individuals that are spiritual naturally having more of an optimistic view of life in general, thus leading them to adapt better to any adverse threats to their health (Daaleman, Perera, & Studenski, 2004).

Systemic Lupus Erythematosus

As SLE is a chronic illness, the patients often experience additional stressors and needs (Kozora et al., 2009; Moses, Wiggers et al., 2007). In the beginning, adapting to a chronic illness can be difficult, especially as many patients with SLE are women who are in the prime of their lives (Larsen, Pamela & Lubkin, 2009). For these previously healthy women, it may be difficult to come to terms with their diagnosis, especially considering it is one of a chronic and incurable disease. In addition, those with SLE generally still have responsibilities; such as families, careers, and community obligations that can be harder to balance given the additional strain of an illness. Even for those patients who are not experiencing severe symptoms, such as organ damage, several symptoms of SLE, such as

chronic fatigue or muscle ache can be debilitating to daily functioning (Lahita, 2004). Furthermore, the cost of treatments can be overwhelming and it is possible for this financial burden to be amplified if the disease leads to a loss of employment (Larsen, Pamela & Lubkin, 2009). Finally, the stress of an illness can have an effect on the entire family unit, leading to more discord in the patient's life.

History of SLE.

While many aspects of the disease are unknown, SLE has been studied since the first observations of Lupus. It was recorded by Hippocrates as cutaneous ulcerations (Mallavarapu & Grimsley, 2007). He named it herpes esthiomenos, which means, gnawing dermatosis. The first linkage of the term lupus with these lesions occurred in the Middle Ages, when the people of that period considered any type of ulcerations or necrosis of the lower limbs or face to be reminiscent of werewolves (Mallavarapu & Grimsley, 2007). In 1872, Moriz Kaposi first recorded the systemic signs of the disease (Mallavarapu & Grimsley, 2007). These symptoms included weight loss, fever, anemia, lymphadenopathy, and arthritis.

The discovery of the LE cell in 1948 by hematologist Malcolm Hargraves was a breakthrough in developing the foundation in the understanding of the underlying processes of the disease (Mallavarapu & Grimsley, 2007; Amital & Shoenfeld, 2004). His work was furthered by Miescher, Fauconnet, and Friou when they observed the formation of clumps of polymorphonuclear leukocytes around amorphous masses of nuclear material when serum from patients with SLE was added to bone marrow preparations from normal subjects (Amital & Shoenfeld, 2004). This was called the LE cell phenomenon.

With this information, the researchers were able to understand the process of how the immune system loses its ability to tell the difference between its own cells and tissues and that of unwelcome foreign bodies, or antigens (Graham & Utz, 2005). The immune system will then mistakenly make antibodies directed against itself and these "autoantibodies" react with the self-antigens to form "immune complexes." These complexes then build up in tissues and can cause inflammation, injury to tissues, and pain.

The course of lupus appears to depend heavily upon the activity of autoimmune "lymphocytes," including B cells that produce autoantibodies, and T Cells, which regulate the B cells in the development of the immune response (Graham & Utz, 2005). This is now understood as the autoimmune pathologic process underlying lupus erythematosus. Arnett and Schulman (1976) added further to the research by discovering the tendency for lupus to run in families and concordance in monozygotic twins.

Finally, Edmund L. Dubois pushed SLE into the limelight. He advocated that, because of the lack of a classic pattern to the disease, there was a need for the diagnosis to be comprehensive and based on an overall view of the entire clinical picture (Mallavarapu & Grimsley, 2007). This has allowed more patients to be diagnosed, increasing the incidence of the disease throughout the past sixty years (Danchenko, Satia, & Anthony, 2006). Today it is understood and accepted that SLE is a complex disease with variable manifestations.

Epidemiological factors.

Epidemiological studies have discerned gender, racial, age, temporal, and regional variations, signifying hormonal, genetic, and/or environmental disease triggers related to SLE (Danchenko, Satia, & Anthony, 2006). The overall prevalence of lupus in the United

States is estimated at 0 to 1%, but in some segments of the population, such as African American and Hispanic females, prevalence may be two to five times greater (Chakravarty, Bush, Manzi, Clarke, & Ward, 2007; Danchenko et al., 2006; Ramsey & Manzi, 2000).

The largest and least disputed observation about the disease is that it affects females disproportionally more than males, with 80-90% of the cases being female (Danchenko et al., 2006; Lahita, 2004; Siegel, 1973). These prevalence rates change with age (Wallace, 2005), with patients ranging from two to 80 years old (Wallace, 2005; Lahita, 2004). The incidence of SLE is usually highest at 15-44 years olds (Danchenko et al., 2006). Before puberty, one boy is diagnosed with lupus for about every three girls. From puberty to the age of 50, one teenage boy or man is diagnosed with lupus for about every 10 teenage girls or women of the same age. One man over the age of 50 is diagnosed with lupus for about every eight females who are over 50.

One theory for this disparity between gender and age has been attributed the effect of estrogens (Ramsey & Manzi, 2000). This would account for the elevated immune reactivity for those who are producing higher amounts of estrogen, thus triggering SLE. The variations in the incidence may be caused by changes in the serum estrogen levels due to varying physiological, therapeutic, and pathological conditions (Danchenko et al., 2006; Cutolo, Sulli, Capellino et al, 2004). Some such conditions can be, but are not limited to, the menstrual cycle, chronic stress, inflammatory cytokines, and use of corticosteroids, oral contraceptives, and steroid hormonal replacement used during these years.

Genetics may also play a role in SLE. The familial occurrence of systemic lupus was first noted by Leonhardt in 1954 and later studies by Arnett and Shulman at Johns

Hopkins (Arnett & Shulman, 1979). Subsequently, familial aggregation of lupus, the concordance of lupus in monozygotic twin pairs, and the association of genetic markers with lupus have been described over the past twenty years (Hochberg, 1987).This tendency is also supported by the different prevalence rates across races in which the disease has been observed to be unevenly dispersed across racial boundaries (Danchenko et al., 2006). Several research studies have observed a higher rate of the disease among non-white groups, with SLE occurring up to three to four times higher in African-American women than White women (Ramsey & Manzi, 2000).

While genetics may play a role, the effect of environmental factors on the minority groups cannot be ignored (Danchenko et al., 2006). Triggers such as infections and ultraviolet light may influence the prevalence of the disease in non-white populations. Supporting evidence have shown regional differences, with a higher prevalence in equatorial regions and less so in more northern or southern regions (Mallavarapu & Grimsley, 2007). This may be due to higher amounts of UV radiation inducing skin cell death. As these cells die, they release cellular components, such as DNA, histones, and other intracellular antigens, that may drive the autoimmune response (Mallavarapu & Grimsley, 2007).

Several other studies have identified the possibility of major bacterial infection in certain regions of Australia to be involved in SLE development in local Aboriginal populations (Mallavarapu & Grimsley, 2007; Grennan & Bossingham, 1995; Segasothy & Phillips, 2001). These infectious agents may instigate SLE onset by disrupting immunoregulation and by causing damage to tissue, both of which may lead to the release of antigens (Mallavarapu & Grimsley, 2007, Ramsey & Manzi, 2000). In essence, the

viruses knock the immune system disharmonious with itself, disrupting the delicate balance of how the immune system identifies foreign invaders verses its own body. Once this occurs, the system begins to attack native objects of the body, causing antigens to be released.

Biological.

Physically, the effect of SLE can be demanding on the patient, as SLE is capable of affecting all organ systems (Lahita, 2004). The onset may be acute or gradual, with many of the symptoms mimicking other illnesses. Fatigue is the most commonly reported symptom and can be very debilitating (Lahita, 2004). However, it is often overlooked by the medical community and may be the only symptom remaining after an acute flare of the disease (Lahita, 2004).

More than 90 percent of people with SLE will experience joint and/or muscle pain at some time during the course of their illness (Lahita, 2004). In addition, the pain and fatigue caused by the disease can result in inactivity, further increasing the risk for osteoporosis (Lahita, 2004). It is estimated that as many as 25% of pre-menopausal women with SLE may have osteopenia, or low bone mineral density, an early sign of osteoporosis. Making matters worse, the use of corticosteroid medication often prescribed to treat SLE can trigger significant bone loss.

It is estimated that as many as 40% of all people with SLE, and as many as two-thirds of all children with lupus, will develop kidney complications that require medical evaluation and treatment (Lahita, 2004). Some of these interventions, such as hemodialysis, can be time consuming and have major impacts to a patient's quality of life.

Eye disease occurs in approximately 20 percent of patients with SLE (Lahita, 2004). In some cases, eye problems are related to the inflammatory process of lupus itself (Lahita, 2004). In other cases, problems may be due to drug treatment (corticosteroids or antimalarial) or may be a separate problem (glaucoma or retinal detachment). It can affect the epidermal tissue as well; with approximately two-thirds of people with lupus developing some type of skin disease or cutaneous lupus. In addition, approximately 95% of lupus patients suffer from some form of oral involvement.

SLE can even affect the production of blood cells; with those most often affected by the disease are the red blood cells, white blood cells and platelets (Lahita, 2004). Those with lupus may also experience anemia (low red cell count), Thrombocytopenia (low platelet count), Leukopenia, Neutropenia, or blood clots. In addition, the cardiovascular system can be impaired with patients being diagnosed with pericarditis, myocarditis, or vasculitis, an inflammation of the blood vessels that can be exasperated by lupus.

Like other organ systems, SLE can affect the central nervous system (CNS), causing a wide range of neurological manifestations (Lahita, 2004; Nery, Borba, Viana, Hatch, Sares, Bonfá, & Neto, 2008). Neuropsychiatric sequellae can be as high as 66% in this population (Lahita, 2004). These include seizures, strokes, polyneuropathies, and psychiatric manifestations such as acute organic syndrome, psychosis, mood, and anxiety disorders. The most commonly observed psychiatric syndromes seen in SLE patients are the mood disorders, occurring in 14 to 51% of all SLE patients (Nery et. al., 2008). Major depressive disorder is the most common sub diagnosis with 8 to 39.6% receiving this diagnosis.

To make matters worse SLE can occur in combinations with other connective tissue or autoimmune diseases (Lahita, 2004). When this occurs it is often called overlapping disease. For example, it is not uncommon for those with lupus to also have another chronic autoimmune disorder called Sjogren's Syndrome. Sjogren's syndrome causes the glands that produce tears and saliva to not function correctly.

Because of the disease's perplexing nature, patients often live with the symptoms many years before diagnosis. One study showed the average time between the first symptoms and diagnosis was 5 years (Lahita, 2004). Furthermore, before the diagnosis has been made, many patients are misdiagnosed with various other diseases such as Fibromyalgia, Rheumatoid Arthritis, or a psychiatric disorder (Lahita, 2004). This can lead to patients feeling frustrated and even distrustful of the medical community.

Psychological.

Once diagnosed, the patients have an additional burden of coming to terms with their diagnosis and in learning to cope with an incurable disease. As the disease progresses, the long term affects, such as kidney or heart failure, can be devastating. Furthermore, the treatment involves long-term compliance to a variety of medical regimens requiring complex lifestyle changes (Baker & Wiginton, 1997).

Because of these experiences, lupus patients have been found to have more negative life stress events in their lives when compared to a healthy population (Kozora et al., 2009). These major stressful life events contribute to decreased physical function as well as to psychological distress (Kozora et al., 2009; Schubert, Lampe, Geser, Noisternig, Fuchs, Ko, Chamson, & Schu¨ßler, 2003). Some of this distress can take the form of feeling frustration with the medical community for not having answers, experiencing

limited social interactions due to physical limitations, stress within the family, and having feelings of low self-worth due to inabilities to function at work or home.

While dealing with these new burdens, it can be difficult for some patients or their families to understand or communicate the full impact the disease has on them. Qualitative studies have revealed that patients with SLE tend to report withholding the full range of their needs from health care providers (Danoff-Burg, & Friedberg, 2009). In addition, those affected may not have the knowledge on what questions to ask providers or even know what services are available. Furthermore, many providers of services do not know what the current needs of the client are and, because of this, they are unable to address them.

As such, it is important for patients, families, caregivers, and providers to have an understanding of the full impact of the disease and the current needs of the client. By doing so, providers will benefit by being able to focus treatments and in making appropriate referrals, and the patients will be empowered by understanding the full effect of their disease and will have more effective treatments (Drukker, Dillen, Bak, Mengelers, Os, & Delespaul, 2007).

Intersection of Spirituality and SLE

Despite the growing evidence of the relationship between spirituality and health, there is little understanding of how spirituality is related to SLE. One of the few studies to have examined this link was conducted in Brazil. It compared the quality of life between individuals with a diagnosis of SLE and a healthy population and found statistical differences in every domain as measured by the WHOQOL-100 (dos Reis & da Costa, 2010). Participants endorsed spirituality as their highest domain with higher scores on

questions correlated with personal beliefs, sense of meaning in life, strength to face difficulties, and understanding life difficulties. The researchers concluded the participants utilized their beliefs as a way to cope with their diseases. However, they did not find a relationship between spirituality and disease activity (dos Reis & da Costa, 2010). More studies need to be performed to better understand if, or how disease activity is related to SLE and quality of life.

Researchers have also identified spirituality as an unmet need in two studies. When exploring unmet needs in SLE patients, an Australian study found 20 percent reported a need for help with clarifying spiritual beliefs (Moses, Wiggers, Nicholas, & Cockburn, 2004). In an American sample Danoff-Burg and Friedberg (2009) also found 39% of participants reporting having some need in finding meaning in having SLE and 25% reported having a high need in this existential area.

Thus, SLE patients are reporting a need to have their spiritual need met. Considering the relationship between coping and health, it is vitally important to understand how spirituality interacts with SLE.

Measurement of Variables

Because spirituality is a multidimensional construct, many measures have been developed to measure various aspects of it. The growth in measurement tools has been explosive, with Hill and Hood (1999) reviewing 125 measures. Since then, many more assessment tools have been developed, with many replicating previously determined measures (Hill, 2005).

Measurement tools are often best when supported by an underlying theory (Hill, 2005). However, several assessments have been developed without this foundation (Hill,

2005). Luckily, several measures have been completed which are derived from the psychology of coping (Pargament, 1997; Paragament, Koening, & Perex, 2004), attachment theory (Kirkpatric, 1999), developmental psychology (Fowler, 1981), motivation theory (Emmons, 1999), personality theory (Paloutzian, Richardson, & Rambo, 1999), and the study of both emotion (Hill, 1995, 2002) and cognition (McIntosh, 1995). Depending on the research question, some measures are more appropriate than others.

Another valid critique of assessments of spirituality is that the measures tend to over-represent White, middleclass, males from Protestant traditions (Hill, 2005). This leads to minority groups with their unique spiritual identity and needs not being identified in the literature (Lewis, 2008). Because of this, it is best to use assessments with an attempt to include all groups during the initial validation process, or that have been used extensively, since their development, in diverse populations.

Spiritual Well-Being.

When examining the relationship of spirituality to any new population, it is best to use a general or multifaceted measurement tool to get a full understanding of the interaction between spirituality and the new population. However, there are few well-validated assessments that meet this requirement. In 1994, the Fetzer Institute, in connection with the National Institutes of health (NIH), began an ambitious project when they gathered a group of researchers and developed a multi-dimensional approach to measuring spirituality and religiousness. Utilizing items from various measures of religion and spirituality, they identified meaning and purpose in life, forgiveness, religious coping, and daily spiritual experience as domains (Fetzer Institute/National Institute on Aging

Working Group, 1999). These domains were chosen because prior research and debate has substantiated the conceptual, theoretical, or empirical connection to health outcomes.

However, while many of the initial questions were included in the 1997-1998 General Social Survey and demonstrated adequate correlations, the developers never completed a formal factor analysis (Johnstone, Yoon, Franklin, Schopp, & Hinkebein, 2009). Several attempts have since been made to identify the factors (Harris, Sherritt , Holder , Kulig ,Shrier, & Knight, 2008). However, there has yet to be consensus on the structure of the instrument. Some researchers have identified a unitary factor and others have found six and eight factors (Johnstone, Yoon, Franklin, Schopp, & Hinkebein, 2009). Thus, while this ambitious project is promising, further study in various populations need to be performed to get a better understanding of the instrument's usefulness.

Another well-validated measure, developed by Haber, Jacob, and Spangler (2007) attempted to conceptualize the important aspects of spiritual and religious variables in relationship with health and was grounded in classic, personality, clinical, and recent R/S-health research. When examining religious and spiritual constructs, they identified seven-factors that explained 61.5% of total variance that replicated across independent samples and that was highly stable across diverse subgroups. The largest factor, accounting for 28 % of the variance was identified as motivation-devotion-coping and included a number of key R/S measures assessing R/S motivation, devotion, and coping. Six other factors, each accounting for 6% to 9%, supported the discriminant validity of social support, existential well-being, extrinsic motivation, religious proscription, and two personality factors (spiritual and self-transcendence). These last six factors are well supported in the literature and are valuable as independent factors (Haber, Jacob, & Spangler, 2007). Despite the

strength of their survey, the length, 127 items, makes it difficult to practically use in research, specifically when multiple constructs are being analyzed.

Spiritual well-being measures are also general measures of spirituality. However, they generally avoid assessing religiosity. One of the most researched measures of spiritual well-being is the Spiritual Well-Being Scale (SWBS; Ellison, 1983). It was developed as a general indicator of perceived well-being. It provides an overall measure of the perception of spiritual quality of life, as well as subscale scores for Religious and Existential Well-Being. The Religious Well-Being subscale provides a self-assessment of one's relationship with God, while the Existential Well-Being Subscale gives a self-assessment of one's sense of life purpose and life satisfaction.

While the SWBS may be useful in identifying where people are lacking in their sense of spiritual well-being there are indicators that have ceiling effects. A study by Ledbetter, Smith, Vosler-Hunter, & Fischer (1991) found that although the SWBS measured low scores in all 17 samples, in 15 of the 17 samples, it did not measure clinically significant scores above the mean. As such, the instrument cannot identify high scoring individuals nor can it distinguish between average and high scores (Bufford, Paloutzian, Ellison, & Craig, 1991).

Biopsychosocial-spiritual.

Only one measure has been specifically developed to assess the biopsychosocial-spiritual model, the Biopsycosocialspiritual Inventory (BioPSSI). The instrument was designed to assess for demographics, biopsychosocial-spiritual symptoms, appraisals and function, and health outcomes. The BioPSSI demonstrated excellent internal consistency

(alpha > 0.8) and construct validity across all five scales. Differences were strongly related to income, marital status, and employment in a manner consistent with previous research.

A recent study of three hundred fifty-three adults completed the BioPSSI and, when controlled for interaction effects between demographics, functional status, and chronic medical problems; spirituality accounted for seven of the outcomes (Katerndahl, 2008). Spirituality symptoms were also significantly associated with mental health use, health status, and meaning of life.

Quality of Life.

Quality of Life (QOL) is a broad term that incorporates many constructs that interact and are continually affecting each other (Kreitler & Kreitler, 2006). Most researchers believe that QOL is a multidimensional construct (Kreitler & Kreitler, 2006; Haywood, Garratt, & Fitzpatrick, 2005). Several factors of QOL are the persons' physical health, psychological state, level of independence, social relationships, personal beliefs and their relationships to salient features of the environment (World Health Organization Quality of Life Assessment Group [WHOQOL], 1998). QOL has been studied extensively and there are several measures available to assess it (Kreitler & Kreitler, 2006).

Two of the ways QOL has been studied are global QOL and health-related QOL (HRQOL) (Ware, 2003). Global QOL is defined as an individual's subjective well-being (Cella, 1994; Cohen, Hassan, Lapointe, & Mount, 1996; Cohen & Mount, 1992; Cohen, Mount, & MacDonald, 1996), or a global evaluation of satisfaction with one's life (Cooley, 1998; Nuamah, Cooley, Fawcett, & McCorkle, 1999). HRQOL, on the other hand, is "a more focused concept related to the impact of a medical condition or the impact of specific medical interventions on a person's physical, psychological, and social

well-being" (Skeel, 1998, p. 876). HRQOL is relevant for patients receiving active treatment for disease (Choe, Padilla, Chae, & Kim, 2001).

When studying QOL in health related issues, it is best to utilize measures specific to the health issues as each disease brings with it its own unique challenges and stress. Only two measures have been developed to assess for QOL in the SLE population. The Lupus Quality of Life measure was developed in England and had demonstrated adequate validity and reliability (McElhone, Castelino, Abbott, Bruce, Ahmad, Shelmerdine, et al., 2010). In order to apply it to a US population, Jolly et al., 2010, adapted and assessed the validity and reliability of the Lupus Quality of life measure in an American sample. Principal component analysis disclosed five factors in the US version, with physical function, pain and planning items loading on one factor and they found could discriminate between subjects with varied disease activity and damage.

Summary

Spirituality is a multifaceted construct, which has only received focused attention in the last two decades. Many studies have found it to be positively related to various health outcomes in a variety of diseases. However, differing definitions of spirituality lead to the development of assessment measures which may not assess the full breadth of the construct. Thus, as the BioPPSI is a relatively novel instrument, it will be necessary to ascertain if it is conceptually sound and can assess spirituality fully.

Researchers have also discovered spiritual well-being can vary across time and has different trajectories, depending on the type of diagnosed disease and with the severity of the disease (Bekelman et al., 2009). However, spirituality has only been examined in three studies in the SLE population, with two of them identifying the need for spiritual needs to

be examined (dos Reis & da Costa, 2010; Moses et al., 2009; Danoff-Burd & Friedberg, 2009).

SLE is a chronic and often debilitating autoimmune disease that affects various organ systems (Korza, 2009). Patients often present with various medical, psychological, and social needs. Because of the uniqueness of the disease, it is important to know if there is a relationship between spirituality and SLE and how it may interact with a person's physical, social, and psychological well-being.

In addition, the age may influence both spirituality and SLE. Younger samples have reported linked to increased spiritual needs, as younger patients report higher distress (Hui et al., 2010). Furthermore, individuals are generally diagnosed with SLE while in early adulthood (Danchenko et al., 2006). As such, it is important to understand how SLE and spiritualty interact as it relates to the influence of age.

SLE is also a unique disease because it is caused by the immune system attacking its own body (Mallavarapu & Grimsley, 2007). As spirituality has been associated with better immune functioning, it is unclear how improving the body's immune response, via spirituality and related coping strategies, will affect patients. In fact, many of the medications prescribed to inhibit severe flare-ups, such as cyclophosphamide (Cytoxan) and azathioprine (Imuran, Azasan), are designed to suppress the immune function (Mayo Clinic, 2011). Coupled with this, spirituality has been related to decreased stress and increased stress has been related to higher disease activity (Larson & Larson, 2003). Thus, the interplay between spirituality and the body's immune response may be quite complicated and vary depending on the individual. Understanding how spirituality is related to disease activity will help develop insight on this process.

While dos Reis and da Costa (2010) did not find an interaction between spirituality and disease activity, other researchers have found interactions between disease activity and other variables, such as physical function (Larson & Larson, 2003) and these variables are related to disease activity. As such, it is premature to conclude there is no relationship between the two and further investigation is needed to explore this possible relationship.

Most importantly, a large portion of individuals with SLE are reporting existential needs (Moses et al., 2009; Danoff-Burd & Friedberg, 2009). As such, it is important to gain a full understanding of what these needs are, when they are most prevalent, and how they are related to physical, psychological, and social domains. This will allow providers to provide the most accurate assistance, improve care, and decrease mortality while increasing quality of life.

Research Questions and Hypotheses

Broadly, the study seeks to investigate the validity of the Biopsychosocial-spiritual model and the relationship between spiritual well-being and SLE, specifically, the relationship between spiritual well-being and disease activity, impairment, and quality of life. This study addressed the following questions and hypotheses:

Question 1: Will the Biopsychosocial-spiritual model accurately portray the relationship of spirituality, psychological, psychological, and social interactions?

- Hypothesis (1): There will be significant differences between the domains of the BioPPSI in both the healthy and SLE groups, supporting the theoretical foundation of the measure.
- Hypothesis 2: A measure of relational spirituality will also demonstrate a significant relationship with the biopsychosocial-spiritual domains.

Question 2: Does the spiritual well-being of persons with SLE differ from that of a non-SLE sample?

- Hypothesis 3: There will be a statistical difference between the two samples with higher spirituality being found in participants with SLE than in the healthy population.

Question 3: How does the variable nature of SLE interact with spiritual well-being?

- Hypothesis 4: There will be a statistical difference between quality of life and spiritual well-being with higher quality of life coinciding with higher spiritual well-being.
- Hypothesis 5: There will be a statistical difference between the levels of impairment and spiritual well-being with lower impairment taking place with higher spiritual well-being.

CHAPTER II

METHOD

This Methods Chapter is divided into four subsections. First, the characteristics of the participants will be discussed. Second, the psychometric properties of each instrument used for data collection will be described. In addition to demographics such as chronic medical and mental health problems and religious affiliation, participants reported their levels of biopsycosocialspiritual symptoms and functioning using the Biopsychosoicalspiritual Inventory (BioPSSI), their health-related quality of life using the LupusQoL-US, and their spiritual well-being using the modified Attachment to God Inventory. Third, the procedures for data collection are described. Finally the data analysis procedures are discussed.

Participants

Two hundred seventy-four participants were initially sought for the study based on power analysis; 305 participants who met all location and health requirements ultimately completed the survey. Participants reported either having no diagnosis of systemic lupus, being diagnosed by a rheumatologist as having systemic lupus erythematous, or as having other physical and/or mental health conditions. Participants were excluded if they had reported being diagnosed with dementia or were unable to provide informed consent. See table 2 for participant's demographics.

In the retained overall sample, a little over half of the sample were female (55%, *n* = 171) and 87 of these individuals reported a diagnosis of SLE. Of the males (43%, *n* = 134), only three participants reported a diagnosis of SLE. Generally, the sample was younger, with a little over 49% being under the age of 30. Generally, these individuals reported less physical or mental health diagnoses. The sample was generally educated with over 53% of the participants earning an associate's degree or higher. Over 12% (n = 39) reporting earning a graduate degree, 32% (*n* = 99) reported having a bachelor's degree, and 27 individuals reported earning an associate's degree (8.7%). A large group of individuals reported they had begun college but had not completed the degree (29.8%, *n* = 92), 45 participants reported completing high school (14.5%) and only three participants reported not completing high school (1%).

Table 2.

Demographic Information

	Overall Sample, N=Count	%
Sex		
Female	171	55.3
Male	134	43.4
Age Group		
18-29	150	48.5
30-39	75	24.3
40-49	743	13.9
50-59	28	9.11
60 and above	9	2.9
Education Level		
Graduate	39	12.6
Bachelors	99	32
Associates	27	8.7
Some College	92	29.8
High School or Less	48	15.6

Table 2 con't

Marital Status		
Married	113	36.6
Widowed	4	1.3
Divorced	32	10.4
Cohabitating	5	1.6
Single	151	48.9
Employment Status		
Employed 1-39 hours	81	26.2
Employed 40+ hours	99	32
Not employed, looking	55	17.8
Not employed, not looking	36	11.7
Retired	5	1.6
Disabled, not able to work	29	9.4
Yearly Income		
0-19,999	60	19.7
20-39,999	66	21.4
40-59,999	68	22
60-99,999	66	21.4
100,000 and above	44	14.2
Race		
White	252	81.6
Black or African-American	9	2.9
American Indian	6	1.9
Asian	20	6.5
Multiple Races	18	5.8

The sample was predominantly single with 151 (48.9%) participants reporting this marital status. Secondly, 113 (36.6%) participants reported being married and 32 (10.4) reporting being divorced. The marital status groups which were underrepresented were Co-Habituating (1.6 %, n = 5) and Widowed (1.3%, n = 4).

Over half of the sample was engaged on some form of paid work, with 99 (32%) participants of this group being employed 40 hours a week or more and 81 participants (26.2%) being employed less than 40 hours a week. The remaining participants reported not being employed. Fifty-five participants (17.8%) reported they were not employed and looking for work while 36 participants (11.7%) reported they were unemployed but not

looking for work. Twenty-nine (9.4%) participants reported being disabled and not able to work. While underrepresented in this sample, 1.6% of the sample was retired (n=5).

The sample was predominantly White (81.6%, n = 252). The remaining racial groups were Asian (6.5%, n = 20), multi-racial (5.8%, n = 18), and Black/African-American (2.9%, n = 9). Due to the low number of participants from the remaining racial groups, these groups were combined to create an overarching Non-White group (17.1%, n = 53). Less than half of the participants (43.7%, n = 135 had been diagnosed with a chronic illness. Of those, only 82 (26.5%) of the participants had a diagnosis of SLE. Within the SLE group, only 11 (3.6%) of the SLE participants had this as their only diagnosis. The remaining SLE participants exhibited co-morbid mental or physical illnesses. Those with both SLE and co-morbid physical illnesses contributed to 13.3% (n=41) of the sample while those with SLE, physical, and mental diagnosis consisted of 8.7% (n = 27) of the sample. A large portion of the sample reported having no diagnosis (40.8%, n = 126), while 27 (16.5%) individuals reported having a mental diagnosis, 22 (8.7%) reported a physical diagnosis, and 22 (7.1%) reported both a physical and mental diagnosis.

Table 3.

Health Information

	Overall Sample, N=Count	%
Chronic Illness Diagnosis		
Yes	135	43.7
No	170	55
Systemic Lupus Erythematosus		
Yes	82	26.5
No	223	72.2
Diagnosis		
Lupus	11	3.6
Lupus, Physical	41	13.3
Lupus, Physical, Mental	27	8.7
No Diagnosis	126	41.3
Mental	27	8.9
Physical	22	16.7
Physical, Mental	22	7.2

As spirituality was a focus of the study, religious information was collected (see table 4). In brief, over half of the sample reporting having a belief in the divine (54.1%, *n* = 165) while 111 participants (36.4%) reported they did not. From the overall sample, 30.2% of the sample felt it was necessary to have a relationship with the divine in order to be spiritual, 172 participants stated it was not necessary (*n* = 172), and 13.4 reported they did not know (*n* = 12). Of the sample, 70.8% (n = 216) had previously identified with a religion, while only 29.2% of the sample did not (*n* = 89). Overall, the sample is currently less religious as only 49.3% (*n* = 150) currently identify with a religion and 50.7 (*n* = 157) reported they do not.

Table 4.

Religious Information

	Overall Sample, N=Count	%
Belief in Divine		
Yes	165	54.1
No	111	36.4
Relationship with Divine Necessary		
Yes	92	30.2
No	172	56.4
Prior Identification with Religion		
Yes	216	70.8
No	89	29.2
Current Identification with Religion		
Yes	150	49.3
No	154	50.7
Theism		
Not Reported	119	39.01
Monotheist	144	46.6
Polytheist	15	8.1
None/Atheist	27	14.5
Religious Groups		
Did not report	119	39.01
Christian (Protestants)	90	29.5
Catholic	39	12.8
Islam	3	.01
Buddhist	3	.01
None/Atheist	27	.09
Wiccan	6	.02
Jewish	3	.01
Mormon	8	.03
Hindu	4	.01
Deism	2	.01
Christian Science	1	.00

Religious identification was assessed and only 186 participants reported their status (60.9%). Close to half of the sample reported belonging to a monotheistic religion (46.6%, n = 144), 8.1% (n =15) reported belonging to a polytheistic religion, and 14.5% (n = 27)

reported having no belief system or as Atheist. Within these religious groups, the majority of the participants identified as Christian (45.25%, *n* = 138). The Christian groups consisted broadly of Protestant (29.5%, *n* = 90), Catholic (12.8%, *n* = 39), Mormon (.03%, *n* = 8), and Christian Science (.00%, *n* = 1). The second largest religious group were those who identified as None/Atheist (.09%, *n* = 27). The remaining religious groups were underrepresented in this sample. They consisted of Hindu (.01%, *n* = 4), Wiccan/Pagan (.02%, *n* = 6), Islam (.01%, *n* = 3), Buddhist (.01 %, *n* =3) Jewish (.01%, *n* = 3) and Deism (.01%, *n* = 2).

Measures

Demographic variables.

Several demographic variables were assessed, including gender, age, race/ethnicity, education level, geographic location (IP address), time since diagnosis of SLE, number of doctor visits per year, religious affiliation, and time since identifying in religious affiliation.

Biopsychosocial-Spiritual Inventory (Katerndahl & Oyiriaru, 2007)

The BioPSSI is designed to measure physical, psychological, social, and spiritual well-being. The instrument consists of 42 items and contains five scales: physical symptoms, psychological symptoms, social symptoms, spiritual symptoms, and impaired biopsychosocial-spiritual functioning. High scores in the physical sub-scale indicate symptoms or limitations. However, on the psychological, social, and spiritual sub-scales, items indicate higher well-being, or fewer symptoms. Each symptom and activity item is rated from “0” (none of the time) to “5” (all of the time). The 10-item physical symptoms scale includes items concerning generalized nonspecific symptoms (i.e., pain, weakness,

dyspnea), whereas the 4-item psychological symptoms scale includes items concerning anxiety and depression. The 8-item social symptoms scale focuses on opportunities for social interaction and support, and the 7-item spiritual symptom scale includes items concerning peace, harmony, and purpose. A final functional stats scale was developed and included, despite high correlations. The 12-item impaired functional status scale assessed function in all 4 symptom dimensions. In the original study, they ran an additional orthogonal (equamax) factor analysis which demonstrated it was independent of the other scales. This scale, however, was still significantly correlated with the 4 symptom scales (Pearson r = 0.38-0.69). Past studies have indicated all five scales demonstrated good concurrent validity and correlated with the number of scale-specific diagnoses, medications, and health care utilization, as well as scale-related satisfaction (Katerndahl & Oyiriaru, 2007). Internal consistency for the current sample was adequate (α = .90-.95). This is similar to the original study where all alpha levels were greater than 0.8.

For ease of interpretation, and to compute a Total Well-being score, all negative items were reversed scored, so higher scores in all sub-scales indicate higher levels of well-being. Because of this, and as the measure has minimal prior published data, the factors were explored to determine how they performed in this sample utilizing oblique (direct oblimin) exploratory factor analysis, Utilizing SPSS Vercion 15. Prior to performing PCA, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Oklin value was .92, exceeding the recommended value of .6 (Kaiser 1970, 1974) and Bartlett's Test of sphericity (Bartlett, 1954) reached statistical significance, supporting the factorability of the correlation matrix.

Principal components analysis revealed the presence of nineteen components with eigenvalues exceeding 1, explaining 46.81%, 19.71%, 7.69%, 3.55%, 2.99%, 2.4%, 2.4%, 2.23%, 1.99%, 1.67%, 1.5%, 1.37%, 1.2%, 1.12%, 1.1% and 1.1% of the variance respectively. An inspection of the scree plot revealed a break after the 6th component. Using Catell's (1966) scree test, it was decided to retain the following six components for further investigation: Physical, psychological/spiritual, social, physical functioning, emotional function, social function.

However, upon review of the factor loadings, several items in the emotional and social functioning scales double loaded (see Appendix). Additionally, when reviewing the correlation tables, most of the functionality items were highly correlated with each other (see Appendix). As such, only the Physical, Psychological/Spiritual, and Social factors were retained for the final analysis. Two items were deleted from these scales due to high correlations with other items (ranging from .8-.9) (see Appendix). Additionally, these items tended to have smaller standard deviations, were further from the item means, and when deleted moved the factors alpha levels to a more appropriate level (<.90).

Factor Loadings.

A second factor analysis with oblimin rotation was then completed with only these three factors and they accounted for 64.2% of the variance. Internal consistency ranged was .83 for the Total Wellness scale and they were the following for the sub-scales: physical = 0.89, psychological = .73, Social = 0.89.

Perceived Stress Scale (PSS). (Cohen et al., 1983)

The level of perceived stress was evaluated by means of the PSS Scale (Cohen et al., 1983). This scale is a self- report instrument that evaluates the level of perceived stress

during the last month, and consists of 14 items with a 5-point response scale (0 = never, 1 = almost never, 2 = once in a while, 3 = often, 4 = very often).The total score of the PSS is obtained by reversing the scores of items 4, 5, 6, 7, 9, 10, and 13 and subsequently adding the 14 item scores. A higher score indicates a higher level of perceived stress. In past studies, Chronbach's alphas ranged from .84-.86 (Cohen et al., 1983). Test re-test correlations have ranged from .55-.85, depending on the sample (Cohen et al., 1983). In this sample, reliability was .60. As this is a low level, reliability was assessed across illness groups and the results are the following: Lupus Group (.63), No Diagnosis (.55), Physical (.65), and Physical/Mental (.69). Upon review of the items, deletion of items would not improve reliability across groups. Rather, a deletion would improve reliability in one group while lowering the reliability in another group and would not lend itself to improving overall reliability.

Lupus Quality of Life (McElhone, Abbott, Shelmerdine, Ahmad, Bruce, Gordon, et. al, 2007).

This quality of life measure is a patient-reported outcome measure in SLE which includes the following eight areas, or domains, of life that may be affected by lupus: Physical health, Pain, Planning, Intimate relationships, Burden to others, Emotional Health, Body Image, and Fatigue. Scores range from 0 to 100, with 100 being the best health-related quality of life. Internal consistency reliability (Cronbach's α) of the 8 domains ranged from 0.85 to 0.94. (McElhone et al., 2007). Test-retest reliability ranged from 0.68-0.92 (McElhone et al., 2007). A study validating the LupusQoL in a US sample found probably variably in the factor structure (Jolly, Pickard, Wilke, Mikolaitis, Teh, McElhone, Fogg, & Block, 2009).The researchers found the domains were able to

discriminate between subjects with different levels of disease activity and damage. Principal component analysis revealed five factors in the US version, with physical function, pain and planning items loading on one factor. However, the confirmatory factor analysis showed similar fit for the eight and five domain model (Jolly, Pickard, Wilke, et al., 2009; Yazdany, 2011) As such, the eight factor model was utilized in this study, to gain a broader understanding of QoL in the SLE population. Chronbach alpha in this study are the following: Physical Health = .90, Pain = .90, Planning = .93, Intimate Relationships = .97, Burden to Others = .86, Emotional Health = .9, Body Image =.84 and Fatigue = .80.

Attachment to God Inventory (Beck and McDonald, 2004).

Attachment to God Inventory (AGI) is a 28-item scale based on the Experiences in Close Relationships Scale, developed by Brenrian, Clark, and Shaver (1998). The AGI (Beck & McDonald, 2004; 28 items) was used to measure attachment anxiety with God and attachment avoidance with God, where higher scores reflect higher levels of each construct. Examples of the anxiety items are: "I often worry about whether God is pleased with me." and "I fear God does not accept me when I do wrong." Examples of the avoidance items are: "I prefer not to depend too much on God." and "I just don't feel a deep need to be close to God."

The AGI demonstrated adequate factor structure and construct validity in a multiple sample study. Beck and McDonald (2004) reported good internal consistency coefficients for both the AGI-Anxiety subscale (14 items) and the AGI-Avoidance subscale (14 items). More specifically, in their seminal research, Cronbach‘s alpha coefficients for a university sample (Study 1) were .84 for the AGI-Anxiety subscale and

.86 for the AGI-Avoidance subscale; for another university sample (Study 2), .80 and .84, respectively; and for an adult community sample (Study 3), .87 and .86, respectively.

In the current study, the AGI demonstrated adequate reliability in both the 14 items on the Anxiety subscale (Chronbach alpha of .82 with the current sample), and 14 items on the Avoidance subscale (Chronbach alpha of .83).

The measure was altered slightly to address multicultural concerns. As the measure has been criticized for having a monotheistic view due to the language of "God," the word God was replaced with "the Divine," with the Divine being defined as meaning "Your personal view of God, Gods, or Higher Power."

Furthermore, to explore the impact of ATG style, an additional step was taken to compute the four styles, in addition to utilizing the separate Anxiety and Avoidance scales. These two variables were united into a single variable utilizing Brennan et al's (1998) discriminate function procedure for classifying subjects into one of four categories according to their level of avoidance and anxiety. Low levels of avoidance and anxiety indicated secure attachment. Low levels of avoidance and high levels of anxiety indicated preoccupied attachment. High levels of avoidance and low levels of anxiety indicated dismissive attachment while high levels of avoidance and anxiety indicated fearful attachment.

Procedure

Human subject approval was obtained from the University of North Dakota. A cross-sectional study in outpatients with SLE was conducted between November 2011 and October 2012. A nonrandom sample of participants was recruited from online groups for individuals diagnosed with lupus and similar groups without a health focus. Participants

were also recruited from Amazon Turks, a web site which advertised the survey to potential participants who were from the United States of America. Eligible study participants were 18 years or older.

Participants who were recruited via the social networking sites were compensated for their participation by being given the opportunity to participate in a drawing for a four $25 Visa gift cards. At the end of the survey, participants were given the option of leaving the survey and linking to another secure page that was separate from their survey data. There they provided the following contact information: a name, address, and phone number. Four names were randomly chosen after the survey was closed and the gift cards mailed to them. Participants recruited from the Amazon Turk site were paid one dollar to complete the survey.

CHAPTER III

RESULTS

Analysis

Adjust for any missing data.

Four hundred and twenty-three potential participants began the survey, and 379 completed the entire set of questionnaires, for a completion rate of 89.5%. Seventy-three participant's data was removed from the final analysis for the following reasons. Two participants were deleted as they indicated they had a diagnosis of dementia. Additionally, IP addresses were examined to determine the addresses of the servers. Data was removed for 47 participants whose IP addresses indicated that they originated outside of the United States of America, which was in violation of the research parameters. An additional validity measure assessing for random responses were placed in the data consisting of five questions asking respondents to select a specific answer. An example of these questions is as follows: "Please only select Agree below." Twenty-five participants answered incorrectly three or more times and their data was removed from the final analysis.

Normalization of the data.

No outliers were identified by observing the box plot and histograms. Additionally, the 5% trimmed Mean statistic was compared to the mean of each variable. No significant differences between the two were observed. Test of normality were conducted and the results of the Kolmogorov-Smirnov statist indicate several of the variables were significant, suggesting violation of the assumption of normality. This is quite common in

large samples and is more indicative of the underlying constructs being measured (Pallant, 2007). As such, transformation of the data set was deemed unnecessary.

Preliminary Analysis.

Given the large sample size, an alpha level of 0.01 was used to determine statistical significance for the correlation. Effect sizes are included to provide more robust support for the findings, as called for by recent guidelines (e.g. Frazier, Tix & Barron, 2004). Effect sizes will be reported throughout the results using the following conventions. When r is used as the effect size indicator for correlations, a small effect size is r= 0.1, a medium effect size is r=0.3, and a large effect size is r=0.5. These guidelines were established by Cohen (1988).

A preliminary analysis was completed with multiple Pearson r correlations and one-way analyses of variance to explore the possibility of gender, age, length since diagnosis, and type of health concerns as potential covariates for the BioPPSI, Lupus QoL, ATG, and Perceived Stress. Additionally, this information was utilized to determine significant between the various health conditions in this sample. At several points in the analysis, the Levine's test indicated the equal variance assumption had been violated and an adjusted *F* statistic (Brown-Forsythe) was utilized. The Games-Howell post hot test was then utilized in these cases. In all other Anovas, Bonferoni's Post Hoc was utilized as it is more conservative for familywise errors (Field, 2005).

Multicollinearity and singularity were assessed with a correlation matrix. None of the variables were correlated highly enough with each other to pose a risk in further

analysis (see Table 5). Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity.

When exploring the relationship between Attachment to God, the Avoidance and Anxiety scales demonstrated a medium relationship, $r = -.34$, n = 305, $p < .01$. Avoidance demonstrated a strong relationship to ATG style, $r = .54$, n = 305, $p < .01$, while Anxiety only demonstrated a medium relationship to ATG style, $r = .33$, $n = 305$, $p < .01$. There was a weak relationship between Avoidance toward God and the following BioPPSI subscales: Physical, $r = .22$, $n = 305$, $p < .01$, Psychological, $r = .17$, $n = 305$, $p < .01$, and Social, $r = -.25$, $n = 305$, $p < .01$. ATG style was also weakly related to the Psychological, $r = -.26$, $n = 305$, $p < .01$; Social, $r = -.26$, $n = 305$, $p < .01$, and Total Well-Being, $r = -.23$, $n = 305$, $p < .01$. Avoidance toward God demonstrated a medium relationship to the Emotional Health sub-scale of the LQoL scale, $r = -.46$, $n = 81$, $p < .01$. It then demonstrated a weak relationship to Pain, $r = -.23$, $n = 81$, $p < .05$, and Planning, $r = -.25$, $n = 81$, $p < .05$. Anxiety toward God was not significantly related to any of the LQoL sub-scales. However, ATG style demonstrated a medium relationship with Physical, $r = -.37$, $n = 81$, $p < .01$, and a weak relationship with Intimate Relationships, $r = -.22$, $n = 81$, $p < .05$.

The revised BioPPSI Physical Well-Being sub-scale demonstrated a weak relationship with Psychological Well-Being, $r = -.29$, $n = 305$, $p < .01$, and a strong relationship with Total Well-Being, $r = -.59$, $n = 305$, $p < .01$. Psychological Well-Being also was strongly related to Total Well-Being, $r = -.88$, $n = 305$, $p < .01$. Similarly, Social Well-Being was strongly related, $r = -.74$, $n = 305$, $p < .01$.

When comparing the Physical Well-Being to the LQoL subscales, Physical Well-Being was strongly related to the Physical LQoL, $r = .59$, $n = 81$, $p < .01$, and Pain, $r = .6$, $n = 81$, $p < .01$. The Physical Well-Being demonstrated a medium relationship with the following LQoL sub-scales: Planning, $r = .37$, $n = 305$, $p < .01$; Intimate Relationships, $r = .33$, $n = 81$, $p < .01$; Burden to Others, $r = .34$, $n = 81$, $p < .01$, Emotional Health, $r = .38$, $n = 81$, $p < .01$, Body Image, $r = .31$, $n = 81$, $p < .01$; and Fatigue, $r = .48$, $n = 81$, $p < .01$. Psycho/Spiritual Well-Being demonstrated a strong relationship between Emotional Health, $r = .73$, $n = 81$, $p < .01$ and a medium relationship with the following LQoL sub-scales: Planning, $r = .26$, $n = 81$, $p < .01$ and Body Image, $r = .37$, $n = 81$, $p < .01$. Psychological Well-Being demonstrated a weak relationship with Fatigue, $r = -.28$, $n = 81$, $p < .05$; Burden to Others, $r = .25$, $n = 81$, $p < .05$; Intimate Relationships, $r = .25$, $n = 81$, $p < .05$; and Pain, $r = .26$, $n = 81$, $p < .05$. Social Well-Being demonstrated a medium relationship with Emotional Health, $r = .46$, $n = 81$, $p < .01$. Social Well-Being also had weak relationships with the following sub-scales of the LQoL scale: Planning, $r = .28$, $n = 81$, $p < .01$; Intimate Relationships, $r = .23$, $n = 81$, $p < .05$; Burden to Others, $r = .24$, $n = 81$, $p < .05$; Body Image, $r = .31$, $n = 38105$, $p < .01$; and Fatigue, $r = .24$, $n = 81$, $p < .05$.

Total Well-Being was strongly related to the Emotional Health sub-scale, $r = .71$, $n = 81$, $p < .01$. It was weakly related to the following sub scales of the LQoL scale: Physical, $r = .34$, $n = 305$, $p < .01$; Pain, $r = .43$, $n = 81$, $p < .01$, Planning, $r = .42$, $n = 81$, $p < .01$; Intimate Relationships, $r = .35$, $n = 81$, $p < .01$; Body Image, $r = .44$, $n = 81$, $p < .01$, and Fatigue, $r = .43$, $n = 81$, $p < .01$.

Within the LQoL scale, multiple sub-scales were related to each other. Particularly, the Physical and Pain sub-scale were strongly related to each other, $r = .81$, $n = 81$, $p <$

.01. In addition, the Psychical scale was strongly related to Planning, $r = .72$, $n = 81$, $p < .01$, Fatigue, $r = .7$, $n = 81$, $p < .01$, and Burden to Others, $r = .61$, $n = 81$, $p < .01$. The Physical scale was weakly related to Intimate Relationships, $r = .37$, $n = 81$, $p < .01$, Emotional Health, $r = .45$, $n = 81$, $p < .01$, and Body Image, $r = .47$, $n = 81$, $p < .01$. Pain LQoL was strongly significantly related to Pain, $r = .67$, $n = 81$, $p < .01$; Intimate Relationships, $r = .56$, $n = 81$, $p < .01$; and Fatigue, $r = .71$, $n = 81$, $p < .01$. It demonstrated a medium relationship with, Intimate Relationships, $r = .43$, $n = 305$, $p < .01$; Emotional Health, $r = .48$, $n = 81$, $p < .01$; and Body Image, $r = .45$, $n = 81$, $p < .01$. Planning LQoL was strongly related to Burden to Others, $r = .58$, $n = 81$, $p < .01$; Emotional Health, $r = .54$, $n = 305$, $p < .01$, Body Image, $r = .54$, $n = 81$, $p < .01$; and Fatigue, $r = .67$, $n = 81$, $p < .01$. Intimate Relationships demonstrated a medium relationship with Fatigue, $r = .45$, $n = 81$, $p < .01$; Body Image, $r = .37$, $n = 81$, $p < .01$; and Emotional Health, $r = .32$, $n = 81$, $p < .01$. Intimate Relationship had a significant weak relationship with Burden to Others, $r = .23$, $n = 81$, $p < .05$. Burden to Others demonstrated a strong relationship with the following: Emotional health, $r = .5$, $n = 81$, $p < .01$; Body Image, $r = .6$, $n = 81$, $p < .01$; and Fatigue, $r = .57$, $n = 81$, $p < .01$. Emotional Health also demonstrated strong relationship s with Body Image, $r = .65$, $n = 81$, $p < .01$, and Fatigue, $r = .53$, $n = 81$, $p < .01$Finally, Body Image demonstrated a strong relationship with Fatigue, $r = .51$, $n = 81$, $p < .01$.

Table 5.
Correlations between Measures

Measure		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Attachment																
1	Avoidance	-	-.34	.54**	-.22**	-.17**	-.17**	-.25**	-.01	.03	-.23*	-.25*	-.19	-.46**	-.20	-.17
2	Anxiety		-	.33**	.39**	-.84	-.13*	.07	.16	.17	.15	.00	.09	-.02	.18	.06
3	ATG Style			-	.24	-.26**	-.25**	-.23**	.02	.08	-.16	-.22*	-.17	-.37**	-.13	-.1
BPSSI																
4	Physical				-	.29**	.38	.59**	.59**	.60**	.37**	.33**	.34**	.38**	.31**	.48**
5	Psychological					-	.61**	.88**	.17	.26	.31**	.25*	.25*	.73**	.37**	.28*
6	Social						-	.74**	.06	.16	.28**	.23*	.24*	.46**	.31**	.24*
7	Total Well-Being							-	.34**	.43**	.42**	.35**	.36**	.71**	.44**	.43**
LQoL																
8	Physical								-	.81**	.72**	.37**	.64**	.45**	.47**	.70**
9	Pain									-	.67**	.43**	.56**	.48**	.45**	.71**
10	Planning										-	.49**	.58**	.54**	.54**	.67**
11	Intimate Relationship											-	.23*	.32**	.37**	.45**
12	Burden to Others												-	.50**	.60**	.57**
13	Emotional Health													-	.65**	.53**
14	Body Image														-	.51**
15	Fatigue															-

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Initially, illness severity was divided into eight groups consisting of the following: Lupus alone; Lupus and mental health diagnosis; Lupus and other physical diagnosis; Lupus, Other physical diagnosis, and mental diagnosis; No diagnosis; mental health diagnosis; other physical diagnosis; and mental and other physical diagnosis. Multiple one-way analyses of variance were conducted to explore the impact of illness type on the dependent variables and to determine the independence of the illness groups. Overall, the results found no differences in the Lupus participants across all measures. However, across the various measures, differences were observed between the other groups (see Table 6). Within the Perceived Stress measure, no significant differences were observed across groups, $F(6, 304) = 1.82$, $p = .09$. Within the Avoidance sub-scale there were no differences between the Lupus groups, $F(6, 160.3) = 3.77$, $p = .00$. Furthermore, there were no differences between the No Diagnosis, Mental, Physical, and Mental/Physical groups. However, the No Diagnosis Group was significantly lower levels of avoidance than the Lupus/Physical/Mental and the Lupus/Physical groups. Furthermore, the Mental group demonstrated significantly lower Avoidance than the Lupus/Physical/Mental group.

A similar trend was observed in the Anxiety sub-scale as no differences were observed in the Lupus groups, $F (6, 304) = 13.62$, $p = .00$. The Lupus groups were significantly lower in Anxiety than the No diagnosis, Mental, and Physical/Mental groups. However, it was not significantly different than the Physical group. The physical group was also significantly lower than the No diagnosis group but not the other groups.

Similarly, the Lupus groups were not significantly different in Physical Well-Being, $F(6, 114.14) = 31.44$, $p = .00$. All the Lupus groups reported lower Physical Well-

being than all other groups. There were no significant differences between the other health groups.

Table 6.
Relationship between the original health groups and dependent variables.

	Lupus			Lupus/Physical			Lupus/Physical/Mental			No Diagnosis			Mental			Physical			Physical/Mental		
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
Perceived Stress	11	28.7	6.28	41	32.6	6.19	27	33.8	6.7	126	29.8	7.3	27	31.3	6.3	51	30.1	8.7	22	30.7	6.37
ATG																					
Avoidance	11	29.7	13.10	41	38.2	17.00	27	37.0	13.7	126	30.9	14.6	27	26.1	10.6	51	29.9	12.5	22	27.90	10.2
Anxiety	11	45.3	13.50	41	49.5	18.70	27	46.2	18.1	126	68.9	16.7	27	68.3	17.2	51	56.1	20.8	22	68.10	16.7
BioPPSI																					
Physical	11	4.2	0.92	41	3.9	0.91	27	3.7	0.8	126	5.4	1.0	27	4.93	0.7	51	5.15	0.7	22	4.75	0.91
Psychological	11	4.7	0.98	41	3.5	1.16	27	3.7	1.1	126	4.1	1.1	27	3.09	1.0	51	4.4	0.9	22	3.12	0.98
Social	11	3.9	1.59	41	3.4	1.25	27	3.8	1.1	126	3.4	1.2	27	2.9	0.8	51	3.8	1.1	22	2.85	1.09
Total Wellness	11	4.1	0.68	41	3.6	0.87	27	3.7	0.7	126	4.3	0.8	27	3.7	0.6	51	4.4	0.6	22	3.63	0.69

Table 6 con't.

	df	F	η^2	*P*
Perceived Stress	6, 304	1.82	.04	.09
ATG				
Avoidance	6, 160.3	3.77	.06	.00**
Anxiety	6, 304	13.6	.22	.00**
BioPPSI				
Physical	6, 114.14	31.4	.44	.00**
Psychological	6, 304	7.65	.13	.00**
Social	6, 93.48	2.95	.06	.01**
Total Wellness	6, 304	12.1	.20	.00**

* = $p<0.05$, ** = $p<.01$

Within the Psychological/Spiritual Well-being domain, there were no observable differences between the Lupus groups, $F (3, 304) = 7.65$, $p = .00$. The Physical group reported the highest Psychological/Spiritual Well-Being and was significantly higher than the Lupus/Physical, Mental, and Physical/Mental groups. The No Diagnosis reported significantly higher scores than the Mental and Physical/Mental groups.

In the Social Well-Being domain, the Mental and Physical/Mental groups reported significantly lower Social Well-Being than the other groups, $F(6, 93.48) = 2.95$, $p = .01$. These groups were significantly lower than the Physical and the Lupus/Physical/Mental groups. There were no differences observed between the Lupus groups.

When considering the participants Total Well-being scores, no differences were observed in the Lupus groups, $F(6, 304) = 12.05$, $p = .00$. However, all other groups were significantly different than at least one other group. The Physical Group reported the highest Total Well-being and was significantly different to all other groups but the No diagnosis group. The No Diagnosis group reported significantly higher Total Well-being than all other remaining groups. The Lupus groups reported significantly lower well-being than the No diagnosis groups and the Physical groups.

Because no differences were observed in the Lupus groups, these groups were combined to make one Lupus group. Across measures, the Mental and Physical/Mental group also demonstrated no significant differences, thus these two groups were combined into a Physical/Mental group. However, as the No Diagnosis and Physical groups demonstrated differences across groups for at least one measure, they remained individual groups.

BioPSS Preliminary Analysis.

Age.

Multiple Anovas were then completed with the new groups to examine the impact of demographic variables across measures, beginning with age (see Table 7). Age had no significant impact on psychological, social, total wellness, perceived stress, or avoidance levels. However, differences were observed in participants' anxiety levels ($F(4, 44) = 8.63$, $p = .00$) where individuals who were under the age of 29 had significantly higher levels of anxiety than those whom were in their 30's, 40', or 50's. While there were not enough participants to make a comparisons with those 60 and older (n=9), theses participants generally had the lowest anxiety levels. Furthermore, those individuals who were less than 30 years old had significantly less physical well-being than those who were in their 50's, $F(4, 44) = 3.93$, $p = .008$). Finally, older participants were significantly more prone to have a belief in the Divine, $F(2, 148.51) = 41.79$, $p = .00$

Table 7.

Relationship between Age and dependent variables

	18-29			30-39			40-49			50-59			60 - Above						
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*df*	F	η^2	*p*
ATG																			
Avoidance	150	30.40	13.83	75	21.20	12.74	43	36.23	16.27	28	32.07	13.32	9	29.44	15.53	4, 304	1.49	.02	.21
Anxiety	150	68.65	17.11	75	58.59	20.34	43	49.76	19.16	28	49.71	17.57	9	48.56	17.43	4, 304	14.63	.16	.00**
BioPPSI																			
Physical	150	5.02	0.83	75	4.96	0.88	43	4.60	0.95	28	4.24	1.32	9	4.50	1.15	4, 65.76	4.28	.07	.00**
Psychological	150	3.83	1.18	75	3.91	1.00	43	3.72	1.12	28	4.31	1.12	9	4.31	1.12	3, 304	0.58	.01	.66
Social	150	1.12	0.09	75	3.40	1.20	43	3.36	1.25	28	4.02	1.12	9	3.41	1.18	3, 304	0.98	.01	.42
Total Wellness	150	4.15	0.77	75	4.15	0.72	43	3.94	0.87	28	3.79	1.05	9	4.30	0.81	4, 44.82	1.86	.02	.12
Perceived Stress	150	30.61	7.21	75	29.93	6.81	43	31.63	6.99	28	31.29	8.86	9	33.89	8.57	3, 304	11.72	.01	.00**
LQoL																			
Physical	16	51.56	27.46	23	49.46	18.39	26	37.72	26.76	14	37.72	26.76	3	34.38	14.32	4, 81	0.99	.05	.42
Pain	16	46.35	30.58	23	40.58	25.78	26	33.33	29.34	14	22.02	30.24	3	41.67	36.32	4, 81	1.55	.07	.20
Planning	16	59.38	32.33	23	48.55	26.19	26	42.31	25.05	14	26.78	33.34	3	47.22	25.46	4, 81	2.6	.12	.04*
Intimate Relationships	16	68.75	30.62	23	61.41	30.37	26	49.52	30.31	14	31.25	34.58	3	41.67	52.04	4, 81	3.18	.14	.02*
Burden to Others	16	37.50	35.09	23	27.17	18.50	26	28.53	28.79	14	30.36	36.34	3	38.89	17.35	4, 47.21	0.42	.02	.79
Emotional Health	16	60.16	23.86	23	58.70	18.46	26	60.58	24.87	14	54.76	28.3	3	69.44	20.55	4, 81	0.3	.02	.88
Body Image	16	61.56	21.89	23	52.61	25.27	26	55.96	31.84	14	50.00	25.89	3	48.33	36.17	4, 81	0.44	.02	.78
Fatigue	16	44.14	27.05	23	29.89	17.97	26	28.13	17.16	14	25.00	27.74	3	35.42	23.66	4, 81	1.87	.09	.12

* = $p<0.05$ ** = $p<.01$

Education.

Education proved to have minimal impact on the outcome variables as well, with the exception of social well-being (see Table 8). Only the interaction between Education level and Avoidance toward God was significant at the .01 level, $F(4, 211.58) = 4.21$, $p = .00$. Generally, those with high school degrees or GED have significantly higher levels of Avoidance than those with some college, associates, or bachelor's degrees. There was not a significant difference between those with high school/GEDs or graduate degrees.

Individuals with high school degrees or GED reported lower social well-being than those with bachelor degrees, $F(5, 304) = 3.07$, $p = .02$. However, this effect size was small. Additionally, the participants with less than a high school degree had lower Total Wellness scores than those with Associate degrees, $F(5, 304) = 2.56$, $p = .04$, with a small effect size.

Table 8.

Education Status

	High School/GED			Some College			Associates			Bachelors			Graduate						
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*df*	F	η^2	*P*
ATG																			
Avoidance	48	38.04	17.02	92	29.05	11.84	27	29.11	10.88	99	30.28	14.89	39	34.31	13.68	4, 212	4.21	.05	.00**
Anxiety	48	60.44	17.87	92	63.39	19.07	27	55.04	22.47	99	61.6	20.22	39	60.08	21.12	4, 304	0.99	.01	.41
BioPPSI																			
Physical	48	4.67	1.04	92	4.80	1.04	27	4.78	0.97	99	5.03	0.75	39	4.87	1.01	4, 191	0.94	.01	.44
Psychological	48	3.56	1.18	92	3.84	1.12	27	4.09	0.98	99	3.9	1.17	39	3.98	1.07	4, 304	1.24	.02	.29
Social	48	2.94	1.02	92	3.43	1.17	27	3.58	1.28	99	3.6	1.15	39	3.28	1.29	4, 304	3.07	.04	.02*
Total Wellness	48	3.79	0.82	92	4.07	0.82	27	4.22	0.82	99	4.23	0.76	39	4.10	0.80	4, 304	2.56	.03	.04*
Perceived Stress	48	31.65	8.90	92	30.75	6.82	27	29.67	6.77	99	30.81	6.75	39	30.21	7.96	4, 304	0.38	.01	.82
LQoL																			
Physical	12	34.64	21.05	23	48.1	21.29	9	49.65	23.3	25	46.63	27.05	13	49.04	20.63	4, 81	0.87	.04	.48
Pain	12	28.47	24.99	23	28.99	28.74	9	26.85	23.12	25	45.51	25.6	13	45.51	25.6	4, 81	1.78	.08	.14
Planning	12	27.08	24.65	23	46.38	27.04	9	42.59	27.46	25	49.67	33.55	13	51.28	29.24	4, 81	1.46	.07	.22
Intimate Relationships	12	29.17	27.35	23	52.17	36.08	9	56.94	28.03	25	66.5	30.98	13	49.04	33.25	4, 81	2.84	.13	.03*
Burden to Others	12	18.75	19.82	23	34.42	28.46	9	44.44	34.61	25	31.33	31.48	13	23.72	22.27	4, 81	1.37	.07	.25
Emotional Health	12	47.57	29.91	23	60.69	20.02	9	55.56	27.00	25	64.67	22.41	12	59.94	18.98	4, 81	1.2	.06	.32
Body Image	12	46.67	24.53	23	55.65	24.53	9	61.11	36.47	25	57.6	27.99	13	51.15	27.85	4, 81	0.51	.03	.73
Fatigue	12	25.52	18.55	23	31.52	21.35	9	25.69	15.45	25	38.5	29.12	13	27.4	12.38	4, 81	1.1	.05	.36

Relationship between Age and dependent variables.

* = p<0.05 ** = p<.01

Employment.

Employment status (see Table 9) had a significant impact on several of the outcome variables, but it did not demonstrate an effect on Avoidance or Perceived Stress. However, individuals who were unable to work due to disability had significantly lower levels of Anxiety than all other employment groups, $F(5,304) = 4.85$, $p = .00$. Within the BPS questionnaire, participants who worked forty hours or more a week has significantly higher Social Well-being than those who were looking for work, $F(5,304) = 3.229$, $p = .01$. However, this relationship demonstrated a small effect size, $\eta^2 = .05$. Participants who identified themselves as disabled has significantly lower Physical Well-being than all other groups, $F(5,37.43) = 37.43$, $p = .00$, with a large effect size, $\eta^2 = .22$. Those with disabilities also had significantly lower Total Wellbeing than all other groups besides those looking for work, $F(5,304) = 5.06$, $p = .00$.

Table 9.

Relationship between Employment Status and dependent variables

	Working < 40 hrs.			Working > 40 hrs			Not Emp/Looking			Not Emp/Not Looking			Retired			Disabled						
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*df*	F	η²	*p*
ATG																						
Avoidance	81	30.7	13.5	99	30.0	13.9	55	32.0	14.9	36	32.5	16.1	5	26.2	9.58	29	36.4	13.7	5, 304	1.22	0	.3
Anxiety	81	63.4	20.2	99	62.2	18.9	55	65.7	17.8	36	61.8	20.0	5	63.8	14.2	29	41.9	17.0	5, 304	6.92	.07	.00**
BioPPSI																						
Physical	81	4.95	0.79	99	4.88	0.95	55	5.22	0.63	36	5.06	0.96	5	5.36	0.61	29	3.54	0.85	5, 304	17.1	.22	.00**
Psychological	81	3.82	1.05	99	4.03	1.14	55	3.58	1.11	36	3.92	1.22	5	4.89	0.46	29	3.55	1.20	5, 40.77	5.87	.04	.00**
Social	81	3.34	1.09	99	3.75	1.15	55	3.01	1.08	36	3.27	1.14	5	3.54	1.28	29	3.35	1.51	5, 304	3.23	.05	.01**
Total Wellness	81	4.09	0.72	99	4.25	0.82	55	4.01	0.72	36	4.15	0.83	5	4.7	0.49	29	3.49	0.87	5, 304	5.06	.08	.00**
Perceived Stress	81	31.9	7.41	99	30.1	7.33	55	30.4	6.81	36	29.2	10.1	5	26.2	10.1	29	32.7	5.86	5, 304	1.65	.03	.15
LQoL																						
Physical	14	54.7	11.2	33	53.6	23.4	3	50.0	9.38	7	59.4	32.7	1	37.5	0	24	26.4	14.0	5, 81	6.8	.31	.00**
Pain	14	38.7	25.0	33	48.0	30.1	3	41.7	25	7	46.4	31.5	1	58.3	0	24	14.2	18.8	5, 81	5.1	.25	.00**
Planning	14	57.7	20.7	33	53.5	30.1	3	36.1	24.1	7	53.6	31.1	1	75	0	24	22.9	22.3	5, 81	5.17	.25	.00**
Intimate Relationships	14	62.4	29.0	33	56.1	32.6	3	62.5	12.5	7	71.4	27.7	1	100	0	24	35.4	34.5	5, 81	2.72	.15	.03*
Burden to Others	14	31.6	24.1	33	32.6	28.6	3	30.6	12.7	7	42.9	45.0	1	58.3	0	24	22.6	26.5	5, 81	0.86	.05	.52
Emotional Health	14	64.6	9.91	33	61.9	23.5	3	51.4	21.4	7	62.5	32.8	1	83.3	0	24	51.7	24.9	5, 81	1.06	.06	.39
Body Image	14	65.4	20.5	33	57.0	29.4	3	56.7	12.6	7	58.6	26.4	1	90	0	24	42.9	25.7	5, 81	1.86	.11	.11
Fatigue	14	34.8	17.8	33	34.9	24.0	3	31.3	6.25	7	50	27.2	1	62.5	0	24	18.2	14.6	5, 81	3.85	.20	.00**

* = $p<0.05$ ** = $p<.01$

Marital Status.

Marital status was found to have a significant effect on several of the BPS subscales (see Table 10). Individuals who were single had higher levels of Physical well-being than those who were either married or divorced, $F(4, 13.57) = 5.43$, $p = .008$, medium effect size $\eta^2 = .09$. Yet, those who were married reported higher levels of Psychological Well-being than those who were never married, $F(4, 304) = 3.2$, $p = .001$. However, the effect was small. When examining the effect on marriage to the outcome variables, there were not enough participants to analyze differences among those who were widowed or separated. However, for those who were separated, the trend indicated they had higher social and Psychological Well-being yet lower physical well-being than the other groups. There were no group differences in Total Wellness, Social Well-being, or Perceived Stress according to marital status. Similarly, there were no group differences in Avoidance level. However, those who were never married had significantly higher levels of Anxiety than those who were married, $F(4, 13.27) = 6.97$, $p = .003$.

Table 10.
Marital Status

	Married			Widowed			Divorced			Co-Habituating			Single						
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*df*	F	η²	*P*
ATG																			
Avoidance	113	33.4	14.7	4	23.0	7.52	32	29.9	12.6	5	25.6	4.62	151	30.9	14.4	4, 304	1.48	.02	.21
Anxiety	113	54.6	20.3	4	63.0	7.4	32	55.2	18.1	5	37.8	25.7	151	68.1	17.2	4, 13.27	6.97	.10	.00**
BioPPSI																			
Physical	113	4.71	1.03	4	4.81	0.5	32	4.36	1.14	5	5.00	3.87	151	5.11	0.74	4, 304	7.48	.05	.00**
Psychological	113	4.1	1.01	4	3.53	1.27	32	3.61	1.31	5	4.64	1.42	151	3.70	1.13	4, 13.24	2.67	.04	.08
Social	113	3.66	1.13	4	2.86	0.48	32	3.16	1.39	5	4.77	0.94	151	3.24	1.14	4, 304	4.51	.06	.00**
Total Wellness	113	4.2	0.82	4	3.80	0.4	32	3.76	0.92	5	4.40	0.95	151	4.08	0.76	4, 304	2.25	.03	.06
Perceived Stress	113	30.4	6.59	4	34.0	8.49	32	32.5	8.58	5	33.0	4.7	151	30.5	7.36	4, 304	0.88	.01	.48
LQoL																			
Physical	44	43.6	22.4	1	56.30	0	14	39.7	24.5	4	25.7	12.9	19	23.4	5.37	4, 81	1.17	.06	.33
Pain	44	30.7	25.8	1	8.33	0	14	28.6	32.3	4	47.9	32.2	19	54.0	30.0	4, 81	3.01	.14	.02*
Planning	44	42.6	27.2	1	50.0	0	14	38.1	35.5	4	47.9	30.0	19	54.4	31.2	4, 81	0.75	.04	.56
Intimate Relationships	44	52.0	30.5	1	50.0	0	14	38.4	37.8	4	50.0	45.6	19	67.8	32.6	4, 81	1.65	.08	.17
Burden to Others	44	25.6	24.4	1	25.0	0	14	38.1	33.6	4	43.8	34.3	19	34.2	32.6	4, 81	0.88	.04	.48
Emotional Health	44	58.7	22.9	1	62.5	0	14	61.9	25.7	4	63.5	26.7	19	57.7	23.4	4, 81	0.11	.01	.97
Body Image	44	56.0	25.3	1	25.0	0	14	59.3	30.9	4	43.8	39.9	19	52.6	26.6	4, 81	0.61	.03	.66
Fatigue	44	26.7	18.7	1	18.8	0	14	34.4	28.2	4	29.7	18.0	19	41.4	24.2	4, 81	1.67	.08	.17

Relationship between Age and dependent variables.
* = $p<0.05$ ** = $p<.01$

Race.

When examining the impact of racial difference between groups, most of the minority groups lacked enough participants to conduct a proper analysis (see Table 11). As such, the participants were grossly separated into White and other racial categories and a set of t-tests were conducted. Even so, no differences were only found in any of the outcome measures.

Table 11.
Relationship between demographic variables and dependent variables

	Race									
	N	White	SD	*N*	Not White	SD	*T*	*df*	η^2	*P*
ATG										
Avoidance	252	31.1	13.8	53	33.8	1.06	-1.16	69	.00	.25
Anxiety	252	61.2	20.3	53	61.2	18.1	-0.12	303	.00	.99
BioPPSI										
Physical	252	4.89	0.93	53	4.74	1.05	1.05	303	.00	.30
Psychological	252	3.88	1.11	53	3.71	1.21	0.98	303	.00	.33
Social	252	3.43	1.18	53	3.29	1.19	0.82	303	.00	.42
Total Wellness	252	4.12	0.81	53	3.96	0.79	1.27	303	.01	.20
LQoL										
Perceived Stress	252	30.4	7.19	53	32.3	7.55	-1.76	303	.01	.08
Physical	68	45.5	22.8	14	48.7	26.1	-0.47	80	.00	.64
Pain	68	35.3	28.7	14	39.9	33.2	-0.50	80	.00	.62
Planning	68	44.1	29.1	14	48.8	33.0	-0.54	80	.00	.59
Intimate Relationships	68	49.5	34.3	14	71.4	22.7	-2.98	26.96	.10	.01**
Burden to Others	68	29.4	27.4	14	36.3	33.9	-0.82	80	.01	.41
Emotional Health	68	57.8	23.6	14	66.7	19.8	-1.30	80	.02	.19
Body Image	68	54.1	27.7	14	58.2	24.1	-0.51	80	.00	.61
Fatigue	68	30.9	22.7	14	34.4	20.3	-0.53	80	.00	.59

*p < .05, **p < .01 two-tailed

Number of diagnoses.

The number of co-morbid diagnoses disclosed by each participant was examined (see Table 12). The lowest numbers of diagnosis ever given by a physician reported by participants were zero and the highest was eight. However, due to low number of

participants who identified having four or more diagnosis, those groups were combined to ensure enough participants per group.

No significant differences were found between number of co-morbid diagnoses and Perceived Stress, Social Well-being, or Avoidance. However, individuals with four or more diagnoses had significantly lower levels of Anxiety than individuals with zero or one reported diagnosis, $F(7,304) = 12.55$, $p = .00$. Furthermore, individuals with lower number of diagnoses tended to have higher levels of Physical Well-being, $F(7,174.33) = 34.95$, $p = .00$. Individuals without a reported diagnosis in any domain had the highest levels of Physical Well-being when compared to all others. Participants with four or more diagnoses had worse Physical Well-Being than those with less diagnoses. Additionally, individuals with zero or one prior diagnosis had significantly better Total Well-being than those at all other diagnosis levels, $F(7, 304) = 5.67$, $p = .00$. Those with four or more diagnosis reported significantly lower Total Well-being than all other groups.

Table 12.

Relationship between Co-Morbid Diagnosis and dependent variables

	0			1			2			3			4 or More						
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*df*	F	η^2	*p*
ATG																			
Avoidance	114	30.5	14.5	71	29.6	13.2	37	31.3	13.6	29	28.2	16.4	54	32.9	13.5	4, 304	2.20	.03	.07
Anxiety	114	69.3	16.7	71	59.8	19.7	37	60.1	21.8	29	58.4	18.9	54	48.1	18.0	4, 304	12.55	.14	.00**
BioPPSI																			
Physical	114	5.39	0.55	71	4.98	0.79	37	4.7	0.79	29	4.61	0.92	54	3.80	0.97	4, 174	34.95	.36	.00**
Psychological	114	4.08	1.12	71	3.93	1.08	37	3.7	1.09	29	3.36	1.13	54	3.62	1.15	4, 304	4.31	.04	.01**
Social	114	3.35	1.19	71	3.48	1.18	37	3.54	1.08	29	3.31	1.07	54	3.41	1.31	4, 304	0.43	.00	.88
Total Wellness	114	4.35	0.76	71	4.18	0.71	37	4.02	0.73	29	3.8	0.85	54	3.63	0.81	4, 304	5.67	.11	.00**
Perceived Stress	114	29.9	7.26	71	30.1	6.86	37	30.2	8.6	29	33.6	7.86	54	32.3	6.07	4, 304	2.39	.03	.05

Relationship between number of co-morbid diagnosis and dependent variables.

* = p<0.05 ** = p<.01

Yearly Income.

Yearly income had a significant interaction with three of the outcome variables (see Table 13). Those whose annual income was less than $20,000 (19.4%, n = 60) had significantly lower levels of psychological well-being (F(3, 303) = 3.05, p = .02), social well-being (F(3, 303) = 3.82, p = .01), and total wellness (F(3, 303) = 4.02, p = .00).

Table 13.

Relationship between Yearly Income and dependent variables

	$0-19,999			$20-39,999			$40-59,999			$60-99,999			$100,000-Above						
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*df*	F	η^2	*p*
ATG																			
Avoidance	60	31.3	13.9	66	29.1	13.6	68	32.7	14.8	66	31.7	13.5	44	31.7	15.9	4, 303	0.84	.01	.50
Anxiety	60	58.6	19.1	66	63.3	19.6	68	59.8	21.3	66	60.2	19.8	44	65.8	18.9	4, 303	1.17	.02	.32
BioPPSI																			
Physical	60	4.66	1.04	66	4.80	1.05	68	4.93	0.91	66	5.00	0.91	44	4.88	0.75	4, 303	1.18	.02	.32
Psychological	60	3.44	1.23	66	4.01	0.98	68	3.79	1.12	66	4.05	1.17	44	3.94	1.05	4, 303	3.05	.04	.02*
Social	60	2.94	1.22	66	3.46	1.22	68	3.41	1.13	66	3.49	1.12	44	3.80	1.07	4, 303	3.82	.05	.01**
Total Wellness	60	3.74	0.84	66	4.14	0.76	68	4.09	0.81	66	4.24	0.80	44	4.24	0.71	4, 303	4.02	.05	.00**
Perceived Stress	60	31.8	7.05	66	30.4	8.03	68	30.1	6.74	66	30.3	7.56	44	31	6.21	4, 303	0.60	.01	.67
LQoL																			
Physical	17	43.2	27.4	18	41.0	25.6	17	46.5	24.1	17	45.8	21.3	13	56.3	13.2	4, 81	0.90	.04	.47
Pain	17	30.9	33.6	18	33.8	31.2	17	34.8	27.5	17	37.3	28.1	13	47.4	26.2	4, 81	0.65	.03	.63
Planning	17	34.8	30.7	18	44.0	34.0	17	42.2	31.7	17	49.0	25.2	13	57.7	22.2	4, 81	1.24	.06	.30
Intimate Relationships	17	58.8	33.6	18	41.0	39.8	17	59.9	33.9	17	58.1	30.6	13	49.0	28.6	4, 81	0.98	.05	.43
Burden to Others	17	37.3	35.1	18	29.2	30.2	17	23.5	30.2	17	26.7	22.0	13	37.8	22.0	4, 81	0.77	.04	.55
Emotional Health	17	54.2	25.4	18	62.0	16.8	17	57.1	27.6	17	62.8	25.5	13	60.6	20.0	4, 81	0.40	.02	.81
Body Image	17	50.9	24.5	18	57.5	30.3	17	48.2	28.9	17	57.7	21.6	13	61.2	30.9	4, 81	0.60	.03	.66
Fatigue	17	32.4	28.2	18	30.6	24.4	17	27.2	17.5	17	31.6	23.6	13	37.0	15.0	4, 81	0.36	.02	.84

Relationship between Yearly Income and dependent variables.

* = p<0.05 ** = p<.01

Religious Groups

Religious group affiliation was assessed. Originally, eleven separate religious groups were reported (see Table 14). These were condensed into four groups. The first two consists of Christian denominations, separated by Protestants and Catholics. Due to limited sample size in the remaining groups, all other religious groups were placed in an Other Religious Group category. The final forth group consist of participants who identified either as atheist or as none.

Religious group affiliation was significant in three of the dependent variables. Christian and Catholics reported significantly higher Avoidance toward God than the None/Atheist group ($F(3, 97) = 9.42$, $p = .00$). The largest effect was observed in Anxiety toward God ($F(3, 185) = 22.65$, $p = 00$), where the Protestant group reported lower anxiety than all the other groups. The Catholic group reported higher anxiety compared to the Protestant group, but lower than the None/Atheist group. There were no differences between the Catholic group and the Other Religious group. Finally, in the Physical Well-Being variable, Protestant Christians reported the lower Physical Well-being than the None/Atheist group, $F(3, 104.77) = 3.79$, $p = .01$.

Table 14.

Relationship between Religious Groups and dependent variables.

	Protestant			Catholic			Other			None/Atheist						
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*df*	F	η²	*p*
ATG																
Avoidance	98	37.4	13.6	39	34.3	15.2	22	31	14.5	27	22.6	8.26	3, 97	9.42	0.13	.00**
Anxiety	98	45.1	17.8	39	57.1	15.5	22	61.7	17.5	27	72.8	13.2	3, 185	22.7	0.27	.00**
BioPPSI																
Physical	98	4.6	1.05	39	4.9	1.04	22	4.95	0.75	27	5.16	0.69	3, 104.77	3.79	0.05	.01**
Psychological	98	3.97	1.00	39	4.09	1.22	22	3.01	1.17	27	3.93	1.08	3, 185	0.19	0.00	.90
Social	98	3.51	1.17	39	3.59	1.22	22	3.13	1.11	27	3.51	0.99	3, 185	0.79	0.01	.50
Total Wellness	98	4.07	0.77	39	4.25	0.94	22	4.07	0.75	27	4.25	0.70	3, 185	0.76	0.01	.52
Perceived Stress	98	30.0	6.84	39	31.7	7.88	22	30.2	6.08	27	29.9	6.66	3, 185	0.59	0.01	.62

Relationship between Age and dependent variables.

* = $p<0.05$ ** = $p<.01$

Consolidation of Health Groups.

Based upon the previous preliminary analysis, the various health groups were consolidated (see Table 15). Initially, the following eight health groups were considered: Lupus, Lupus with mental health diagnoses, Lupus with co-morbid medical conditions, Lupus with co-morbid physical and mental health conditions, no diagnosis, physical diagnosis, mental diagnosis, physical and mental diagnosis. However, considering the demonstrated minute differences between the four lupus groups, specifically the lack of differences found in the LQOL, the four lupus groups were consolidated into one group (SLED). This decision was also supported by the nature of SLE, as it can affect the nervous system itself, causing/mimicking mental health disorders (Kozora, 2008). The remaining three groups were the No Diagnosis Group (ND), the Physical Diagnosis (PD), and Physical/Mental Health Diagnosis Group (PMD), for a total of four health groups.

Table 15.
Relationship between Health Group ,BioPSSI, and ATG

	Lupus			No Diagnosis			Physical			Physical/Mental						
	N	*Mean*	*SD*	*N*	*Mean*	*SD*	*N*	*Mean*	*SD*	*N*	*Mean*	*SD*	*df*	F	η^2	*P*
BioPPSI																
Physical	79	3.85	0.88	126	5.38	0.60	51	5.15	0.66	49	4.85	0.78	2, 216.6	71.2	.43	.00**
Psycho/Spiritual	79	3.65	1.12	126	4.06	1.11	51	4.37	0.92	49	3.11	0.97	3, 304	14.6	.13	.00**
Social	79	3.55	1.27	126	3.38	1.17	51	3.74	1.14	49	2.88	0.95	3, 249.6	5.58	.05	.00**
Total Wellness	79	3.7	0.79	126	4.34	0.76	51	4.48	0.62	49	3.67	0.64	3, 304	22.8	.18	.00**
ATG																
Anxiety	79	36.6	15.5	126	30.9	14.6	51	29.9	12.5	49	26.9	10.4	3, 211.32	25.8	.21	.00**
Avoidance	79	47.8	17.8	126	68.9	16.7	51	56.1	20.3	49	68.2	16.8	3, 215.55	6.25	.05	.00**

Significant at the $p<0.05$ level.

Hypothesis 1.

A MANCOVA was completed to determine differences between health groups and the domains of the BioPPSI and ATG, while controlling for covariates which were found to be significantly related to the dependent variables, in order to control for type I error. However, the Box's Test of Equality of Covariance Matrices violated the assumption of homogeneity of variance (p = .000). Generally MANOVAs are robust to violations of multivariate normality and to violations of homogeneity of variance-covariance matrices if groups are of nearly equal size (N of the largest group is no more than 1.5 times the N of the smallest group) (Pallant, 2007). However, in this sample the smallest group, Mental and Physical diagnosis (n = 49) is much smaller than the largest group, No diagnosis (n = 126). This may be one reason for the significant Box's Test. This is generally corrected with utilizing a lower significant level (p=.001). However, as the significance level was much smaller, the results of the MANOVA were not utilized. As such, a series of ANOVA's were conducted to assess group differences.

Group differences were observed in the results of ANOVAs and significance was found in every dependent variable (see Table 15). To control for an inflated Type 1 error, a Bonferroni adjustment was conducted to ensure conservative results (p = 0.01). Illness Groups had the largest effect on the Physical Well-Being domain, $F(2, 216.6) = 71.23$, p = .00. Those in the Lupus group demonstrated lower scores than all the other groups. There were no significant differences between the No Diagnosis, Physical, or Physical/Mental Diagnosis groups.

Differences were also observed in the Psychological/Spiritual domain, $F(3, 304) = 14.59$, p = .00. Participants with co-morbid Physical and Mental health diagnoses

demonstrated the lowest Psycho/Spiritual Well-Being scores, followed by the Lupus group. However, it was the Physical diagnosis group which reported the highest levels of Psychological/Spiritual Well-Being.

Social Well-being also demonstrated differences across groups, abet with a lower effect, $F(3, 249.6) = 5.58$, $p = .00$. Participants with Physical/Mental Health diagnoses reported significantly lower Social Well-Being than those with Lupus or a Physical Diagnosis. Finally, when examining the relationship between illness groups and Total Well-being, both Lupus and the Physical/Mental Health Diagnosis groups were significantly lower than the No Diagnosis or Physical Diagnosis groups.

Illness Groups also had a large effect on Anxiety toward God, $F(3, 211.32) = 25.75$, $p = .00$. Generally, those with a Lupus Diagnosis and those with a Physical Diagnosis demonstrated significantly lower Anxiety toward God than the No Diagnosis and Physical/Mental Diagnosis Groups. Similarly, the Lupus Group demonstrated the highest levels of Avoidance toward God when compared to the other groups, $F(3, 215.55) = 6.25$, $p = .00$.

Hypothesis 2.

T-tests were utilized to explore differences between those with and without a SLE diagnosis in Anxiety and Avoidance to God (see Table 16). In both, there were significant differences between those with and without SLE. Results indicate those with SLE endorsed higher levels of avoidance, $t(14.76) = 3.92$, $p = .00$, and lower levels of anxiety .

Table 16.
Interaction between SLE Diagnosis and ATG variables

	N	Yes	SD	*N*	No	SD	*t*	*df*	*p*
Avoidance	82	36.68	14.76	223	29.65	13.57	3.92	303	.00**
Anxiety	82	44.93	16.33	223	67.16	17.60	-9.97	303	.00**

p < .01 ** two-tailed

In order to determine significant differences across groups of ATG Styles between SLE and the Non-SLE sample, a Chi-square test for independence indicted a significant association between SLE diagnosis and attachment style, $\chi 2$, (1, n =305) = 65.13, p = .000, Cramer's V = .46 (see Table 17).

Table 17.
Cross tabulation of SLE diagnosis and ATG style

	ATG					
SLE	Secure	Preoccupied	Dismissive	Fearful	$\chi 2$	Cramer'sV
Yes	43	21	9	9	65.14**	.46
No	31	166	10	16		

Note. **= p < .01.

Individuals with SLE were more likely to have a secured attachment style to God (52.4%) than those without a diagnosis (13.9%). Those without a diagnosis were more likely to exhibit a preoccupied (74.4%), fearful (7.2%), and dismissive attachment styles (4.5%). Those with a diagnosis were likely to have the following attachment styles: secured, (52.4%), preoccupied (25.6%), dismissive (11%), and fearful (11%).

Hypothesis 3.

The third hypotheses postulated the presence of a statistical difference between Lupus quality of life and spiritual well-being, with higher Lupus quality of life coinciding with higher spiritual well-being. A one-way between-groups multivariate analysis of variance was performed to investigate ATG differences

in LQoL domains. Nine dependent variables were used: Physical, Pain, Planning, Intimate Relationships, and Burden to Others, Emotional Health, Body Image, and Fatigue. The independent variable was ATG style.

Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and Multicollinearity. However, this sample violated the assumption of homogeneity of variance-covariance matrices as the Box's test of equality of covariance matrices was significant ($p = .001$). As such, Pillai's trace was utilized, as opposed to Wilks' Lambda, as it is more robust (Tabachnick & Fidell, 2007).

There was a statistically significant difference between ATG styles on the combined dependent variables, $F (24, 219) = 2.07$, $p = .003$; Pillai's Trace = .55, partial eta squared = 0.19. When the results for the dependent variables were considered separately, the only difference to reach statistical significance, using a Bonferroni adjusted alpha level of .006, was Emotional Health. An inspection of the mean scores indicated the fearful attachment style reported significantly lower levels of emotional health than those with secure or dismissive styles, $F (3, 81) = 6$, $p = .001$ (see Table 18).

Table 18.

Manova between ATG Style and LQoL

	Secured			Preoccupied			Dismissive			Fearful						
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	df	F	η^2	*p*
Physical	43	42.4	22.1	21	54.2	26.2	9	55.2	18.0	9	34.7	19.5	3	2.50	.09	.07
Pain	43	30.8	27.5	21	45.6	31.0	9	48.2	28.5	9	28.7	30.7	3	1.96	.07	.13
Planning	43	44.4	28.9	21	57.9	31.2	9	36.1	28.3	9	25.9	29.6	3	3.07	.11	.03
Intimate Relationships	43	57.6	32.6	21	56.6	37.4	9	43.1	33.1	9	34.7	24.0	3	1.52	.06	.22
Burden to Others	43	32.4	27.9	21	35.3	31.9	9	27.8	32.0	9	13.9	13.2	3	1.32	.05	.27
Emotional Health	43	63.3	20.1	21	66.1	19.6	9	49.5	23.2	9	34.3	27.9	3	6.00	.19	.00*
Body Image	43	53.8	25.8	21	66	28.8	9	48.9	25.6	9	39.4	23.2	3	2.44	.09	.07
Fatigue	43	31.5	22.6	21	34.8	25.6	9	34.7	19.3	9	20.1	12.0	3	1.00	.04	.40

Bonferonni Adjusted p value < 0.00625*

Hypothesis 4.

There will be a statistical difference between the levels of impairment and spiritual well-being, with participants with lower impairment reporting higher spiritual well-being. There will be a statistical difference between the levels of impairment and ATG style. Those with higher impairment will have more secured attachment styles.

Results indicate differences in ATG style and levels of impairment, F (3, 91.94) = 7.16, p = .00 (see Table 19). Participants reporting a preoccupied ATG style reported significantly lower levels of impairment than those with Secured or Fearful styles. To better understand differences in the groups, the domains of Anxiety and Avoidance toward God were also explored.

Table 19.

ATG styles and Impairment

	Secure			Preoccupied			Dismissive			Fearful					
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	F	η²	*p*
Impairment	74	2.67	1.32	187	2.01	0.1	19	2.49	1.27	25	2.81	1.23	7.16	.08	.00**

Relationship between ATG style and impairment.

** = $p<.01$

T-tests were utilized as there were not enough participants to analyze the impairment domain with three distinct groups: Low Impairment, Medium Impairment, and High Impairment (see Table 20). Thus, impairment was separated into Low and High levels of Impairment. Results indicated those who had lower level of impairment had significantly lower avoidance toward God than those who had high levels of impairment, $t(303) = -3.44$, $p = .00$. Participants who reported a low level of impairment were also significantly higher on assessments of anxiety toward God than those who reported high levels of impairment, $t(303) = 4.65$, $p = .00$.

Table 20.
Interaction between Impairment and ATG variables

	Impairment									
	N	Low	SD	*N*	High	SD	*T*	*df*	*n2*	*P*
Avoidance	187	29.4	13.5	118	35	14.7	-3.44	303	.04	.00**
Anxiety	187	65.3	18.6	118	54.7	20.1	4.65	303	.07	.00**

p < .01 ** two-tailed

Summary of Results

The findings of the current study support the first hypothesis, indicating the biopsychosocial-spiritual model was able to accurately portray the relationship between the four variables. However, as the BioPPSI demonstrated psychometric weaknesses, the support for the model is derived from the addition of a measure of relational spirituality. Partial support for the effectiveness of the BioPPSI was provided as differences were observed in each domain between illness groups. However, the differences between the groups were not as varied as one would have expected based upon the number and degree of severity some of the participants reported. Furthermore, ceiling effects were observed in each domain, coupled with smaller than preferred standard deviations, indicating it is not assessing the breadth of the constructs. As such, the measure does not fully capture the well-being domains and care need to be taken when interpreting results.

The second research hypothesis was also supported in SLE participants reported significantly higher rates of secured attachment to God than individuals without this diagnosis. However, the third hypothesis was only partially supported as relational spirituality was only significantly positively related to the emotional health of the participants.

Finally, the forth hypothesis was partially supported as a significant negative relationship was observed between impairment items and relational spirituality. However, these items double loaded with other items of the BioPPSI and their validity as a singular domain is highly questioned. As such, these items were dropped and maintained solely for research exploration.

CHAPTER IV

DISCUSSION

The original goal for this study was to contribute to the BioPSS model, with a specific interest in exploring the relationship between relational spirituality and the model. Secondly, this study set out to understand the relationship between SLE and spirituality utilizing the biopsychosocial-spiritual model. The results did not support the proposed four factor model of the BioPSS, as spiritual items cross loaded with the psychological items. However, due to the inclusion and significant results of the relational spiritual items, it is possible to state that partial support of the BioPPS was found. This highlights the role of relational spirituality in health research and the need to continue studying this relationship. Furthermore, the study indicated SLE is a distinct disease which can lead to lower well-being for those diagnosed. Relational spirituality was distinct in this group as well, as those affected tended to have more secure attachment styles. As such, relational spirituality is an important area to understand in the SLE population and health psychology in general.

The implications of these results, as it relates to health psychology and the SLE population will be discussed in the following sections. First, discussion on the support and lack of support for the BioPSS model will be discussed. In doing so, the definitions of spiritualty and the methods for psychometric development will be explored. Relatedly, the importance of the inclusion of relational spirituality in health psychology is discussed

as well as the possible relationship between health issues and the compensation and correspondence hypothesis debate. The implication for SLE will also be discussed and the importance of furthering research with this population.

Biopsychosocial-spiritual model

The original biopsychosocial model was groundbreaking, as it transitioned the medical professions from a biological focused model to a broader, more holistic version, improving patient care and outcomes (Sulmasy, 2002). The inclusion of spirituality in the model takes it a step forward, more accurately assessing and identifying patient needs. By having a broader understanding of the person receiving care, providers can more astutely provide targeted interventions and improve overall health. While the BioPPSI did not accurately measure the four domains of the biopsychosocial-spiritual model, this study did provide additional support for the model in general. Specifically, it demonstrated an intrinsic type of relational spirituality was also significantly related to well -being in all domains. The following sections will first discuss the factor structure of the measure and how it affects the generalizability of the data. Secondly, this section will then discuss how describe how these factors interacted with each other and the differences observed in the SLE sample. Finally, the role of relational spirituality, as it relates to the biopsychosocial-spiritual model will be explored.

Weaknesses of the current BioPPSI.

The Biological, Psychological, Social, and Spiritual underpinnings of the measure were not supported, as spiritually items loaded with psychological items upon analysis. As such, the construct validity of these two sub-scales is questionable. Furthermore, the impairment items co-loaded heavily with other domains and several demonstrated high

correlation with others resulting in the lack of usefulness of this domain. Specifically, the current study identified only three main factors, as opposed to five, and the previous five factor model was not supported. As such, both the impairment domain and psychological/spiritual domain should be explored further. Researchers should be cautious when utilizing these items. The lack of five factor design is possibly due to the spirituality items themselves, the prior organization of the items, multicultural issues surrounding spirituality, poor content validity of the spiritual sub-scale, or the influence of demographic variables expressed in this particular sample.

While the psychological and spiritual co-loaded upon a singular variable, some researchers state it is still possible to separate these items into two factors based upon the theoretical constructs the items are based upon (Nunnally and Bernstein, 1994). However, psychometric theory would hold sound practice would be to keep these items together, as they have demonstrated quantitative similarity (DeVellis, 2003). As the Psychological and Spiritual items co-loaded, demonstrating the items co-vary with one another and possibly define a meaningful underlying latent variable.

Unfortunately, it is difficult to clearly delineate what the psychological/spiritual factor is truly measuring as it includes many spiritual based items and a few psychological items. As such, the implications of the results, in regard to the Psychological/Spiritual Well-Being scale are limited and the results should be taken with care. There are several potential reasons why these items co-loaded. It is possible this combined factor measures psychological constructs which are, in this sample, highly related to the spiritual paradigm or that the scale is truly a combined psycho/spiritual well-being scale.

As the psychological and spiritual items loaded on one factor, the question of accurate content validity arises in these domains. One factor which may have influenced the factor structure is the inability of the items to fully capture the breadth of the constructs they were measuring. Evidence supporting this possibility is derived from observed ceiling effects in all four of the domains. When reviewing the individual items, the majority of the items means were positively skewed with smaller than preferred standard deviations. These results indicate the measure is not capturing the full constructs they were attempting to measure (DeVellis, 2003). Considering just under half of the participants have reported one or more medical or mental diagnosis, it would have been expected to see greater variation in the scores.

When examining the items themselves, currently only two of the original items assess for depression and two assess for positive indicators of mental health. It is possible the four items in the psychological domain were not able to capture psychological well-being as a full construct. Evidence for this would be the high correlations between several of the items, resulting in their deletion. As such, it may be necessary to consider adding additional items or rewording the current items in order to capture the full breadth of the construct.

However, many of these items in the BioPPSI are rewritten items from a very well established spirituality measure, which has demonstrated independence from psychological concepts in over multiple studies and in various abbreviated versions (Katerndahl and Oyiriaru 2007; Cella, 1997). Thus, it is possible the items are still accurately assessing for spirituality.

As such, it could be argued, while it appears as if the psychological and spiritual items are loading onto the same factor, the two are still truly separate entities theoretically, with items that just happen to be highly related to each other. Supporting this possibility, prior research has indicated spiritually to be positively related to meaning in life, self-esteem, and positive affect (Kashdan and Nezlek, 2012). However, as the items in the current study co-loaded with each other, they did not demonstrate psychometric independence. This indicates the relationship between the variables is more complex than simply being moderately related with each other.

One possible rationale for the combined factor loading of the psychological and spiritual items may be due to the aspect of spirituality expression they are tapping into. The BioPPSI is assessing affective spiritual states (i.e. feeling peaceful, having a purpose, etc.) rather than cognitive or behavioral aspects (Monod et al., 2011). These states could be related the psychological state of the research participant. As such, in this sample, the items are potentially tapping into their psychological well-being more so than the spiritual well-being.

As such, these results would support a frequent critique of generalized spirituality measures which implicates they are not assessing an individual construct, but rather aspects of positive psychology (Westerink, 2012). The results of this study's factor analysis support this possibility as the positively worded psychological items, just as the spiritual items, while loading on the same factor did so positively while the negatively worded psychological items loaded negatively on the factor. Other studies have also encountered similar relationships between positive psychological health and spiritual items van Dierendonck 's(2004) exploration of a psychological well-being measure with

spiritual well-being conducted a series of factor analysis and found the spiritual items loaded with the psychological items, similarly to the present study. More specifically, in Dierendonck's study, the two scales of Spiritual Well-being, Inner resources and Relationship with a Higher Power, strengthened the self-actualization dimension in the second order factor analysis. The author postulated these elements possibly put forward the role of the Daimon, or "true self", as described by Waterman (1993). An additional study explored the link from daily spirituality to both self-esteem and found positive affect was fully mediated by meaning in life, an important construct in spirituality (Kashdan and Nezlek, 2012).

When developing surveys, it is important for items to demonstrate a clear distinction from each other when separate in their domains (DeVellis, 2003). This is beneficial for the field of psychology as the underlying models will then clearly be supported and give more power to the research in general. Based upon this paradigm, the limited amount of prior research supporting the instrument, and upon the current study's findings, it would be premature to declare the spiritual and psychological items of the BioPPSI as distinct domains.

Rather, based upon their current co-loadings and past research also identifying a lack of clear domains between the two, it is better to take a conservative approach to the BioPPSI and keep the current factor structure identified in the current study. The psychological and spiritual items should remain consolidated and considered to be assessing psychological constructs. In augmenting the biopsychosocial-spiritual model, with the measure of relational spirituality to assess for the spiritual domain was utilized.

A further limitation of the BioPPSI which warrants discussion was the inability of the measure to identify differences across illness groups. In this study this ability was limited, especially in the physical domain as lupus was the only group significantly different than the others. These differences will be discussed in more detail later in the chapter however, it is important to make note of them when discussing the ability of this measure to assess the latent domains of the model due to the inability of the measure to assess differences between illness groups. Considering the large sample size, coupled with the large group of individuals reporting a longstanding chronic illness in conjunction with the large sample of young individuals without a diagnosis, these results are surprising. Based upon the previous studies published, it would have been expected to produce a larger spread of scores. Thus, the ability for the BioPPSI to accurately assess for differences in illness groups is called into question.

Because of a lack of factor structure supporting the biopsychosocial-spiritual model, coupled with the inability of the measure to delineate differences across illness groups, the usefulness of this assessment measure is questionable until these psychometric issues are addressed. As such, the results of this study, as it concerns the psychological and spiritual BioPPSI data, are limited. Thus, while the results of these items are reported, care should be taken as to their generalizability.

Relational Spirituality in the Biopsychosocial-spiritual model.

This study also highlighted the importance of relational spirituality to the biopsychosocial-spiritual model. This was especially important as the original spiritual items did not accurately assess for spiritual well-being. By demonstrating significance in all three domains, the relational spirituality measure added support for the need to include

spirituality as the forth domain in the model. As this particular measure of relational spirituality was significantly related to traditional items of affective spirituality, this study also highlights the need to more fully define and assess the construct as a whole.

One issue this study highlights is how spirituality is defined and measured, as the original spiritual items, which are derived from an existential definition of spirituality, cross-loaded with the psychological items. Within the field of psychology, while many can agree on the impact of spirituality and the importance in better understating the effect of this construct, researchers differ on the best definition of spirituality, leading to varying methods for measuring the construct. The results of this study lend support for researchers to more accurately refine their definition of spirituality, suggesting a relational focus would benefit the research definition as it has demonstrated a significant relationship with well-being.

By including a relational aspect to the definition, researchers would be able to assess the construct more fully, which is vital in a multi-cultural society such as the United States consisting of regional, ethnic, racial, and religious differences. It is important to consider how to measure spirituality in general across these world-views. As indicated in this study, by only utilizing a broad measure of spirituality, researchers are at risk of losing the varied distinctiveness found in the various religious and cultural groups. In the current sample, Christians consisted of the largest religious group and a majority of them reported having a relationship with the Divine was important aspect of their spirituality. By not including items assessing this facet of the construct, the full breadth of spirituality for Christians is not being fully explored.

An important consideration is relational spirituality may be different for other religious groups. While this study was able to adequately address relational spirituality as it related to Christians, it is questionable whether it could do so for other religious groups due to the measure previously being normed on Christian samples. Thus, supporting the need to better understand relational spirituality in the context of multicultural and health issues, especially as differences were observed in ATG style across health groups.

It is important to keep in mind that for many individuals who identify as spiritual (Schnell and Keenan, 2011), existential based items, such as those found in this survey, may be very appropriate. However, other worldviews and belief systems have different views on spirituality. This could account for the differences observed in ATG styles in this study as those who did not identify as religious reported increased anxiety and lower avoidance. When reviewing the items from this worldview, a healthier and more adaptive response would be in not relying upon a deity. Generally, in ATG research, a more secured attachment style is the preferred style. However, it is possible, for non-religious populations, a differing interpretation of the results is necessary. In honoring their worldviews, it may be appropriate to reassess the meaning of the scales. For example, it is possible for an individual who is atheist to view dependence on a divine being as a weakness while depending upon their own person as a more adaptive approach to the world.

As such, while the broader themes of meaning of life, purpose, peace with the world that were found in the spirituality items of this survey tap into an important theme important to spirituality, they may not fully encapsulate spiritualty for other groups.

Additionally, this study identified how these items may not be distinct enough to differentiate from positive aspects of psychology.

The need for a total score.

An additional necessary alteration in the BioPPSI discussed previously was the development of a Total Well-Being score. Having a total score is important as, in addition to understanding how the various physical, psychological, social, and spiritual domains assess health individually, it is important to understand how these factors contribute, when combined, to the overall health of the patient. In order to more fully understand this impact, the current study utilized a Total Well-Being scale. The results identified differences of overall well-being as it relates to ATG and demographic variables. As such, this study highlights the need to include a total score as the various domains interact with each other resulting in differing levels of health. The total score can provide medical and mental health providers and researchers with a snapshot of the patients' overall health.

While having a total score is beneficial, there are several drawbacks to having one consolidated score. When combining scores, it is possible to loose specificity. This could possibly result researchers not identifying unique needs in the varying domains. Additionally, while the total score is designed to be utilized as "snapshot" of well-being, it could potentially be misused as providers may simply observed the total score and not consider the individual domains, thus, potentially missing opportunities for clinical interventions.

Interaction of illness groups with the BioPPSI

While the measure presented with psychometric issues discussed above, when assessing differences across health groups, partial support the BPSS model was provided. The first hypothesis predicted the underlying model of the biopsychosocial-spiritual model would be supported due to differences in illness groups. As such, further exploration of the Biopsychosocial-spiritual model should be completed to gain a stronger understanding of how to best assess the model. The following will discuss how illness groups and SLE diagnosis was related to the outcome variables and the implications.

When assessing well-being, it is important to understand the total well-being of individuals as it provides a comprehensive overview of how the individual is fairing in a holistic manner, taking in each unique contribution of physical, psychological, social, and spiritual wellness. Within this study, differences emerged in the impact of each domain on varying health groups. For instance, while the SLE group demonstrated the lowest level of physical health, it also reported higher social and physical/spiritual well-being than other groups, leading it to have a similar level of total well-being as those without a diagnosis. This emphasizes the need to understand how each group is effected as there may be differing mechanisms for these differences within each of the wellness domains.

Physical Well-Being.

Each of the domains demonstrated varying levels of accuracy in assessing for differences in well-being based upon health status. First, due to the impact of illness, it would have been expected to observe more diversity in physical well-being scores between the health groups. However, ceiling effects were observed and only the Lupus group demonstrated significantly lower scores, averaging just above the mean. As such, it

is possible the Physical Well-Being items do not accurately demonstrate specificity in their assessments.

Generally, the higher number of physical or psychological diagnosis a participant reported, the lower their physical well-being. This was especially true of total well-being as there was a linear relationship and between the variables. This could also explain the group differences in the physical domain as many of the SLE participants reported additional co-morbid mental and physical diagnosis. As such, this could account for the differences in physical well-being, over and above SLE. These findings highlight the need to better understand the impact of co-morbid illness in those with SLE.

While the physical domain was not as specific between illness groups as would have been preferred, this study adds further support to the heavy impact SLE inflicts on those with this diagnosis, with the most prominent being on the physical health. As a disease which impacts multiple organ systems, the toll upon those diagnosed is heavy. Considering individuals with SLE are living longer lives due to advances in medication, it is important to have a strong understanding of a patient's physical well-being. By being able to accurately assess this domain, medical providers will be able to more accurately focus treatments and mental health providers will be more able to refer to appropriate medical providers.

Due to the impact of SLE on Physical Well-being, it is important for medical and mental health professionals to understand the interplay between the disease and physical wellness in this population. This will better enable them to monitor and treat the effects of these conditions, thus increasing overall QoL. Several possible methods for

monitoring this interaction by assessing disease activity via various bio-markers, survey, or clinical interview (Nery et al., 2007; Khanna et al., 2004)).

The finding of SLE exhibiting lower physical well-being is not surprising as; the SLE group consisted of a high number of participants with co-morbid physical and mental health diagnosis. However, in other chronic illness conditions, those with co-morbid mental and physical illnesses also tend to have decreased Physical Well-Being and increased morbidity (Moussavi, Chatterji, Verdes, Tandon, Patel, & Ustun, 2007). As such, it would have been expected for the co-morbid physical/mental health diagnosis group to also exhibit lowered physical health.

Similarly, one possible explanation for why SLE has such an impact on Physical Well-being is SLE is a multi-system disease, which leads to a variety of serious, potentially life-threatening symptoms, which can lower Physical Well-being. Generally, individuals with SLE suffer with the disease for an extend period of time prior to receiving a definitive diagnosis. As such, the disease could have already caused damage, lowering Physical Well-being even after the disease goes into remission. This gives further support for the need to understand how SLE affects individuals, over and above other illness groups.

However, there exist several possibilities which could explain the current results in regard to the inability to observe more differences between illness groups. First they could be due to these individuals with only physical illness building a resiliency to stress due to exposure to physical illness. Past research has identified that some amount of physical illness results in heighted total well-being via building resiliency (Denz-Penhey & Murdoch, 2008). Secondly it is possible the no diagnosis group did have mental or

physical diagnosis but have yet to have them diagnosed. A method for this to occur could be due to those who reported diagnosis may be more prone, due to personality factors, availability, or finical resources, to seek out medical and mental health assistance.

Furthermore, it was not unexpected for those with comorbid physical and mental health issues to report the lowest psycho/spiritual or social wellbeing, especially as both chronic and acute illness, can lead to financial, employment, social, and existential dilemmas. These additional stressors, especially over time, can lead to anxiety, depression, or other mental health diagnosis (Sav, McMillan, Kelly, Kendall, Whitty, King and Wheeler, 2012). This trend is also observed in the literature as depression is often common in SLE diagnosed individuals (Schattner, Shahar, Lerman, & Shakra, 2010).

Psychological Well-Being.

Secondly, within the psychological/spiritual domain, the expected differences occurred, as those with co-morbid mental/physical illness reported the lower psychological/spiritual well-being. However, considering many of the SLE participants also reported comorbid mental health diagnosis, it would have been expected for the SLE group to demonstrate lower levels of psycho/spiritual well-being.

Interestingly, despite the stress associated with having a chronic illness, the SLE participants were not significantly different than those without any diagnosis in psycho/spiritual well-being. One rational for this finding may be due to the domain as it contained a large amount of spiritual items. As those with SLE reported higher levels of secured attachment, it is possible these high results are more indicative of a higher spiritual well-being than psychological well-being. On the other hand, the domain may be

more accurately tapping into psychological factors and it could be possible some protective factor is helping to improve well-being in this domain. For example, it could be due to SLE participants possibly having more frequent medical appointments. Generally, mental health screens are routinely conducted, possibly leading to identification of mental health issues by providers whereas those without a physical or mental health illness may not have this frequent assessment.

Interestingly, this study found those who were single to have higher levels of Psychological Well-Being than other marital status groups. Prior research has been mixed as to the influence of marital status on well-being. Some lend support for marital status having a buffering effect and have found individuals who are married tend to have the highest levels of psychological wellbeing, following by unmarried individuals, with the lowest being found in the divorced or widowed (Mastekaasa, 1992; Wittenberg, Yutsis, Taylor, Giese-Davis, Bliss-Isberg, Star, & Spiegel, 2010). However, others have found being married was associated with increased distress and uncertainty (Kenefick, 2006 ;). Liao, Chen, Chen, & Chen, 2008). The findings of the current study would lend support to this finding as those who were single reported higher psychological Well-Being.

There are several possible reasons for the relationship between being single and higher Psychological Well-Being. One rational for this difference could be due to the age of the sample as the single individuals tended to be younger, while the married individuals were older. Additionally, other factors, such as marital distress and quality of the relationship could have played a role as the study did not examine quality of the marital relationship or assess ways that positive and negative spousal interactions may influence distress or emotional well-being.

Social Well-Being.

Finally, within the Social domain, the results of the study support prior research (Pfeiffer, Piette, Rogers, and Valenstein, 2011) which finds those which mental health diagnoses tend to have lower levels of social support as the physical/mental health group reported the lowest Social Well-Being. Again, considering the Lupus group also consisted of individuals with a co-morbid mental health diagnosis, it is surprising this group demonstrated higher levels of Social Well-Being, especially as in other autoimmune disease, individuals have reported a decrease in social support over time (Fyrand et al., 2002).

In addition to being able to ensure the construct validity of the measure, the ability of the measure to identify differences across illness groups is important. However, the measure was unable to do so in several of the domains. Based upon the results of this study, questions also arise as to the ability of this measure to accurately assess for differences across illness groups, specifically in the physical domain.

One rational for this result could be due to the SLE participants generally being collected from social networking sites, as this could provide a source of social support, while the other groups were generally collected from the Amazon Turk site. Additionally, the majority of the Lupus group was women and, in this sample, the women reported significantly higher social well-being. As women generally have higher levels of social support (Ashida and Heaney, 2008)) it is perceivable this result is due to gender differences.

In addition to differences across well-being domains, the SLE group demonstrated differences in relational spirituality as this group endorsed more secure attachment to

God. This finding highlights the importance of understanding how relational spirituality influences chronic health issues.

Attachment to God in health research

In addition to exploring the usefulness of the BioPPSI, this study was the first to explore ATG within health groups. Generally, those with Lupus demonstrated low levels of anxiety and higher levels of avoidance, traits associated with securely attached individuals. Furthermore, those with a Physical/Mental diagnoses also reported similarly high levels of anxiety. The results highlight the importance in understanding how ATG interacts with health outcomes as differences were found between biopsychosocial domains.

These differences could account for the variable results past researchers have observed when attempting to determine the development of ATG in individuals, specifically in exploration of the correspondence and compensation hypotheses. Generally, these past studies have not controlled for the interaction of the physical health as a medicating variable. As such, it is possible the differences these studies present may in part be due to differences in health status amongst the participants. Considering, the majority of these past studies have been completed on a younger college sample, which generally tends to be healthier; the inclusion of a measure of biopsychosocial well-being could help to clarify past ATG research.

These findings add to the past research, in adult relational attachment, which has also found attachment styles to be significantly related to chronic health conditions (McWilliams and Bailey, 2010). Just as in the current study, an anxious attachment style was associated with those health conditions, specifically those which were susceptible to

stress, such as cardiac conditions while an avoidant attachment style was related to pain conditions.

The current study adds to the ATG research as it identified the SLE group was the significantly different as it demonstrated a secure attachment style high in avoidance, similar to the pain patients in the previous study. Based upon these similarities, and the need to understand possible differences in other health diagnoses, future research could better illustrate the relationship between ATG style and these various health conditions by assessing differences across diagnosis groups.

The results of this study also highlight the need for mental health professionals to address religious and spiritual issues in treatment, as higher levels of Anxiety toward God was found to be associated with decreased Psychological/Spiritual Well-being. However, it is important to note, this outcome may be more indicative of the inclusion of the spiritual items as higher spiritual well-being has been associated with more secured attachment (Beck & McDonald, 2004). However, these findings do mirror other studies which have found a relationship between secured adult relational attachment styles with higher psychological Well-Being (McWilliams & Bailey, 2010).

A rational for the lack of findings between these variables may be due to individuals who tend to be higher in avoidant styles to dismiss or avoid considering their stressors, thus reporting lower levels of psychological distress (McWilliams & Bailey, 2012). Additionally, those with higher anxious attachment styles may be more prone to psychological distress due to rumination, worry, and perceived slights from others (Reiner, Anderson, Hall & Hall, 2010). As such, individuals with a more anxious attachment style to God may be more susceptible to mental health issues such as anxiety

and obsessive compulsive or depressive disorders, all of which can lower psychological well-being.

Another reason for the interaction between psychological and spirituality is related to the ability of certain attachment styles to safeguard from external stressors. For example, due to having a more secured attachment style to a higher power, an individual may be protected from external stressors, such as being diagnosed with a chronic illness, which could impact psychological well-being. This could explain why those with SLE reported higher levels of faith in the Divine and more secured attachment style.

As such, this study adds partial support for previous research which has highlighted the relationship between these variables finding a secure attachment to God at baseline is associated with a decrease in distress over time, a secure attachment to God buffers against the deleterious effects of stressful life events on distress, an anxious attachment to God exacerbates the harmful effects of stress (Ellison, Bradshaw, Kuyel, & Marcum, 2012; Bradshawvet al., 2010; Kirkpatrick et al., 1999). Future longitudinal research could help to clarify this relationship.

However, it will be important to understand when the secured attachment styles developed as past studies have identified; having a more secured adult relational attachment style prior to stress exposure mitigates the effect of the stressors, resulting in more secured psychological well-being (Ellison et al., 2012). Therefore, those individuals with more anxious styles of attachment to God may be more prone to psychiatric diagnosis.

Thus, while unpleasant an additional consideration, the high number of secured individuals with SLE in this study could be a result of a higher mortality rate in those

with less secure ATG styles. Thus, future research needs to engage in longitudinal studies to understand how ATG develops or changes in those with a chronic illness.

Another common critique of the spirituality research postulates the previous samples tend to be more religious. Therefore, it is difficult to provide generalizability to the greater population. This study attempted to be more inclusive of other religious, and only 52% identified as Christian or Catholic. The other participants identified with other religions or did not report their religious status. The differences observed between the Protestant, Catholic and Non/Atheist groups could potentially be a result of the bias of the instrument to assess for relational spirituality. As such, this supports the need to utilize broad measure of spirituality which will not be biased against those without a relational component to their belief systems. There is limited work in the ATG literature exploring faith differences in ATG and have only found differences between individuals identifying with the Church of Christ and those of the Roman Catholics or Non-Denominational Charismatic groups (Beck and McDonald, 2004). However, as differences in ATG were found in every domain of the physical, psychological, social, and total well-being domains. This indicates ATG style provides an additional factor influencing these domains. However, the results were mixed upon which variable, anxiety or avoidance was a significantly related to the dependent variable.

Within this current study, differences were also observed between religious groups. However, many of the religious groups were low in number and these findings need to be taken conservatively. Similarly, other studies have found other differences in spirituality between religious groups. For example, Johnstone et al., (2012) has also identified differences in spiritual measures between Muslims, Jews, Catholics, and

Protestants, with Muslims reporting the highest levels of spiritually across four domains (i.e., Daily spiritual experiences, values/beliefs, meaning, religious/spiritual coping). Another recent study found cross-cultural/cross-religious differences in how Muslims and Christians approach God, in that they utilize a less direct, more mediated approach (Miner, Ghobary, Dowson and Proctor, 2012). Of important note, there are very few research articles addressing spirituality for minority belief systems, (such as Pagan, Wiccan, Voodoo, etc.) or those of atheist belief system. However, the few articles published present interesting findings which indicate the need to consider how spirituality is exhibited and experienced in these populations. For example, just as there are differences within various religious group members, there are differences between Atheist individuals. For instance, commitment to Atheists world views has been classified as Low-commitment, broad-commitment, and those committed to self-actualization (Schnell and Keenan, 2011). Differences in meaning making, an important aspect of spirituality, has been observed in these various groups.

Within the Attachment to God literature, there has been no published research on attachment to multiple Gods/Goddesses. For example, a Wiccan may have a strong and secured relationship with the Goddess but an insecure relationship with the God (much similar to mixed parental attachments (Ainsworth, 1985). Research in spirituality would benefit from having a better understanding of how spirituality presents in these belief systems.

Another weakness in this measure of spirituality is the lack of assessment of spiritual distress. A meta-analysis of over 100 studies highlight the relationship between spiritual struggles has been associated with depression (Smith et al., 2003). Other studies

have also highlighted the relationship between spiritual distress and health outcomes (Pargament et al. 2001, 2004). Due to this strong background, the BioPPSI could be improved by adding additional items to assess for this domain and then reverse scored to more accurately assess the spiritual construct.

In addition to including aspects of relational spirituality, there are numerous areas of spirituality that can be considered for inclusion, such as cognitive, behavioral, or affective areas of spirituality (Hill & Pargament, 2003). Additionally, research has identified spiritual needs; spiritual distress; spiritual maturity as valued contributors (Hill & Parament, 2003). A holistic assessment of spirituality would consist of factors from all of these domains. For example, if the BioPPSI would have included additional assessment items tapping into these areas, it may have maintained its original factor structure.

SLE and ATG.

Importantly, the results of this study supported the research hypothesis, as there was a relationship between SLE diagnosis and ATG style as individuals with SLE demonstrated a significantly higher number of securely attached participants than those without SLE. Interestingly, those with SLE reported having a belief in the divine more so than those without SLE and could have impacted how the respondents approached the assessment. However, when exploring the relationship between attachment styles and LQoL, relational spirituality was only significantly related to the emotional health domain. This indicates, while relational spirituality is an important factor for individuals with SLE, it may only play a significant role in individuals' emotional health.

As research exploring adult attachment in SLE found anxious attachment style to be significantly related to HrQoL (Bennett, Fuertes, Keitel, & Phillips, 2011), these findings indicate ATG may not have as much impact as adult attachment, as fewer domains of QoL were predicted. One possible reason for the lack of differences within this sample could be due to this large number of individuals with a secured attachment style. This resulted in less than optimal group sizes for the dismissive and fearful attachment styles. Future research would need to replicate these findings to verify these results.

Supporting findings in the relational attachment literature, individuals with secured attachment style to God reported the highest Emotional Health QoL when compared to a fearful attachment style. Indicating, those who feel comfortable with their relationship with the Divine also have better emotional health. These findings are similar to past research where a review of more than 80 studies published over the last 100 years found religious/spiritual factors generally linked with lower rates of depression (McCullough & Larson, 1999). Within relational spirituality, secure attachment to God has been positively related to life satisfaction and negatively related to anxiety, depression, and physical illness (Kirkpatrick & Shaver, 1992). More recently, in a national adult sample, Bradshaw, Ellison, and Marcum (2010) found that both avoidant and anxious attachment to God made an independent contribution to psychological distress even after controlling for demographic variables, stressful life events, church attendance, frequency of prayer, and God imagery. By understanding the relationship between ATG style and the emotional health of SLE participants, health psychologists can better intervene when addressing mental health issues.

Furthermore, these findings suggest it could be beneficial for mental health providers to engage in a therapeutic process around ATG styles when addressing mental health issues. It may also be appropriate to refer for a more appropriate therapist or clergy person familiar with mental health issues. This is especially apt as this study indicated psychological well-being is a strong factor related to Physical Well-Being. Pain has a relationship with emotional health as these are common findings in other chronic pain conditions (Sturgeon & Zautra, 2013).

There are several possible explanations why the SLE group demonstrated a higher rate of secured ATG style. It is possible; those who face a life threatening illness develop stronger belief systems to cope with the stress of the illness. As SLE is a pervasive multi-system disease, the multiple stressors associated with this chronic illness could lead these individuals to utilize their relationship with a higher power to overcome their hardships. Kirkpatrick (1999), reported individuals under stress were more likely to become attached to God. When individuals have limited ability to change their physical circumstances, they may find the only thing they can change is their ability to have a stronger spiritual connection. Supportive of SLE participants becoming more spiritual post-diagnosis is the research in other chronic illness reporting similar trends (Simon et al., 2007). Cadell, Regehr, and Hemsworth (2003) stated that spirituality can play an important role in meaning making and transformational coping. Higher spirituality has been associated with a better ability to cope in multiple diseases and conditions, such as schizophrenia (Shah, Kulhara, Grover, Kumar, Malhotra, & Tyagi, 2011), cancer, (Simon et al., 2007) and HIV (McInosh & Rosselli, 2012).

One reason for an increased ability to cope may be due to the increased development of meaning and purpose in one's life due to the diagnosis. It is possible those who have SLE are able to find meaning in their disease and suffering, leading to higher levels of spirituality. This would be similar to research in other chronic diseases, such as cancer (Kappeli, 2000; Moadel et al., 1999) and HIV (Tarakeshwar, Hansen, Kochman, & Sikkema, 2005).

The method in which spirituality may improve health outcomes may be mediated by the post-traumatic growth process (Cadell et al., 2003). This could account for the higher levels of emotional well-being for those with chronic illness in this sample, as the course of post-traumatic growth is the process of gaining an inner strength in the face of a trauma (Helgeson, Reynolds, & Tomich, 2006, Tedeschi & Calhoun, 1996). A meta-analysis completed by Helgeson et al. (2006) found spirituality, along with pessimism, positive reappraisal, and acceptance coping, to be related to posttraumatic growth. A more stringent meta-analysis also found spirituality to be related to post-traumatic growth as it moderately predicted changes post trauma (Prati & Pietrantoni, 2009).

Related to post-traumatic growth is resiliency. It is also possible the construct of secured attachment is also associated with resiliency. Resiliency develops as individuals encounter and overcome obstacles. It is generally considered to have five dimensions: connectedness to their social environment, to family, to their physical environment, to their sense of inner wisdom (experiential spirituality), and a personal psychology with a supportive mindset and way of living which supported their values (Denz-Penhey & Murdoch, 2008). Living with a chronic illness presents individuals with multiple obstacles, sometimes on a daily basis. As individuals with SLE are living longer, it is

necessary for them to develop methods to cope with their illness, which could result in higher levels of resiliency. Future research could explore how resiliency is related to perceived health and attachment to God in this population.

Another possible explanation for the high levels of secured attachment in this sample could be due to the tendency of survivors of chronic illness tend to have personality traits, which have been found to be associated with secured attachment. For example, a personality trait inversely related to survival in cancer patients is psychological distress (Mickelson et al., 1997) and seems to be a predictor of cancer prognosis (i.e., cancer mortality among those with a current cancer diagnosis or a history of cancer) rather than of incident cases of cancer (see Brown, Levy, Rosberger, & Edgar, 2003; Hamer, Chida, & Molloy, 2009). Thus future research in SLE could explore how these personality traits are associated with health outcomes.

Perceived Stress effect on domains

It is possible the interaction between health groups and the BPSS domains are mediated by how the participants perceived their stressors. The interaction between perceived stress and illness groups could help explain the findings of SLE being such a strong predicting variable for physical well-being.

Perceived stress has been associated increased cortisol levels, increased infectious disease, longer wound healing time, and depression (Carpenter,2004; Ebrecht, 2004, Pruessner et al., 1999).). This could be due to having higher amounts of stressors (physical/mental illness, financial strain, etc.) or it could be due to a pervasive world view. An individual with a more negative world view would be more likely to focus on stressors and report more negatively. As such, one method for increasing total well-being

would be to intervene on how individuals interpret their stressors (as discussed earlier). For example, if a patient tends to utilize the automatic thought pattern of catastrophizing, the provider can help the patient identify those thought patterns and help him or her develop alternative thoughts, thus reducing the stress of the trigger.

It is possible for those with more negativistic world views to report both lower psychological and physical well-being due to an inaccurate interpretation of their health (Navarrete-Navarrete N, Peralta-Ramírez M, Jiménez-Alonso J, et al., 2010). These findings highlight the need to further explore how SLE diagnosed individuals view their illness and how much control they have over it. Specifically, it would be helpful to explore self-efficacy in this population to determine how the belief they can handle the consequences of their disease is related to higher well-being.

However, due to the low reliability of the Perceived Stress Scale in this sample, the lack of significance may be due to the inability of the measure to accurately measure the stress of the sample. Considering the many studies which have found significant evidence to support the influence of perceived stress on the constructs, it is important for future research to reexamine the relationship between perceived stresses in similar studies.

Interaction of Demographics with Results

Age.

Another factor which could account for the significant finings is age. When compared to the overall sample, the SLE group was older. Furthermore, those who were younger, tended to have significantly higher levels of preoccupied attachment to God. These results support other research which has identified this style in the younger

samples (Wink and Dillon 2002). However, other research has found a different pattern. For example, Bartholomew and Horowitz (1991) for young adults (mean age 20), with 47% having secure attachments, 14% preoccupied, 21% fearful, and only 18% dismissing, which is more similar to the SLE sample than the non-SLE sample.

Due to these mixed results, additional research needs to be completed to better understand ATG and age. However, the current study supports the possibility that health may play a factor. This is because the current sample, which had many younger individuals without a chronic illness, tended to have higher levels of preoccupied ATG when compared to the past research. It is also possible the differences in the research could be related to a developmental phase associated with coming to terms with their relationship with their higher power as they make the adjustment from adolescence into adulthood. Perhaps stress derived from health issues is an impetus to progressing along spiritual developmental models.

A rationale for this trend is, as younger individuals, it is possible they are still coming to terms with their relational spirituality. Several spiritual development models have identified late adolescence and early adulthood as periods of spiritual growth. Helminiak (1987) identifies this period as the conscientious stage, where persons significantly structure their life according to their own understanding of things as opposed to how they were taught growing up. Wilber's Transpersonal spectrum model would identify this period as the Personal Level as anxiety and worry about the meaning of life and future may permeate spiritual endeavors (Sperry, 2003)

Generally, the early twenties is considered a time of coming to terms with oneself and it generally consists of the difficult transition from adolescence to adult hood. In this

phase of becoming more fully one's self, it is possible many of these individuals are also still coming to terms with their own spirituality and relationship with their higher power. As supported by this study, this phase of spiritual development and maturity could translate into higher anxiety toward a higher power.

Generally, past research has identified, via cross-sectional analysis, individuals who are older also tend to be more religious. (e.g., Levin, 1997; McFadden & Levin, 1996). This may be due to the aging process for, as individual's ages, many of their primary attachment figures, such as their parents, die. As such, God may serve as a substitute attachment figure for some religious older individuals who have lost other attachment figures (Cicirelli, 2004). Attachment styles toward God may also change as a result. Cicirelli (2002) explored ATG in older individuals and found 51% reported becoming more religious since middle age and only 8 % reported becoming less religious.

Findings in relational attachment also support differences in attachment due to age. However, they do not support higher levels of secured attachment in the older individuals. Bartholomew and Horowitz (1991) found young adults (mean age 20), tended to have higher secure attachment, with 47% having secure attachments, 14% preoccupied, 21% fearful, and only 18% dismissing. In an older sample, Webster (1997) found that only 33% of older adults (mean age 68) had a secure attachment style, 3% had a preoccupied style, 12% had a fearful style, but 52% had a dismissing style. Also, Diehl, Elnick, Bourbeau, and Labouvie-Vief (1998) studied three age groups (20 – 39, 40 – 59, and 60 – 88) in a cross-sectional study; they found that there was little age difference in the percentage manifesting a secure attachment style (approximately 51%), whereas the

percentage with a dismissing style was 40% for elders compared to only 16% for the youngest age group. Relatively few elders had a fearful (4%) or a preoccupied (4%) style. Finally, longitudinal data from the Berkeley Institute of Human Development, Wink and Dillon (2002, p. 79): ‘‘all participants, irrespective of gender and cohort, increased significantly in spirituality between late middle (mid-50s/early 60s) and older adulthood.’’ Indeed, elders’ feelings of religiousness have been found to show either stability or increase during the last year of life (Idler, Kasl, & Hays, 2001). Based upon the results of this study, it is possible there are pervasive differences in ATG style based upon age when compared to relational attachment.

Generally, ATG research is limited to the college age population, which limits the generalizability to the older population (Wink & Dillon 2002). As such, this study adds to the field of research as it helps to better understand differences in ATG across age and health groups.

Gender.

Gender also played a potential role in the results, specifically as a higher number of participants with SLE were women. Differences were observed across the well-being domains, For example, men reported higher physical well-being. However, when controlling for SLE diagnosis, this difference is significantly lessoned, lending further support for the impact of SLE on physical well-being. The interaction between Social Well-being and gender was not unexpected, and supports past research indicating women tend to have stronger social networks. It is important to note, even though females reported higher Social Well-Being, males reported significantly higher physical well-being. Nonetheless, as Social Well-being has been found to be related to Physical Well-

Being, it may be helpful to assess for social needs amongst male patients, as it could be an important point of intervention. Especially, as age could have played a role in the gender interaction as more males were younger and younger individuals report less social support and they tend to be healthier than their older counterparts (Ashida and Heaney, 2008)

Gender was also a potential factor in relational spirituality. Kirkpatrick (1999) identified women were more likely to develop a secured attachment style than men. As the non SLE sample had more male participants (compared to the three men with SLE) the differences could be due to gender rather than SLE diagnosis.

Employment Status.

The results of this study highlight the importance of assessing and incorporating vocational focused interventions or referrals in patient care. Often, those who experience a chronic illness experience decreased work productivity and increased loss of work days due to the symptoms of their illness (Patel, Farquharson, Carroll, Moore, Phillips, Taylor, & Barden, 2012). Many individuals with chronic illness may not be fired but, they may find it difficult to advance in their workplace, and this is especially true if workers have insurance through their employers (Stroupe, Kinney, and Kniesner, 2001). Furthermore, more companies are hesitant to hire individuals with chronic illness due to the perceived increase in health care cost for the employer. Additionally, those with chronic illness may experience discrimination and be more apt to be laid off due to the concern over health care cost and loss of productivity (Arrow, 1996). This can lead to a greater chance of unemployment (Short, Vasey, & BeLue, 2008). Finally, when unemployed, many

individuals may not have access to consistent affordable health care or the ability to pay for necessary medications, resulting in lower Physical Well-Being.

Yearly Income

Yearly income is also a major consideration when assessing well-being, specifically in the psychological/spiritual and social domains as those making less than 20,000 a year reported significantly less well-being. While congruent with research in psychological and social well-being (Butterworth, Burgess, & Whiteford, 2011; Zachariah, 2009), these results are contrary to research which cites lower income is related to lower physical well-being. This group may have additional life stressors which may lower psychological well-being and limit the amount of social interaction they can engage. For example, it is possible for individuals in this income bracket to be working various part-time jobs, thus lessening the amount of free time available to socialize. Secondly, it is possible individuals in this income bracket may be those who are unemployed, thus have less access to the social networks available in the work environment. Finally, those in this income bracket may have the additional stress of maintaining the needs of daily living. This is especially true for those with SLE considering the annual direct costs for SLE diagnosed individuals was found to be $3709 a year, coupled with the annual indirect costs of $10,323 a year, indicate SLE can lead to a large finical burden (Sutcliffe, Clarke, Taylor, Frost, & Isenberg, 2001).Thus, they may feel the need for additional social support in order to meet these needs.

A rational for the lack of significance in the physical domain could be due to additional protective factors. For example, generally, those in this income bracket have access to government support programs. Thus, income may not have been as large a

factor in the physical wellness. However, it is important to note some individuals do not qualify for these programs and may be overlooked. For example, individuals who are single and enrolled in secondary education do not qualify for welfare or Medicare if they are not working at least 20 hours per week (Oklahoma Department of Human Services). Additionally, some free or reduced cost health care series are not available in all areas, particularly in rural or frontier regions.

Limitations

There were multiple limitations in this study which possibly limit the generalizability of the findings. First, the study utilized a convenience sample based on responses to a web-based recruitment process; as such the sample may not be fully representative for the US population (Creswell, 2002). In particular, the SLE group was recruited from online groups which may have served a support role. This may influence those participants social support scores and potentially cause them to be different from the general population. Furthermore, another large group of participants was recruited from Amazon Turk and were paid a small fee for their participation. Based upon the sample who participated in the survey, these individuals tended to be younger, male, and less religious. As such, differences between illness groups may be more related to where the sample derived than the illness groups themselves. This can lead to a lack of generalizability with the greater population.

A second possible limitation of the study is that it did not account for the interaction of medications for SLE or other chronic health groups. There could be differences between those who are currently being treated and those who are not. Similarly, it would be interesting to understand what role medication adherence plays in

the well-being of the various chronic illness groups. These behaviors could possibly lead to higher health outcome levels.

Thirdly, the study depended upon the self-report of physical and psychological diagnosis. As such, determining the accuracy, full impact, and extent of the illness is not possible. The study also did not account for disease activity levels. However, as those who reported a higher number of diagnosis similarly reporting lower levels of well-being, it is likely this study was able to assess impact of illness to some degree. Relatedly, within the physical domain, the assumption of the higher health in the no diagnosis group is erroneous. Generally, research utilizes those without a diagnosis as a control in health psychology research, as it is assumed those without diagnoses have higher levels of health. However, in this study, those who did not report a prior diagnosis did not report significantly higher levels of health. However, considering the high number of past studies which have solidified the usage of non-diagnosed groups as control, it is assumed this is a low probability.

Finally, it is possible the measure was unable to assess differences in these groups with this sample. Data supporting this possibility is the ceiling effects observed in each domain. As such, the accuracy of the results is questionable. Furthermore, this last possibility could have profound consequences if this measure is utilized in a clinical population as individuals who may have physical concerns are not being identified. As such, it would be appropriate to continue engaging in further research to determine the reliability of this domain.

Another consideration was the low reliability for the measure of perceived stress. Even when assessing for reliability between illness groups, reliability was not improved.

This could possibly lead to an underestimation of the actual correlation between constructs (Hunter & Schmidt, 1990). This could account for the lack of significance differences in perceived stress in this study.

Moreover, an important consideration is the lack of knowledge on how religion influenced the results as about half of the participants did not report their religious status. Furthermore, other than the Christian group, no other religious groups amassed enough participants to explore differences between groups. Due to the large number of self-identified Christians in this sample, especially among the SLE sample, it will be difficult to generalize these results to other religious groups.

Additionally, it was not possible to assess for racial differences in this study due to the lack of racial diversity in the sample. It is important to remember racial, ethnic, and regional differences have been found in all aspects of assessment. Within the field of spiritual research, this is also true (Harvey & Cook, 2010; Johnson et al, 2005).

Recommendations for clinical

Despite these limitations, this study lays a firm foundation for the importance of relational spirituality to the emotional health of SLE participants. Being diagnosed with a chronic illness can be a challenging life event which can impact a person's psychological well-being. One of the more serious risk of chronic illnesses is the possible development of co-morbid mental health issues (Schattner, E., Shahar, G., Lerman, S., & Abu Shakra, M. (2010). Being diagnosed with a chronic illness, in and of its self, can be overwhelming as it can lead one to face their mortality. Furthermore, the effects of the illness itself, the symptoms, can be difficult to deal with and lead to decreased quality of life. Additionally, individuals may have difficulty adapting to the effects of the disease,

medication adherence, changes in lifestyle, or effects on intimate relationships and family functioning. As such, many individuals are candidates for mental health services to address these adjustment issues. Furthermore, many of the SLE participants in this sample reported having a co-morbid mental health disorder. As such, it is necessary to discuss how to address clinical issues in this population.

As those with physical and mental illness were more prone to lower psychological well-being, it is important to identify mental health issues and efficiently address them. One method for doing so, which can improve the rates of patient retention, is the use of an integrated medical model. By having a mental health professional co-located within a medical clinic, these individuals can be seen more efficiently and possibly sooner than if they were referred to an outlying mental health clinic (Bryan et al., 2012).

Utilizing an integrated model would be particularly helpful with the SLE population as individuals with this disease tend to have higher rates of depression than other chronic illnesses. The reason for this may be due to the disease itself. By being able to have mental health providers in close proximity to the medical providers, these individuals will be able to receive more accurate identification of mental health issues in a timelier manner. Additionally, integrated care also increases retention rates as patients are not required to go to another facility to be seen. While ease of access is one rationale for this increase, a reduction in stigma may also be another reason. An integrated health provider will be able to provide assessment, brief therapy, and possible group therapy for this population, addressing the increased stressors related to this illness.

Assessment.

When determining accurate diagnosis of affective or personality disorders in the SLE population, it is necessary to determine the interaction between the disease symptoms and affective symptoms. Currently the research is mixed in how much SLE itself is responsible for affective symptoms. Statistics range between 35-85% of SLE patients have comorbid depression (Kozora, Ellison, & West, 2006), largely due to heightened illness activity (Ward, Marx, & Barry, 2004). Other research has related the depression to pain symptoms associated with depression or to an under-lying central nervous system disorder (Kozora, Ellison, & West, 2006) or to the pain symptoms which are known to be associated with depression. Finally, others state there is little evidence for the direct interaction of SLE and affective symptoms. Rather, they state psychosocial factors are more at play due to an apparent dissociation of depression from physical illness markers (Guzman & Nicassio, 2003), positing psychosocial factors as dominant in the etiology of depression (Seawell & Danoff-Burg, 2004). However, the results of this study indicated there were little differences between SLE groups, indicating the need to look beyond psychosocial factors.

When assessing SLE patients, it is necessary to determine the extent to which the SLE symptoms overlay the affective symptoms. For example, a common symptom of SLE is fatigue which can mimic the altered sleep patterns or anhedonia of depression, and need to be considered in diagnosing the SLE patient. Furthermore, in assessing individuals with SLE, not only do providers need to assess for affective functioning but cognitive functioning as well. Research, while varied, has identified between 14-79% of SLE patients also have cognitive impairments (For a full review see Kozora et al., 2008)

which can effect attention, executive functioning , slowed processing speed, headaches, and difficulty with concentration. All of which can impact psychological well-being.

Empirically supported treatment for SLE.

The number of SLE specific empirically supported psychotherapy studies is limited. Multiple efficacy studies have shown many medical conditions benefit from mental health treatment as they lower depression, anxiety, and address stress coping skills (Van Lankveld, van Helmond, Naring, vde Rooij, & van den Hoogen, 2004). Within the SLE population, several studies have demonstrated efficacy. Of particular note are two cognitive-behavioral studies, both of which lend support for the effectiveness of clinical intervention in the SLE population for psychological functioning. The first study explored the efficacy of biofeedback assisted cognitive-behavioral therapy in SLE patients with pain and other one utilized randomized research design in group therapy (Greco, Rudy, Manzi, 2004; Navarrete-Navarrete N, Peralta-Ramírez M, Jiménez-Alonso J, et al., 2010). Both indicated these treatments were successful in reducing the level of depression, anxiety and daily stress in the treatment group when compared to the control groups. Furthermore, the group study found the intervention group experienced an improvement in QoL and somatic symptoms.)

Considering the interaction of employment status on biopsychosocial functioning of SLE patients, another possible area of intervention is in vocational issues. Even with early diagnosis, those with rheumatoid conditions, such as SLE, can experience difficulty maintaining gainful employment (Gignac, Jetha, Bowring, Beaton, & Badley, 2012). Generally, those with lower paying jobs tend to experience greater stress due to financial and health care issues (Sav et al., 2012). However, at the present time, there is little

research supporting the optimum time to intervene or subgroup analyses to determine whether some groups are at increased risk for poor work outcomes (Gignac et al., 2012).

Another important clinical topic relevant for those with SLE is body image, as prior research has identified a high rate of poor body image in this population (Meenakshi, Pickard, Mikolaitis, Corejo, Winston, Cash, & Block, 2012). Body image in the SLE population is influenced several ways. First, via the disease process itself or side effects of medical treatments, SLE can lead to physical changes. For example, the classic butterfly rash can be quite pronounced and many women and men may feel self-conscious about its appearance. Secondly, some medications, such as corticosteroid therapy, are utilized to manage disease flare-ups and they can be prescribed in large doses. This can result in rapid weight gain via water retention (Manaboriboon, Silverman, Homsanti, Chui, & Kaufman, 2013). As such, large stretch marks, some several inches in width, can cover a patient's body, possibly leading to feelings of insecurity. Generally, those who are younger and female report lower body image scores. Past research has found scores can increase with age but, when controlling for BMI, body image remains stable (Gillen & Lefkowitz, 2012).

As those with chronic illness report a lessening of social support and social support has been positively related to physical well-being, an SLE support group may be helpful for this population. One method for improving perceived social support for those with lower psychological well-being is the use of group therapy, as the use of group therapy or peer support groups, when addressing psychological issues, has been found to increase perceived social support (Segrist, 2008; Haight & Gibson, 2005).

Empirically supported treatments with spiritual themes.

The findings of this study support the importance of relational spirituality in health outcomes as it was significant related to each domain of the BioPSS model. Furthermore, as relational spirituality was positively related to emotional health, it would be appropriate to address spiritual issues in a therapeutic setting. This would indicate professionals who are interacting with individuals with these conditions should assess for and provide treatment or referrals for non-adaptive attachment styles, lending support for including spirituality as a domain of assessment in both medical and therapeutic settings. The use of the biopsychosocial-spiritual model would also meet the requirements of accrediting agencies calling for the inclusion of spirituality in patient care, such as the Joint Commission on Accreditation of Hospitals (JCAHO) (www.jointcommision.org) or the Commission on Accreditation of Rehabilitation Facilities (CARF).

When incorporating the aspect of spirituality into mental health treatment, the options of empirically supported treatments are limited (Hook, Worthington, Davis, Jennings, Gartner, & Hook, 2010). Considering the evidence which supports a relationship between spirituality and mental and physical health outcomes, the dearth of empirically supported spiritually inclusive treatments are surprising. Generally, the present available treatments are augmented forms of currently validated treatments which are altered to include a spiritual component. However, more often, they are inclusive of a religious component.

Past research has demonstrated the benefits of including spiritual themes in treatment. In a study of moderate depression, an intervention drawing upon the patients' spiritual resources hastened recovery (Propst, Ostrom, Watkins, Dean, & Mashburn, 1992). Among patients whose religious beliefs and practices were of personal importance to

them, those receiving religiously oriented cognitive behavioral therapy sensitive to their religious framework had better scores on measures of post-treatment depression and clinical adjustment than those whose therapy omitted religious content.

A recent meta-analysis of religious and spiritually inclusive mental health treatment explored the efficacy of therapy addressing a variety of mental health issues stemming from depression, anxiety, forgiveness, eating disorders, schizophrenia, alcoholism, anger, and marital issues (Hook et al., 2010). The various religions incorporated into the treatments were Christianity, Islam, Taoism, and Buddhism. Some studies incorporated a generic spirituality. Results indicated several of the therapies reduced symptoms both during treatment and at follow-up. However, there was limited evidence that R/S therapies outperformed established secular therapies.

Future Research

An important area of future research will be in developing a solid measure of biological, psychological, social, and spiritual functioning. This study highlighted the need to develop a measure which will provide independent domains for the spiritual and psychological constructs. One method to do so is to reexamine the psychological and spiritual domains.

Within the psychological domain, more items may be necessary to include in future measures to more accurately assess the construct. Additionally, it will be helpful to add both positive and negative psychological items when validating spiritual instruments to determine if the spiritual items are tapping into positive psychology variables

Within the spiritual domain, it will be imperative to develop a measure which will balance the need to assess the full breadth of the construct with the ability to assess a

large group of individuals from a variety of backgrounds. In doing so, there are several steps than can be taken to ensure a more secure assessment. First, the BioPPSIs spiritual items are based upon existential aspects of spirituality. This is beneficial as these are broad definitions of spirituality, which enable researchers to assess the construct across belief systems and world-views. However, in doing so, the developers run the risk of not assessing the full construct of spirituality. By including other aspects of spirituality, such as relational spirituality, these items may be less likely to be highly related to psychological well-being. Secondly, the original items are generally assessing the affective aspects of spirituality. By having spiritual items, which are worded to assess affective aspects of the construct, it is possible, as observed in this study, to have the two constructs merge. In doing so, it is necessary to broaden the spiritual items to include those which will assess not only affective aspects of spiritualty, but cognitive and behavioral aspects as well. Thirdly, the BioPPSI had a limited number of items assessing the psychosocial domain and these were highly related to one another and produce a higher than preferred alpha level. As such, more items need to be added to the psychological domain to broaden the construct. In doing so, it will be less likely to co-load in the future.

Once a solid measure is developed, it will be beneficial to know if spirituality is an independent construct. To do so, it will be important to explore if spirituality is able to provide predictability over and above the other biopsychosocial variables when controlling for demographic variables. Relatedly, within this study, only groups of illness were explored. Thus, future research could look at differences in the biopsychosocial-spiritual model across illness groups. This would aid in providing services and

interventions for these populations. It would also aid in understanding the differing impact SLE presents those diagnosed with the condition.

This study was also the first to explore ATG in health groups. As such, it will be necessary to replicate this study to determine the accuracy of the results. Furthermore, adult relational attachment research has identified differences in attachment styles across illnesses. Thus, future ATG research would benefit from exploring possible differences in ATG styles across various illness groups.

This study also highlighted several areas which may impact or explain the relationship between spirituality and health outcomes. For instance, an area of exploration with SLE is the impact of post-traumatic stress and resiliency as it relates to spirituality and health outcomes. Furthermore, it may be helpful to explore how personality traits are associated with these outcome variables. Finally, as relational spirituality is an important factor for the emotional health of the SLE participants, it will be beneficial to explore validating a spiritualty focused treatment for this population.

Conclusion

This study initially set out to explore the foundations of the biopsychosocial-spiritual model as it is a relatively newly developed model. Much research has been completed in both the biopsychosocial research and in the field of spirituality concerning medical outcomes. However, very few have combined these areas to understand how the factors interact to affect overall health. It was hoped this study would have enabled providers and researchers additional confidence in both the measure and the underlying model

The second aim of this stay was to explore the construct validity of the spiritual domain as it related to a measure of implicit relational spirituality as the BioPPSI has had limited exposure in the literature. As such, it was necessary to challenge its validity, particularly the new spiritual domain. In doing so, it was essential to determine the ability of a novel biopsychosocial-spiritual inventory to assess the model. This study also highlighted the need to understand how the biopsychosocial-spiritual model expresses itself across illness groups to demonstrate reliability and accuracy across groups. This was important as there are a variety of methods of defining and assessing spirituality and it was important to understand how fully this measure was able to assess the construct. Furthermore, as there has been no previous research in relational spirituality in a chronically ill population, this study advances both the fields of spirituality and health research.

Finally, a goal of the study was to explore these differences in light of a SLE diagnosis. This was important, as individuals with SLE are often faced with multiple health issues and challenges related to their illness, yet there is limited research in the field of psychology in understanding how these stressors impact this population or how spirituality may be used to cope with the disease. Furthermore, this research indicates spirituality is an important factor for this population but has received little academic attention. Thus, this study would add further support to the body of literature for the SLE population.

To meet these goals, this study conducted an online survey assessing the biological, psychological, social, and spiritual well-being of the participants. To better

understand the relationship of spirituality in the SLE population quality of life was also assessed in this group.

Hypotheses explored in this study postulated the model would be supported as evidenced by the model maintaining its factor structure and by observing differences in well-being across the domains based upon illness groups. Secondly, it was hypothesized relational spirituality would also be significantly related to the domains of the biopsychosocial-spiritual model, indicating the constructs importance to the model. Thirdly, it was hypothesized there would be significant differences between those diagnosed with SLE and those who were not, particularly with those diagnosed with SLE reporting higher levels of spiritual well-being and more secured ATG styles. Within this group, it was hypothesized those with higher levels of spiritual well-being would have higher levels of QoL. Finally, the study observed differences in impairment and postulated a negative relationship between impairment and spiritual well-being.

Unfortunately, the ability of this study to complete these goals was limited as the BioPPSI demonstrated a variety of serious psychometric issues, which need to be addressed prior to utilizing this measure with a clinical population. This limitation more than likely derived from the spiritual and psychological items themselves. While spiritual well-being and psychological well-being are traditionally positively related to one another, when measured, they should not co-vary to such a degree as observed in the current study. By including items assessing cognitive, behavioral, relational domains, and consisting of both positive and negative aspects of spirituality, the measure will more fully assess the spiritual construct and maintain statistical independence.

Despite the weaknesses found in this measure, this study still was able to provide support for the biopsychosocial spiritual model. It did so, in part, as health groups demonstrated significant differences in all domains. However, the differences were not as varied as one would expect given the sample's diversity in reported medical diagnosis. Of particular concern was the Physical Domain as the SLE group was the only group demonstrating significant differences. Furthermore, ceiling effects were observed in all domains. Because of these limitations, it is best for these domains to also be reassessed in addition to the spiritual and psychological domains.

Considering the clinical benefits of utilizing the Biopsychosocial-spiritual model in patient care, it is necessary to have an accurate measurement tool. The BioPPSI is a ground breaking instrument. However, the past and present research is mixed on the validity of the domains, specifically the spiritual domain. The results of the current study highlight the need for the reevaluation of the BioPPSI and the development of other measures to assess the model. As such, it will be important for future researchers to explore content and construct validity when utilizing this measure or when developing new assessments.

An important aspect of this study was the inclusion of a relational measure of spirituality, for several reasons. First, while spirituality has been studied in health research extensively, relational spirituality has yet to be explored. As many individuals hold spiritual beliefs which include a relational component, this is an important consideration to understand. This was supported when relational spiritualty was found to be significantly related to all wellness domains. Secondly, it was important to include relational spirituality in this study to understand if it is related to the biopsychosocial-

spiritual model. As for the latter, this relationship was proven as relational spiritually was significantly related to all three remaining domains of the BioPPSI.

This study also emphasized the importance of understanding how health status may influence relational spirituality, and vice versa. This study lends support that spirituality is an important factor in many people's lives and is important in both medical and mental health diagnosis, as those who face health challenges have more secured spirituality. As such, it will be important for psychologist to continue researching this construct and incorporating it into patient care. Similarly, it will also be important for medical and mental health providers to consider this area as an important area for assessment in the holistic treatment of their clients.

Further strengthening this argument was the finding that those with a physical illness tended to have more secured attachment to God, particularly; SLE participants reported significantly higher levels of secured attachment to God when compared to individuals without a SLE diagnosis. However, the only differences observed within the SLE sample, concerning the relationship between SLE and LQoL were in emotional health.

Finally, this study emphasized the heavy impact individuals with SLE experience, particularly in the physical domain. It is possible these individuals have also developed a type of resiliency in the face of this life threatening illness as is seen in individuals with post traumatic resiliency. It is possible these individuals utilize their spiritual resources to cope with their illness, as evidenced by their higher rates of secured attachment styles and higher social and psychological well-being.

Generally the impact of SLE is an understudied disease in psychology, especially when compared to other physical diseases. This study emphasizes the importance of better understanding the affect this disease has on individuals and on better understanding ways of addressing this impact. Spirituality is one method which may help lessen the burden of this disease. As such, individuals with SLE will benefit from future focus on this disease and the intersection of spirituality and health outcomes.

APPENDENCIES

Table 21.

Correlation of BioPPSI Items.

	P1	P2	P3	P4	P5	P6	P7	P8	P9	Psy1	Psy2	Psy3	Psy4	S1	S2	S3	S4	S5	S6	S7	S8
P1	-	.57	.43	.53	.51	.52	.62	.43	.60	.59	.33	.29	.23	.08	.05	.01	.01	.01	.05	-.05	-.05
P2		-	.43	.46	.46	.60	.53	.46	.51	.47	.21	.20	.13	.02	.02	-.01	.04	.06	.03	-.06	-.06
P3			-	.47	.50	.42	.48	.34	.46	.47	.31	.27	.23	-.01	-.01	-.01	.00	.06	.12	.01	-.09
P4				-	.45	.50	.42	.46	.51	.50	.28	.21	.15	.00	-.04	-.04	.00	-.05	.06	-.07	-.06
P5					-	.51	.60	.46	.69	.67	.36	.32	.19	-.06	-.03	.00	.01	.02	.17	-.02	-.08
P6						-	.53	.51	.58	.59	.26	.22	.08	.06	.05	.09	.08	.05	.07	.02	-.03
P7							-	.51	.63	.64	.34	.32	.25	.04	.08	-.01	0.0	.07	.05	-.01	-.10
P8								-	.50	.51	.35	.31	.17	.04	.10	.11	.06	.07	.10	.01	.00
Psy1									-	.80	.43	.42	.30	.09	.09	.06	.09	.10	.17	.05	.00
Psy2										-	.37	.36	.28	.12	.09	.10	.09	.10	.18	.06	.01
Psy3											-	.90	.67	.33	.42	.35	.36	.36	.36	.31	.19
Psy4												-	.68	.37	.44	.34	.35	.36	.36	.35	.21
S1													-	.45	.59	.45	.48	.43	.43	.42	.30
S2														-	.76	.66	.60	.57	.31	.52	.51
S3															-	.65	.67	.59	.36	.53	.49
S4																-	.86	.76	.42	.65	.55
S5																	-	.75	.44	.66	.58
S6																		-	.41	.63	.50
S7																			-	.55	.37
S8																				-	.59
Sp1																					-
Sp2																					
Sp3																					

Table 21 Con't.

Variable	Sp1	Sp2	Sp3	Sp4	Sp5	Sp6	Sp7
P1	.24	.12	.17	.25	.16	.19	.19
P2	.16	.04	.07	.17	.06	.10	.12
P3	.21	.05	.19	.24	.13	.19	.21
P4	.20	.08	.18	.22	.12	.18	.16
P5	.17	.01	.10	.21	.08	.13	.18
P6	.15	.02	.03	.14	.01	.07	.09
P7	.19	.09	.11	.19	.10	.16	.16
P8	.18	.16	.16	.19	.12	.04	.13
Psy1	.27	.17	.21	.30	.21	.22	.23
Psy2	.22	.12	.17	.25	.16	.17	.19
Psy3	.62	.53	.61	.66	.58	.58	.66
Psy4	.58	.59	.59	.63	.60	.56	.64
S1	.65	.65	.67	.73	.65	.64	.69
S2	.38	.54	.42	.41	.45	.41	.40
S3	.50	.62	.53	.54	.55	.45	.46
S4	.39	.46	.43	.39	.42	.37	.37
S5	.43	.50	.45	.44	.43	.39	.43
S6	.36	.41	.40	.37	.43	.36	.36
S7	.37	.33	.38	.37	.32	.37	.39
S8	.42	.44	.43	.40	.41	.40	.40
Sp1	.37	.36	.29	.31	.31	.30	.30
Sp2	-	.56	.56	.76	.55	.64	.72
Sp3		-	.66	.66	.74	.59	.63
Sp4			-	.70	.74	.63	.66
Sp5				-	.68	.67	.73
Sp6					-	.69	.71
Sp7						-	.82
Sp8							-

Factor Analysis 1.

	Component					
Item	1	2	3	4	5	6
Faintness or Dizziness				0.65		
Pains in heart or chest				0.75		
Pains in lower back				0.54		
Nauseous or upset stomach				0.60		
Soreness of your muscles				0.58	-0.30	
Trouble getting your breath			0.80			
Numbness or tingling in parts of your body				0.69		
A lump in your throat				0.73	0.34	
Feeling weak in parts of your body				0.64		
Heavy feelings in your arms or legs				0.66		
Down in the dumps	0.30		-0.59			
Downhearted and blue	0.33		-0.57			
Happy			-0.64			
Others cared what happens to you		0.71				
Love and affection		0.64				
Chances to talk to someone about problems at work or with housework		0.91				
Chances to talk with someone you trust about personal and family problems		0.88				
Chances to talk about money matters		0.85				
Invitations to go out and do things with others		0.43				
Useful advice about important things in life		0.75				
Help when you were sick		0.73				
Peaceful			-0.74			
A reason for living			-0.66			
Your life has been productive			-0.75			
Peace of mind			-0.82			
Sense of purpose			-0.80			
Able to reach down deep into yourself for comfort			-0.85			
Sense of harmony within yourself			-0.87			
Your physical health problems caused you to: Cut down the amount of time spent on work or other activities					0.61	

Table # Con't.

Your physical health problems caused you to: Accomplish less than you would like		0.68	
Your physical health problems caused you to: Limit the kind of work or other activities you do		0.672	
Your physical health problems caused you to: Have difficulty performing the work or activities		0.64	
Your emotional health problems caused you to: Cut down the amount of time spent on work or other activities	-0.88		
Your emotional health problems caused you to: Accomplish less than you would like	-0.90		
Your emotional health problems caused you to: Limit the kind of work or other activities you do	-0.94		
Your emotional health problems caused you to: Have difficulty performing the work or activities	-0.89		
Any problems interfered with regular social activities with family, friends, neighbors, or groups	-0.46		0.36
Any problems interfered with new opportunities to be with family, friends, neighbors, or groups	-0.42		0.43
Any problems interfered with your ability to participate in PUBLIC religious/spiritual activities			0.87
Any problems interfered with your ability to participate in PRIVATE religious/spiritual activities			0.91

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.
a Rotation converged in 16 iterations.

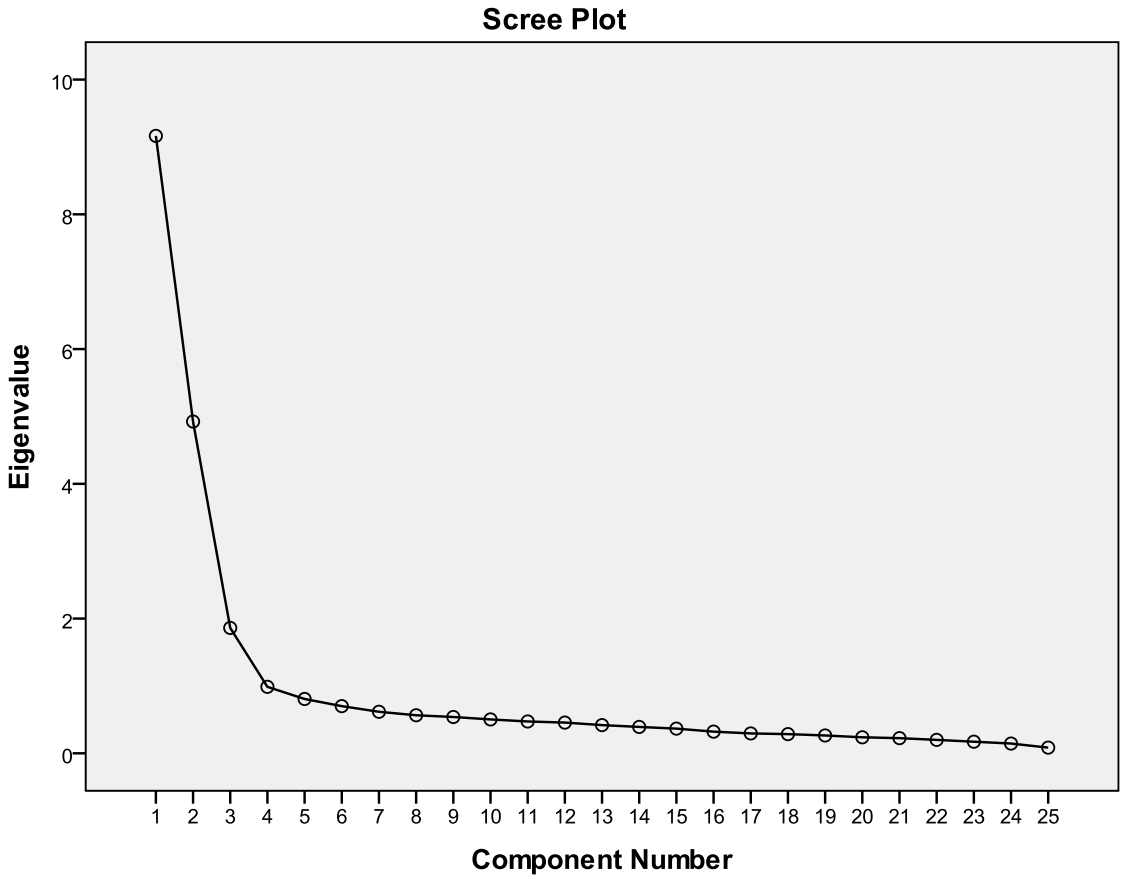

Figure 2. Scree Plot for second factor analysis.

Health Outcomes in SLE

INFORMED CONSENT

IINFORMED CONSENT

TITLE: Construct Validity of the Biopsychosocialspiritual model: Exploration of Spirituality in Systemic Lupus Erythematosus

PROJECT DIRECTOR: Kara Cline

PHONE: 701-213-6080

DEPARTMENT: 701-777-2729

STATEMENT OF RESEARCH

Any person who is to participate in the research MUST give his or her informed consent to such participation. This consent must be based on an understanding of the nature and risks of the research. This document provides information that is important for this understanding. Research projects include only subjects who choose to take part. Please take your time in making your decision as to whether to participate. “If you have questions at any time, please contact the researcher.

WHAT IS THE PURPOSE OF THIS STUDY?

You are invited to be in a research study examining the biopsychosocialspiritual model and how spirituality may be related to health outcomes in persons with Systemic Lupus Erythematosus (SLE). This will help psychologist better understand the interaction of spirituality on health.

WHO CAN WILL PARTICIPATE?

Approximately 200 individuals, 18 and older, from the United States will take part in this study. This study will only focus on individuals in the United States due to differences in the health care systems in various countries.

HOW LONG WILL I BE IN THIS STUDY?

Your participation in the study will last 30 minutes.

WHAT WILL HAPPEN DURING THIS STUDY?

You will be asked questions designed to determine your physical, psychological, social, and spiritual well-being. If you have a diagnosis of SLE, you will be asked about your current level of functioning.

WHAT ARE THE RISKS OF THE STUDY?

There may be some risk from being in this study The experience of discussing one’s health is stressful and some of the questions may result in anxiety or depression about your experiences. You may also experience frustration that is often experienced when completing surveys. Some questions may be of a sensitive nature, and you may therefore become upset as a result. However, such risks are not viewed as being in excess of “minimal risk”

If, however, you become upset by questions, you may stop at any time or choose not to answer a question. If you would like to talk to someone about your feelings about this study, you are encouraged to contact your general practitioner or the

There are a number of toll-free depression hotlines available for you to call. Some of the most popular are as follows:

Suicide Hotline: 1-800-SUICIDE
National Suicide Prevention Helpline: 1-800-273-TALK
National Adolescent Suicide Hotline: 1-800-621-4000
NDMDA Depression Hotline: 1-800-826-3632
Crisis Help Line: 1-800-233-4357

The contact information for the Lupus Foundation of America is as follows:

Lupus Foundation of America, Inc.
National Office
2000 L Street, N.W., Suite 710
Washington, DC 20036

Main: 202-349-1155 (8:30 a.m. - 5 p.m. ET, Monday - Friday)
Information request line: English / Para informacíon en español 1-800-558-0121

WHAT ARE THE BENEFITS OF THIS STUDY?

You may not benefit personally from being in this study. However, we hope that, in the future, other people might benefit from this study because it will better inform the practice of psychologist's interaction with health issues. You will have an opportunity to enroll in a drawing for a VISA gift card at the end of the study.

WILL IT COST ME ANYTHING TO BE IN THIS STUDY?

You will not have any costs for being in this research study.

WILL I BE PAID FOR PARTICIPATING?

You will not be paid for being in this research study. However you will have the opportunity to enroll in the gift card drawing for four $25 VISA gift cards once you have completed the survey. Your personal information will be kept SEPARATE from you survey data at all times and will not be able to be linked together at any time.

***1. WHO IS FUNDING THE STUDY?**

The University of North Dakota and the research team are receiving no payments from other agencies, organizations, or companies to conduct this research study.

CONFIDENTIALITY

The records of this study will be kept private to the extent permitted by law. In any report about this study that might be published, you will not be identified. Your study record may be reviewed by Government agencies, and the University of North Dakota Institutional Review Board.

Any information that is obtained in this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of storage on a master data file in a locked cabinet. The data will be accessible only to the researchers and the research advisor. After the study has been completed, the researchers will keep the data in a locked cabinet in the principal investigator's office for a minimum of three years.

If we write a report or article about this study, we will describe the study results in a summarized manner so that you cannot be identified.

IS THIS STUDY VOLUNTARY?

Your participation is voluntary. You may choose not to participate or you may discontinue your participation at any time without penalty or loss of benefits to which you are otherwise entitled. Your decision whether or not to participate will not affect your current or future relations with the University of North Dakota.

CONTACTS AND QUESTIONS?

The researcher conducting this study is Kara Cline. If you later have questions, concerns, or complaints about the research please contact Kara Cline at 701-213-6080 or at kara.cline@und.nodak.edu. You may also contact Dr. Cindy Juntunten at 701-777-0410.

If you have questions regarding your rights as a research subject, or if you have any

concerns or complaints about the research, you may contact the University of North Dakota Institutional Review Board at (701) 777-4279. Please call this number if you cannot reach research staff, or you wish to talk with someone else.

By clicking Begin the Survey, you are verifying that you are at least 18 years old and currently residing in the United States, and you are agreeing to participate in this research study

- Begin the Survey
- Leave the Survey

Health Outcomes in SLE

Thank you for considering completing this survey. Unfortunately your prior responses disqualify you from participating as you either did not agree to the informed consent or you do not live in the United States.

The rational for only testing individuals who only live in the United States is that it is important for researchers to utilize assessment tools which have been proven to be effective in the population. As many of the measures in this survey have only been tested in the United States, it would be unethical to included individuals who do not live in the US. In addition, the United States has a different health care system than other countries. As such, if any differences in the health outcomes in Systemic Lupus patients were found it may be different due to those differences and not due to spirituality.

Thank you again for your consideration!

Health Outcomes in SLE

The questions in this scale will ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer each question fairly quickly. That is, don't try to count up the number of times you felt a particular way, but rather indicate the alternative that seems like a reasonable estimate.

*2. In the last month, how often have you been upset because of something that happened unexpectedly?

- Never
- Almost Never
- Sometimes
- Fairly Often
- Very Often

*3. In the last month, how often have you felt that you were unable to control the important things in your life?

- Never
- Almost Never
- Sometimes
- Fairly Often
- Very Often

4. In the last month, how often have you felt nervous and "stressed"?

- Never
- Almost Never
- Sometimes
- Fairly Often
- Very Often

*5. In the last month, how often have you dealt successfully with irritating life hassles?

- Never
- Almost Never
- Sometimes

- Fairly Often
- Very Often

6. In the last month, how often have you felt that you were effectively coping with? important changes that were occurring in your life?

- Never
- Almost Never
- Sometimes
- Fairly Often
- Very Often

***7. In the last month, how often have you felt confident about your ability to handle your personal problems?**

- Never
- Almost Never
- Sometimes
- Fairly Often
- Very Often

***8. In the last month, how often have you felt that things were going your way?**

- Never
- Almost Never
- Sometimes
- Fairly Often
- Very Often

9. In the last month, how often have you found that you could not cope with all the things? that you had to do?

- Never
- Almost Never
- Sometimes
- Fairly Often
- Very Often

***10. In the last month, how often have you been able to control irritations in your life?**

- Never
- Almost Never
- Sometimes
- Fairly Often
- Very Often

***11. In the last month, how often have you felt that you were on top of things?**

- Never
- Almost Never
- Sometimes
- Fairly Often
- Very Often

***12. In the last month, how often have you been angered because of things that happened that were outside of your control?**

- Never
- Almost Never
- Sometimes
- Fairly Often
- Very Often

***13. In the last month, how often have you found yourself thinking about things that you have to accomplish?**

- Never
- Almost Never
- Sometimes
- Fairly Often
- Very Often

Health Outcomes in SLE

***14. In the last month, how often have you been able to control the way you spend your time?**

- Never
- Almost Never
- Sometimes
- Fairly Often
- Very Often

***15. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?**

- Never
- Almost Never
- Sometimes
- Fairly Often
- Very Often

For each condition, please describe how often you had or felt that way during the PAST MONTH (Click on the number that describes how often you feel that way).

*16. Faintness or Dizziness

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*17. Pains in heart or chest

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*18. Pains in lower back

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

Health Outcomes in SLE

*19. Nauseous or upset stomach

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*20. Soreness of your muscles

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*21. Trouble getting your breath

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*22. Numbness or tingling in parts of your body

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

***23. A lump in your throat**

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

***24. Feeling weak in parts of your body**

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

***25. Heavy feelings in your arms or legs**

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

***26. "Down in the dumps"**

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*27. "Downhearted and blue"

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*28. Happy

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*29. Others cared what happens to you

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*30. Love and affection

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*31. Chances to talk to someone about problems at work or with housework

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*32. Chances to talk with someone you trust about personal and family problems

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*33. Chances to talk about money matters

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*34. Invitations to go out and do things with others

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

Health Outcomes in SLE

*35. Useful advice about important things in life

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*36. Help when you were sick

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*37. Peaceful

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*38. A reason for living

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time

- All of the time

*39. Your life has been productive

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*40. Peace of mind

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*41. Sense of purpose

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*42. Able to reach down deep into yourself for comfort

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

*43. Sense of harmony within yourself

- ☐ None of the Time
- ☐ A Little of the Time
- ☐ Some of the Time
- ☐ A Good Bit of the Time
- ☐ Most of the Time
- ☐ All of the time

During the past MONTH, how often has (click the number that best describes your functioning):

*44. Your physical health problems caused you to:
Cut down the amount of time spent on work or other activities

- ☐ None of the Time
- ☐ A Little of the Time
- ☐ Some of the Time
- ☐ A Good Bit of the Time
- ☐ Most of the Time
- ☐ All of the time

*45. Your physical health problems caused you to:
Accomplish less than you would like

- ☐ None of the Time
- ☐ A Little of the Time
- ☐ Some of the Time
- ☐ A Good Bit of the Time
- ☐ Most of the Time
- ☐ All of the time

***46. Your physical health problems caused you to:**
Limit the kind of work or other activities you do

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

***47. Your physical health problems caused you to:**
Have difficulty performing the work or activities

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

***48. Your emotional health problems caused you to:**
Cut down the amount of time spent on work or other activities

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

***49. Your emotional health problems caused you to: Accomplish less than you would like**

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

***50. Your emotional health problems caused you to: Limit the kind of work or other activities you do**

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

***51. Your emotional health problems caused you to: Have difficulty performing the work or activities**

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

Health Outcomes in SLE

***52. Any problems interfered with regular social activities with family, friends, neighbors, or groups**

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

***53. Any problems interfered with new opportunities to be with family, friends, neighbors, or groups**

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

***54. Any problems interfered with your ability to participate in public religious/spiritual activities**

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

***55. Any problems interfered with your ability to participate in private religious/spiritual activities**

- None of the Time
- A Little of the Time
- Some of the Time
- A Good Bit of the Time
- Most of the Time
- All of the time

56. Have you ever been diagnosed with Systemic Lupus erythematosus?

- Yes

- No

Health Outcomes in SLE

The following questions are designed to find out how Lupus (SLE) affects your life. Read each statement and then select the response in the box, which is closest to how you felt in the LAST 4 WEEKS.

Please try to answer all the questions as best as you can.

*57. Because of my Lupus I need help to do heavy physical jobs such as digging the garden, painting and/or decorating, moving furniture

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

*58. Because of my Lupus I need help to do moderate physical jobs such as vacuuming, ironing, shopping, cleaning the bathroom, picking up groceries

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

*59. Because of my Lupus I need help to do light physical jobs such as cooking/preparing meals, opening jars, dusting, combing my hair or attending to personal hygiene

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

Health Outcomes in SLE

***60. Because of my Lupus I am unable to perform everyday tasks such as my job, childcare, housework as well as I would like to**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***61. Because of my Lupus I have difficulty climbing stairs**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***62. Because of my Lupus I have lost some independence and am reliant on others**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***63. I have to do things more slowly because of my Lupus**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***64. Because of my Lupus my sleep pattern is disturbed**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***65. I am prevented from performing physical activities the way I would like to because of pain due to Lupus**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***66. Because of my Lupus, the pain I experience interferes with the quality of my sleep**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***67. The pain due to my Lupus limits my mobility**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

Health Outcomes in SLE

***68. Because of my Lupus I avoid planning to attend events in the future**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***69. Because of the unpredictability of my Lupus I am unable to organize my life efficiently**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***70. My Lupus varies from day to day which makes it difficult for me to commit myself to social arrangements**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***71. Because of the pain I experience due to Lupus I am less interested in a sexual relationship**

- All of the time
- Most of the time
- A good bit of time

Occasionally

Health Outcomes in SLE

***72. Because of my Lupus I am not interested in sex**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***73. I am concerned that my Lupus is stressful for those who are close to me**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***74. Because of my Lupus I am concerned that I cause worry to those who are close to me**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***75. Because of my Lupus I feel that I am a burden to my friends and family**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

Over the last 4 weeks I have found my Lupus makes me...

Health Outcomes in SLE

*76. Resentful

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

*77. So fed up nothing can cheer me up

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

*78. Sad

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

*79. Anxious

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

*80. Worried

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

*81. Lacking in self-confidence

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

How often over the last 4 weeks

*82. My physical appearance due to Lupus interferes with my enjoyment of life

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

*83. Because of my Lupus, my appearance (e.g. rash, weight gain/loss) makes me avoid social situations

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***84. Lupus related skin rashes make me feel less attractive**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***85. The hair loss I have experienced because of my Lupus makes me feel less attractive**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***86. The weight gain/loss I have experienced because of my Lupus makes me feel less attractive**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***87. Because of my Lupus I cannot concentrate for long periods of time**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***88. Because of my Lupus I feel worn out and sluggish**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***89. Because of my Lupus I need to go to bed early**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

***90. Because of my Lupus I am often exhausted in the morning**

- All of the time
- Most of the time
- A good bit of time
- Occasionally
- Never

91. How long has it been since you have been diagnosed with Lupus?

Years

Health Outcomes in SLE

The following statements concern how you feel about your relationship with a higher power. Some people call this higher power God, Allah, the Divine, Great Spirit, or have faith in multiple Gods or Goddesses of various names. As many people view their higher power differently, the following questions will use the term "the Divine," when a discussing a higher power.

We are interested in how you generally experience your relationship with yourself identified Higher Power, not just in what is happening in that relationship currently.

Respond to each statement by indicating how much you agree or disagree with it.

92. I worry a lot about my relationship with the Divine.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

93. I just don't feel a deep need to be close to the Divine.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

94. If I can't see the Divine working in my life, I get upset or angry.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

95. I am totally dependent upon the Divine for everything in my life.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

96. I am jealous at how the Divine seems to care more for others than for me.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

97. It is uncommon for me to cry when sharing with the Divine.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

98. Sometimes I feel that the Divine loves others more than me.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

99. My experiences with the Divine are very intimate and emotional.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

100. I am jealous at how close some people are to the Divine.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

101. I prefer not to depend too much on the Divine.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

102. I often worry about whether the Divine is pleased with me.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

103. I am uncomfortable being emotional in my communication with the Divine.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

104. Even if I fail, I never question that the Divine is pleased with me.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

105. My prayers to the Divine are often matter-of-fact and not very personal.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

106. Almost daily I feel that my relationship with the Divine goes back and forth from "hot" to "cold."

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Moderately Disagree
- ☐ Neutral/Mixed
- ☐ Moderately Agree
- ☐ Agree
- ☐ Strongly Agree

107. I am uncomfortable with emotional displays of affection to the Divine.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Moderately Disagree
- ☐ Neutral/Mixed
- ☐ Moderately Agree
- ☐ Agree
- ☐ Strongly Agree

108. I fear the Divine does not accept me when I do wrong.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Moderately Disagree
- ☐ Neutral/Mixed
- ☐ Moderately Agree
- ☐ Agree
- ☐ Strongly Agree

109. Without the Divine I couldn't function at all.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

110. I often feel angry with the Divine for not responding to me when I want.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

111. I believe people should not depend on the Divine for things they should do for themselves.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

112. I crave reassurance from the Divine that the Divine loves me.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

113. Daily I discuss all of my problems and concerns with the Divine.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

114. I am jealous when others feel the Divine's presence when I cannot.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

115. I am uncomfortable allowing the Divine to control every aspect of my life.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

116. I worry a lot about damaging my relationship with the Divine.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

117. My prayers to the Divine are very emotional.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

118. I get upset when I feel the Divine helps others, but forgets about me.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

119. I let the Divine make most of the decisions in my life.

- Strongly Disagree
- Disagree
- Moderately Disagree
- Neutral/Mixed
- Moderately Agree
- Agree
- Strongly Agree

120. Do you believe you need to have a relationship with the divine in order to be spiritual?

- Yes
- No
- I don't know

Demographics

121. Are you male or female?

- ☐ Male
- ☐ Female

122. Which category below includes your age?

- ☐ 17 or younger
- ☐ 18-20
- ☐ 21-29
- ☐ 30-39
- ☐ 40-49
- ☐ 50-59
- ☐ 60 or older

123. What is the highest level of school you have completed or the highest degree you have received?

- ☐ Less than high school degree
- ☐ High school degree or equivalent (e.g., GED)
- ☐ Some college but no degree
- ☐ Associate degree
- ☐ Bachelor degree
- ☐ Graduate degree

124. Which of the following categories best describes your employment status?

- ☐ Employed, working 1-39 hours per week
- ☐ Employed, working 40 or more hours per week
- ☐ Not employed, looking for work
- ☐ Not employed, NOT looking for work
- ☐ Retired
- ☐ Disabled, not able to work

125. Are you now married, widowed, divorced, separated, or never married?

- ☐ Married
- ☐ Widowed
- ☐ Divorced
- ☐ Separated
- ☐ Never married

126. Are you White, Black or African American, American Indian or Alaskan Native, Asian, Native Hawaiian or other Pacific islander, or some other race?

- ☐ White
- ☐ Black or African American
- ☐ American Indian or Alaskan Native
- ☐ Asian
- ☐ Native Hawaiian or other Pacific Islander
- ☐ From multiple races

Some other race (please specify)

127. Are you Mexican, Mexican American, Chicano, Puerto Rican, Cuban, Cuban-American, or some other Spanish, Hispanic, or Latino group?

- ☐ I am not Spanish, Hispanic, or Latino
- ☐ Mexican
- ☐ Mexican American
- ☐ Chicano
- ☐ Puerto Rican
- ☐ Cuban
- ☐ Cuban-American
- ☐ Some other Spanish, Hispanic, or Latino group
- ☐ From multiple Spanish, Hispanic, or Latino groups

128. Please list any medical or mental health diagnosis you have been given by a doctor or psychologist.

1

2

3

4

5

6

7

129. Do you believe in the Divine (as in God, Allah, Great Spirit, Gods or Goddesses)

- Yes
- No
- I don't know

130. Have you ever identified with a specific religion?

- Yes
- No

131. Do you identify with a specific religion?

- Yes

- No

132. If so, what is the name of the religion?

133. Please list any specific denomination or groups you identify with within you religion.

Health Outcomes in SLE

134. How much total combined money did all members of your HOUSEHOLD earn in 2010? This includes money from jobs; net income from business, farm, or rent; pensions; dividends; interest; social security payments; and any other money income received by members of your HOUSEHOLD that are EIGHTEEN (18) years of age or older. Please report the total amount of money earned - do not subtract the amount you paid in taxes or any deductions listed on your tax return.

- $0 - $4,999
- $5,000 - $7,499
- $7,500 - $9,999
- $10,000 - $12,499
- $12,500 - $14,999
- $15,000 - $19,999
- $20,000 - $24,999
- $25,000 - $29,999
- $30,000 - $34,999
- $35,000 - $39,999
- $40,000 - $49,999
- $50,000 - $59,999
- $60,000 - $74,999
- $75,000 - $99,999
- $100,000 - $149,999
- $150,000 or More

Health Outcomes in SLE

Thank you for completing this survey. Your participation is greatly valued. As such, please feel free to participate in the Visa Gift Card give away. Simply click on the link below and complete the information form. This information cannot be traced back to your prior responses. When the study is completed four names will be drawn and the winners will be contacted.

Good Luck!

http://www.surveymonkey.com/s/P7YCP9R

Again, if any of the topics in this survey were distressing, please consider contacting any of the entities below.

There are a number of toll-free depression hotlines available for you to call. Some of the

most popular are as follows: Suicide Hotline: 1-800-SUICIDE
National Suicide Prevention
Helpline: 1-800-273-TALK
National Adolescent Suicide
Hotline: 1-800-621-4000
NDMDA Depression Hotline: 1-800-826-3632
Crisis Help Line: 1-800-233-4357

The contact information for the Lupus Foundation

of America is as follows: Lupus Foundation of

America, Inc.
National Office
2000 L Street, N.W., Suite 710
Washington, DC 20036

Main: 202-349-1155 (8:30 a.m. - 5 p.m. ET, Monday - Friday)
Information request line: English / Para information en español 1-800-558-0121

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