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Measurement of Nontheistic and Theistic Spirituality: Initial Psychometric Qualities of the Inclusive Spiritual Connection Scale

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by

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ABSTRACT

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Spirituality represents a key part of life for the majority of U.S. adults and there is a growing body of research supporting relationships between spirituality and numerous health outcomes. Governing healthcare organizations have acknowledged the role religiousness and spirituality play in comprehensive and holistic patient care. While the U.S. shows documented trends towards diverse expressions of spirituality, existing theory-driven measures of spirituality are largely theocentric. The current study concludes a multiphase project that aimed at the outset to develop an inclusive measure of spirituality and establish initial psychometric evidence, validating its use across both theistic and nontheistic spiritual populations. The Inclusive Spiritual Connection Scale (ISCS) was developed based on an expanded conceptualization of spiritual connection to include both theistic and nontheistic expressions of spirituality. The current study builds on a previous study that established preliminary evidence of content validity of the ISCS, from which a 45-item pool was developed. In the present study, data were collected from 736 participants who indicated either theistic or nontheistic sources of spiritual connection. Using a split sample approach (primary developmental sample, n = 368; secondary developmental sample, n = 368) and a test-retest subsample (n =129), the 45-item pool underwent three phases of data analysis to establish initial psychometric evidence of the ISCS for use with theistic and nontheistic populations. Through a series of factor analytic procedures, the

45-item pool was reduced to 13 items, yielding a unidimensional scale of spiritual connection with evidence of sound psychometric properties. The ISCS demonstrated adequate evidence of convergent validity, limited evidence of divergent validity, and strong evidence of reliability. Assessment of measurement equivalence across nontheistic and theistic groups yielded partial evidence of equivalence; however, the baseline levels of spiritual connection appeared to differ between theistic and nontheistic participants. Initial psychometric properties support the ISCS as a reliable and valid tool to assess spiritual connection in spiritually diverse populations, though comparison between spiritual groups requires further validation. The ISCS responds directly to existing gaps in research and possesses the ability to support holistic healthcare care for all US adults regardless of spiritual expression.

DEDICATION

To the memory of my Granny, Doris, who was the embodiment of unconditional love, and for my son, Isaac, who inspires love for all whom we meet on this side of the veil.

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Chapter 1. Introduction

Spirituality is a core aspect of humanity and is gaining attention in healthcare as a key dimension of comprehensive patient care. A large body of research supports the relationships between spirituality and various mental and physical health outcomes; however, there are significant limitations in existing measurement of spirituality. Most notably, existing measurement is primarily tied to theistic-based religious belief systems. Documented cultural shifts in the US towards individualized and alternative forms of spiritual expression coupled with measurement limitations result in substantial gaps in knowledge, especially for those whose beliefs lie outside of theistic spirituality. The current study takes steps towards addressing the gap by pilot testing a theory-driven nontheistic-based spirituality measure designed to assess spirituality from a broad and inclusive framework.

Centrality of Spirituality to the Human Experience

Humans have an inherent capacity for spirituality, as it is considered a basic element of the human experience (Oman, 2013; Piedmont & Wilkins, 2013). Vachon and colleagues (2009) argue that all individuals are spiritual, but not all are religious. Further, Uhlmann et al. (2008) take this argument a step further and reason that theistic cognitions are present on an implicit level in nonreligious individuals based on universal psychological processes (i.e., implicit cognition and existential motivations). Others have linked spirituality to psychological processes, sans argument of universal presence of theistic cognitions, by explaining that spirituality is central to the human experience via basic psychological processes (e.g., development, sociocultural phenomena, cognition, existential needs, personality, affect, etc.) (Dentale et al., 2018; Hill et al., 2000; MacDonald et al., 2015; Strada, 2011). Baker and Smith (2009) provided some evidence of this centrality of spirituality within nonreligious individuals by assessing levels

of spirituality among atheists, agnostics, and unchurched believers (e.g., individuals who report no religion but believe in a higher power). Approximately 13% of atheists, 26% of agnostics, and 42% of unchurched believers reported that they were spiritual (n = 1648). Thus, almost 40% of the sample espoused spirituality despite the absence of belief in a higher power. More recently, Pew Research Center (2017) reported a growing portion of US adults who identify as spiritual, but not religious. Ammerman (2013) and Ellison and McFarland (2013) note that along with a growing percentage of alternative expressions of spirituality, there has been a steady decline in involvement and affiliation with established religious institutions. An estimated 27% of US adults identified as "spiritual, but not religious" in 2017, which marked an 8% increase over the last half decade (Pew Research Center, 2017).

Because of the centrality of spirituality to humanity, it is not surprising that healthcare organizations have recognized the importance of spirituality to holistic and comprehensive patient care (McSherry & Cash, 2004). Major governing bodies in the medical community have pointed to the centrality of spirituality: the World Health Organization (WHO) emphasizes spirituality as a central aspect of quality of life (QOL); spiritual care was deemed by the American College of Physicians (ACP) to fall within the purview of physician responsibility (Pearce, 2013; World Health Organization, 2003); and the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) mandates assessment of spirituality for all patients (Piedmont & Wilkins, 2013; Pearce, 2013). Empirical research supports this integration of spirituality into healthcare. Spirituality has been consistently associated with numerous positive physical and mental health outcomes (i.e., greater well-being, substance abuse recovery, and greater cardiovascular functioning) (Koenig, 2015) and interacts with health via mechanisms such as coping, social support, and meaning in life (Berry, 2005; George et al., 2000; Idler et al.,

2003; Moore, 2017; Selman et al., 2011). Thus, the impetus for culturally sensitive comprehensive care has led to the promotion and inclusion of spirituality within patient care dimensions (McSherry & Cash, 2004). Some areas of healthcare emphasize spirituality more than others, such as nursing and palliative care. In palliative care, spiritual care is one of the core domains assessed and incorporated into patient care (Strada, 2011; Vachon et al., 2009). The increasing prevalence of diverse expressions of spirituality (Ammerman, 2013; Ellison & McFarland, 2013; Zinnbauer et al., 1999) coupled with the growing expectation for healthcare providers of all levels to be comfortable with inclusion of spirituality in patient care, ties directly into the rationale for validation of the *Inclusive Spiritual Connection Scale* (ISCS).

While the medical community has begun to take steps to integrate spiritual assessment and spiritual care into patient care, existing measurement of spirituality is limited. Less than two decades ago, researchers reported that less than 10% of religiosity measures mentioned spirituality (George et al., 2000). Of those measures that have incorporated or focused on spirituality, the majority are based in theistic and religious frameworks, with a heavy emphasis on Judeo-Christian language (Berry, 2005; Hill & Edwards, 2013; Selman et al., 2011). Existing literature supports the presence of spiritual expressions outside of religious and theistic belief systems (Baker & Smith, 2009; Currier et al., 2012; Moore, 2017; Pew Research Center, 2017). Thus, while one's expression of spirituality may extend outside of the realm of theism, very few measures are designed to assess nontheistic spiritual expressions and even fewer have been validated with secular populations (Berry, 2005; Hill & Edwards, 2013; Moore, 2017; Selman et al., 2011). Due to this limitation in existing measurement of spirituality, there is a significant gap in our understanding of health outcomes in nonreligious and/or nontheistic populations and

without proper assessment tools, integration of spirituality into medical communities is problematic.

Rationale and Plans for the *Inclusive Spiritual Connection Scale*

There is a need for more research attention on religiosity and spirituality; however, this need is more pronounced when looking specifically at spirituality outside of a Judeo-Christian framework. As emphasized by Baker and Smith (2009), scientific investigations of religion need to incorporate individuals who do not fit into traditional expressions of religious affiliation or religious identity. Within scientific investigations of religiosity and spirituality, Zinnbauer et al. (1999) stress the importance of studying the psychosocial and physical effects on those who engage in search for sacred connection. This need extends across religions and spiritual expressions and ties directly with the growing emphasis on the integration of spiritual care within the medical community. For example, McFadden (2015) emphasizes the need for comprehensive clinical assessment in order to increase awareness and understanding of factors that may strengthen or jeopardize clients' well-being. Likewise, Currier and colleagues (2012) emphasize the importance to clinicians and researchers of examining the role of theism (or lack thereof) in individuals' spiritual experiences during end of life care. However, current measurement of spirituality is inadequate due to restricted focus and limited validation with diverse populations. See Hoots (2017) Chapter 2 for a review of limitations of existing spirituality measures. The current measure responds to those existing limitations of spirituality measurement; namely, absence of inclusive spirituality measures, lack of theoretically driven assessments, and limited measures assessing all functional components, which include affective, behavioral, and cognitive components (Berry, 2005; Hill & Edwards, 2013; Hodge, 2002; Monod et al., 2011; Selman et al., 2011).

Failure to use spiritual assessments designed to capture diverse spiritual expressions outside of the bounds of religious and theistic beliefs directly affects healthcare providers' ability to provide comprehensive care and address the spiritual needs of all US adults, particularly the growing percentage who identify as religiously unaffiliated, yet spiritual. The current project responds directly to this need through pilot testing and validation of the theory-driven measure, the ISCS (Hoots, 2017). The ISCS was developed using nontheistic language with the purpose of using the measure with religiously and spiritually diverse populations. Inclusion of theistic language in measures may reduce external validity for spiritually diverse and religiously unaffiliated populations (Currier et al., 2012; Moore, 2017); therefore, the ISCS aims to buffer this issue.

While the ISCS has the potential to address significant research gaps, validation of this measure has the potential for far-reaching impact on patient care and patient outcomes. The end goal of validation of the ISCS is use within healthcare settings, in addition to research settings, to assist healthcare providers in answering the call for culturally sensitive care (McSherry & Cash, 2004). Lack of inclusive spiritual assessments represents a significant gap that impacts comprehensive integrative care for a growing number of US adults. If psychometric evidence of reliability and validity is established, the current measure may begin to address existing gaps in research, assist in the facilitation of the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) mandate for spiritual assessment (Pearce, 2013), and ultimately bring us one step closer to responding to the needs of the growing subset of US adults who identify as spiritual, but not religious. Consequently, successful development and validation of the ISCS measure may open the door to more holistic and integrative care for all US adults; thereby, increasing the likelihood of tapping into alternative sources of coping known to improve QoL. In

summary, we currently have a very limited understanding of spirituality outside of religious or theistic expressions and given the established associations between spirituality and health, validation of the ISCS meets a pressing need among researchers and healthcare providers. If psychometric evidence of reliability and validity of the ISCS is established, the ISCS has the potential to be used in a variety of settings from bench to bedside, increasing understanding of spirituality, predicting health risks, enhancing holistic health care, and ultimately improving quality of life when life and health challenges weaken the human spirit.

Chapter 2. Literature Review

Spirituality and Health

An inherent challenge in the scientific investigation of spirituality is conceptualization and subsequent operationalization. As such, researchers have conceptualized spirituality in a number of different ways; however, despite varied conceptualizations of spirituality in existing literature (see next section), there are clear and consistent associations between health outcomes and religiosity/spirituality (e.g., Bonelli & Koenig, 2013; Hill & Pargament, 2003; Koenig, 2015; Moore, 2017; Park et al., 2017; Powell et al., 2003). When discussing health outcomes, it is often difficult to tease apart independent contributions of religiosity and spirituality, due to their inherent theoretical associations and frequently merged conceptualizations and operationalizations in existing measures. See Hoots (2017) Chapter 2 for a more detailed breakdown of the relationships between spirituality and health across various conceptualizations (religiosity, merged religiosity/spirituality, and spirituality). Nonetheless, there have been increasing amounts of spirituality-focused literature in various healthcare fields (specifically, nursing and palliative care) that has paralleled the growing emphasis on holistic care (McSherry & Cash, 2004).

As an overview, religiosity and spirituality have been linked with positive mental health outcomes (lower depression, stress, anxiety, suicidal ideation, and increased well-being), smoother physical and mental recovery from surgeries and negative life events, reduced likelihood of substance use and abuse, reduced all-cause mortality among healthy individuals, and reduced risk of cancer and cardiovascular disease (e.g., Bonelli & Koenig, 2013; Chida, Steptoe, & Powell, 2009; Hill et al., 2000; Koenig, 2015; Park et al., 2017; Powell et al., 2003). Further, constructs within religiosity and spirituality, such as prayer and forgiveness have been

associated with positive health outcomes. For example, Dezutter et al. (2011) found that prayer was associated with increased pain tolerance among individual with chronic pain.

In terms of spirituality specifically, greater spiritual well-being has been associated with indicators of cardiovascular health (e.g., lower blood pressure, cholesterol, fasting glucose, and inflammation; Holt-lunstad et al., 2011), shorter hospitalizations among middle and older age patients who had open-heart surgery (Ai et al., 2011), lower depressive symptomatology and physical symptoms among older adults (Lawler-Row & Elliot, 2009), lower levels of distress in terminally ill patients (Chochinov et al., 2009), prediction of psychological well-being among frail older adults (Kirby et al., 2004), and prediction of hope in nursing home patients despite functional limitations and age (Touhy, 2012). In chronic and terminally ill populations, spirituality has been correlated with quality of life (QoL) to the same extent as physical aspects of well-being have been correlated with QoL (Brady et al., 1999). Lastly, and most closely aligned with the aims of the current study, Moore (2017) recruited a religiously and spiritually diverse sample (n = 4667) and found that the magnitude of the relationship between mental health (composite of life satisfaction, positive affect, gratitude, and hope) and spirituality (measured via endorsement of spiritual values) was similar between secular (agnostics, atheists, and spiritual nonreligious; $\beta = .55$, $p < .001$) and religious participants ($\beta = .58$, $p < .001$) regardless of groupings within secular designation, suggesting that the degree to which one lives in accordance with their spiritual values is a key predictor of mental health regardless of the spiritual expression.

A number of mediating factors in the relationships between health and spirituality have been explored in existing research, such as meaning in life, social support, promotion of health behaviors (i.e., exercise, healthy diet, preventative medical care, treatment adherence, avoidance

of risky behaviors), coping resources, and stress mechanisms (i.e., physiological pathways) (Berry, 2005; Chida et al., 2009; George et al., 2000; Idler et al., 2003; Koenig, 2015; Lawler-Row & Elliot, 2009; Morton et al., 2017; Park, 2007; Park et al., 2017; Selman et al., 2011; Strawbridge et al., 2001). Within these potential mediating pathways, Hill and Pargament (2003) point out that a number of these factors may represent components of the construct itself (i.e., meaning and purpose in life, religious and spiritual support, religious and spiritual struggle). Specifically, religiosity and spirituality represent multidimensional frameworks that support, integrate, orient, and direct people in their everyday lives and during times of challenge and crisis (Hill & Pargament, 2003; Hill et al., 2000). Pertinent to the current investigation and aims of validation of the ISCS are meaning in life and coping.

Meaning in Life Framework. From a meaning systems framework, religiosity and spirituality represent essential components of one's meaning system, if religious or spiritual beliefs are present (and as discussed in "Chapter 1. Introduction," many would argue that these beliefs are always present, even if on an implicit level). Much like the centrality of spirituality to the human experience, humans possess an inherent need for meaning, as it allows us to function during challenges, while providing a sense of identity and direction (Park et al., 2013; McFadden, 2015). Within aging and palliative care literature, meaning is a central component of the operationalization of spirituality, as well as a route by which spirituality functions in the lives of those who are experiencing age-related changes and/or in the end stages of life due to disability or disease (Ai et al., 2010; McFadden, 2015). As such, spirituality provides a framework for coping via meaning made in the midst of negative life events, pain, and grief (Ai et al., 2010; Golsworthy & Coyle, 1999; McFadden, 2015; Park, 2007; Park et al., 2013)

According to Park (2007; 2013), meaning systems are comprised of global beliefs and global goals, in which all three functional domains (cognitive, affective, behavioral) are impacted. Global beliefs represent one's central schema for interpreting all of life's events; whereas, global goals represent ideas or statuses that one holds as most meaningful (i.e., things that one works towards achieving or being). Both global beliefs and goals work together to provide meaning in life; thereby, creating one's global meaning within the meaning-making system. The degree of discrepancy between global meaning and meaning appraisal of a challenging situation directly impacts the subsequent level of distress, and it is this discrepancy that initiates the meaning-making process (Park, 2007; Park et al., 2013). In terms of spirituality and religiosity, a spiritual- or religious-oriented meaning system provides the foundation for how individuals see and understand the world around them (i.e., global beliefs), while orienting and directing thoughts and behaviors (i.e., global goals; Park et al., 2013). Religiosity and spirituality represent remarkably functional and efficient pathways for meeting the need of a meaning system (Park et al., 2013). Spiritual and religious beliefs are inherently associated with global beliefs about the self, the world, and how the self exists in the world (i.e., justice, fairness, benevolence, and compassion; Park, 2007; Park et al., 2013). Park (2007) argues that most physical and mental health outcomes associated with religiosity and spirituality are mediated by the meaning system. One route of the meaning system is coping, such that Park (2007) explains that the meaning system represents a coping resource that is especially useful during times of crisis or illness. Within this, individuals who identify as religious or spiritual, often rely on these beliefs to help them cope. Spiritual- or religious-oriented meaning systems may allow reappraisal of the meaning of negative life events (such as crises and illness), permitting the prospect of hope, strength, and comfort (Park, 2007).

Spirituality and Coping with Illness. Spirituality is particularly salient in the context of illness. Koenig (2013) explains that chronic illnesses affect four key areas of health: physical, spiritual, mental, and social. In terms of physical health, chronic illness often entails functional impairment (i.e., limited independence and fatigue) that impacts work and family life. This interplay often impacts social health via feelings of loneliness, spiritual health via feelings of isolation from religious/spiritual community and/or God or a Higher Power, and mental health via stress, loneliness, and feelings of despair (Koenig, 2013). From a coping framework, religiosity and spirituality interact with core schemas (perception of life events) and core beliefs (Gall & Guirguis-Younger, 2013; Park, 2007). An individual's spiritual or religious beliefs interact with their perception and cognitive appraisal of life events (Gall & Guirguis-Younger, 2013). Existing research supports positive associations between positive religious/spiritual coping (i.e., secure relationship with God and optimistic view of challenges as opportunity for spiritual growth) and positive cognitions, medical compliance, positive adjustment, lower perceived stress, lower depressive and anxious symptoms, faster recovery, lower mortality, greater self-reported health, and better treatment adherence; whereas, negative religious/spiritual coping (i.e., spiritual discontent and negative religious framing—passive deferral or pleading for direct intercession by God or Higher Power) has been associated with greater mortality among chronically ill patients, as well as decreased life satisfaction and quality of life, increased psychological distress (including anxiety and depression), lower self-efficacy for coping, and poorer physical health and adjustment to illness outcomes among cancer patients (Gall & Guirguis-Younger, 2013; Herbert et al., 2009; Koenig, 2013; Pargament et al., 2001; Park, 2007; Park et al., 2017; Perez & Smith, 2015; Powell et al., 2003). Despite the ample literature on coping using a merged theistic-based religiosity/spirituality conceptualization, Glicksman (2002)

posits that one's faith (whether nontheistic or theistic) can be understood based on function, such that in times of crisis diverse beliefs direct the way one lives their life and the meaning attributed at the end of their life.

Conceptualizations of Spirituality for Research Purposes

The inherent abstraction of spirituality limits researchers' ability to conceptualize and consequently operationalize the construct (Hill et al., 2000). In extant literature, understanding of spirituality is limited and comprehensive definitions are a bit elusive (Oman, 2013). As such, conceptualizations of spirituality represent a largely heterogeneous pool, with varying degrees of theoretical separation from conceptualizations of religiosity/religiousness, and varying substantive (e.g., distinctive characteristics of one's spirituality) versus functional (e.g., purpose of one's spirituality) emphases (Berry, 2005; Hill & Edwards, 2013; Hill & Pargament, 2003; Sherry & Cash, 2004; Moore, 2017; Monod et al., 2011; Oman, 2013; Park et al., 2017). Some researchers conceptualize spirituality within the umbrella of religiosity/religiousness (Allport & Ross, 1967; Hill et al., 2000; Zinnbauer et al., 1999); whereas others conceptualize spirituality more broadly as the overarching umbrella (Currier et al., 2012; Koenig, 2015; MacDonald et al. 2015; Moore, 2017; Strada, 2011; Vachon et al., 2009; Webb et al., 2014).

When responding to the call for culturally sensitive healthcare, the need for a more inclusive definition of spirituality is evident. Nonetheless, researchers are aware of the difficulties in developing a universal definition of spirituality (Baumsteiger & Chenneville, 2015; McSherry & Cash, 2004), and many point to the dangers of polarization of religiosity and spirituality (e.g., Hill & Pargament, 2003; Hill et al., 2000; Zinnbauer et al., 1999). Hill and colleagues (2000) explain that conceptualizations of spirituality may or may not be associated with religious affiliation, in that spirituality may stem from three overarching understandings:

God-oriented (e.g., theistic), world-oriented (e.g., relationship with nature), and humanistic (e.g., people-oriented in terms of self-actualization). Currier and colleagues (2012) support this expanded view of spirituality by explaining that individuals may practice a spiritually oriented way of life in the absence of religious affiliation and/or belief in God or a higher power. Then again, broad definitions of spirituality risk loss of distinguishing features, such as where to draw lines between existential concerns (i.e., life and death, meaning, value, purpose) and spirituality (McSherry & Cash, 2004; Zinnbauer et al., 1999). Oman (2013) agrees that measures should avoid being too broad in scope but explains that the most fruitful conceptualizations will be those that reach the most diverse audiences.

As such, a handful of researchers have attempted to develop measures of spirituality that support diverse expressions of spirituality (e.g., Piedmont, 1999; 2001; Moore, 2017; Webb et al., 2014), one of which is the Ritualistic, Theistic, and Existential (RiTE) Measure of Spirituality (Webb et al., 2014). Webb et al. (2014) defined spirituality as encompassing three dimensions: religious spirituality (aka ritualistic), theistic spirituality, and existential spirituality in which each dimension entails search for and/or significance associated with sacred connection. Historically, spirituality has been conceptualized within the framework of religion, such that it is the core essential component of religion as one searches for connection with the sacred [e.g., holy aspect(s) of life] through individual or institutional means (Hill et al., 2000; Zinnbauer et al., 1999). That is, conceptualization of spirituality typically (but not exclusively) entails the more internal, subjective, and individual aspects of religious expressions and experiences (in comparison with religiosity typically entailing more institutional and outward expressions) though both spirituality and religiosity can take on individual, institutional, personal, and social expressions. Despite varied definitions of spirituality, a commonly agreed

upon aspect of spirituality is the emphasis on search for, and connection with, what is considered sacred in one's life (Ai et al., 2010; Ammerman, 2013; Baumsteiger & Chenneville, 2015; Berry, 2005; George et al., 2000; Hill & Pargament, 2003; Hill et al., 2000; McFadden, 2015; McSherry & Cash, 2002; Monod et al., 2011; Oman, 2013; Pargament, 1999; Pargament, 2013; Pargament & Mahoney, 2002; Pargament & Mahoney, 2005; Zinnbauer, Pargament, & Scott, 1999). Thus, based on extant literature, spirituality is often understood to be one's sense of connection with whatever is perceived to be sacred (i.e., God, nature, relationships) (Ammerman, 2013; Baumsteiger & Chenneville, 2015; Hill & Pargament, 2003). Sacred entails any aspect of life that transcends the self, which includes but is not limited to any of the following: God, gods, a higher power, Ultimate Reality, divine beings, a principle or ideology, or other components of life such as relationships, roles (i.e., parent, partner, friend), nature, that take on supernatural meaning or extraordinary quality via sanctification (e.g., association with what is believed to be sacred) (Ammerman, 2013; Baumsteiger & Chenneville, 2015; Hill & Pargament, 2003; Hill et al., 2000). It is from these common themes across the varied conceptualizations of spirituality and theoretical frameworks of prominent psychology of religion and spirituality researchers that the ISCS was developed.

Theoretical Basis of ISCS

As previously discussed, Baker and Smith (2009) argue that scientific investigations of religion need to incorporate individuals who do not fit into traditional expressions of religious affiliation or religious identity. However, in order to engage in this type of scientific investigation, improvements to extant spirituality measurement are indicated. Oman (2013) echoes this need by emphasizing the importance of conceptualizations of spirituality that reach diverse audiences. Similarly, Zinnbauer and colleagues (1999) point to the need for researchers

to differentiate between spirituality and religiosity, but to do so in such a way that the constructs are not polarized. The current study aims to respond directly to these expressed needs through validation of the ISCS.

The ISCS is a theory-driven nontheistic-based spirituality measure developed by this author. The current item pool of the ISCS was developed based on two prominent psychologists in the field of Psychology of Religion and Spirituality—Kenneth Pargament and Ralph Piedmont. Item development was grounded in Pargament's (1999; 2013) and Piedmont's (2001) theoretical conceptualization of spirituality as a relatively stable motivational construct entailing search for and connection with what is identified as sacred in one's life. Development of the ISCS extends Pargament's (1999; 2013) theory to nontheistic-based item language. Further, the ISCS blends assessment of substantive (i.e., the source of spiritual connection) and functional (i.e., affective, behavioral, and cognitive) components of spirituality. Lastly, with regards to spirituality conceptualized as a relatively stable construct, existing research supports this view of the nature of spirituality. Religiosity is considered a relatively stable construct in terms of its modest linear increases as individuals age across adulthood, as is spirituality (Ai et al., 2010; McFadden, 2015). Ai and colleagues (2010) note that spiritual seeking may increase in later adulthood (i.e., 50s to 70s) due to an increase in engagement and focus on sacred connection; however, this increase remains relatively stable in its linear progression across the second-half of adulthood. As such, the ISCS was developed based on a theoretical understanding of spirituality as a relatively stable construct, with expected increases in the level of spirituality during existential challenges in life (i.e., end of life). See Hoots (2017) Chapter 2 for a more complete description of the theoretical underpinnings of the ISCS.

Pilot Testing the ISCS

Due to existing measurement limitations, there is a significant gap in our understanding of the relationship between health and spirituality among spiritually diverse populations. In light of the JCAHO mandate (Pearce, 2013) for spiritual assessment and the growing percentage of US adults reporting nontraditional spiritual expressions, current measurement of spirituality is inadequate. Validation of the ISCS has the potential to address existing gaps in research, assist in the facilitation of the JCAHO mandate for spiritual assessment in healthcare settings, and ultimately facilitate response to the needs of the growing subset of US adults who identify as spiritual, but not religious. This project responds directly to the outlined problem through pilot testing and validating the theory-driven ISCS. The ISCS was designed using a novel approach to spirituality assessment, utilizing nontheistic-based item language, and a spirituality framework item to prime respondents and assess the source of their spiritual connection. This frame of reference item allowed for more refined examination of item performance relative to group membership (theistic and nontheistic) during analyses.

The ISCS has the potential to address significant research gaps as well as have far-reaching impacts on patient care and patient outcomes. The central aim of this project is to develop a reliable and valid inclusive spirituality measure validated for use with spiritually diverse populations that is accessible for use in research and community health settings.

Validity Measures. With the aim of assessing the degree to which the ISCS measures what it was designed to measure, assessment of convergence and discriminant validity will take place at this stage of instrument validation. Convergent validity refers to the degree of similarity (as evidenced by a strong correlation) between two measures with theoretical similarities; whereas, discriminant validity refers to degree of dissimilarity (AEB no correlation) between two

measures that are theoretically unrelated (DeVellis, 2012; McCoach et al., 2013). In this manner, evidence of convergent and discriminant relationships provides evidence of construct validity supporting the integrity of score interpretation for the ISCS (McCoach et al., 2013).

Convergent Validity. Evidence of convergence between two measures is characteristically established using a well-validated measure that is designed to measure the same construct (DeVellis, 2012; McCoach et al., 2013). When a gold-standard measure exists for a construct, the gold-standard measure should be used for instrument validation of that construct. However, given the novelty of the framework for the ISCS and the varied conceptualizations, and subsequent measurement of spirituality, there is not an inclusive gold-standard measure of spirituality. There are a number of spirituality measures; however, many consist of merged constructs with religiosity and/or meaning in life and most use theistic-based language. The Brief Multidimensional Measure of Religiousness/Spirituality (BMMRS) is a commonly used measure due to the multidimensional framework; however, item language is based on a Judeo-Christian framework and measures spirituality as a merged construct with religiousness (Fetzer Institute/National Institute on Aging Working Group, 1999). Another commonly used measure of spirituality is the Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being Scale (FACIT-Sp; Peterman et al., 2002). The FACIT-Sp has been cross-culturally validated and is designed to measure spirituality from an inclusive framework; however, it measures spirituality within the construct of well-being establishing it more as an outcome measure of spiritual well-being with emphasis on the function of spirituality. The ISCS is designed to measure spiritual connection from both a substantive and functional framework, with no direct theoretical similarities to the construct of psychological well-being. Lastly, Piedmont's (2001) Spiritual Transcendence Scale (STS) assess spirituality as a motivation to find meaning in the

search for sacred connection from an inclusive framework. While the STS is theoretical similar to the ISCS, reliability of the measure, as evidenced by Cronbach's alpha, ranges from .64 to .83 across subscales, with the subscale most similar to the ISCS reporting internal consistency of .64 (Piedmont, 2001). With the aim of establishing strong evidence of reliability of the ISCS, the STS was not selected as a measure of convergent validity at this stage of instrument validation due to low estimates of internal consistency.

The selected measure for establishing convergent validity at this stage of instrument validation is the RiTE Measure of Spirituality (Webb et al., 2014). With no established gold standard measure, the RiTE Measure of Spirituality was selected due to its inclusive conceptualization and operationalization of spirituality and acceptable psychometric properties. The RiTE Measure of Spirituality aims to assess spirituality independent of association with organized religion and does not necessitate belief in a deity. That is, respondents who do not possess belief in God or another higher power and/or who do not affiliate with an organized religion, but who search for connection with other sacred aspects (i.e., nature, humanity, meaning) of/in their life, may theoretically endorse items within the RiTE Measure of Spirituality. The RiTE Measure of Spirituality was designed to assess spiritual expressions among those who identify as both religious and spiritual, religious but not spiritual, and spiritual but not religious. As previously discussed, the RiTE measure consists of three subscales: Ritualistic Spirituality, Theistic Spirituality, and Existential Spirituality. The Ritualistic Spirituality subscale assesses the structured connection with a deity, typically associated with religious-based rituals. Theistic Spirituality subscale assesses unstructured spiritual connection that occurs without the necessity of an affiliation with an organized religious belief system. The Existential Spirituality subscale represents a nontheistic-based search for meaning and purpose,

which may or may not be associated with belief in a deity. Further, the RiTE Measure of Spirituality provides a comprehensive introduction to the measure explaining to respondents that the word “deity” (when it occurs in items for the Ritualistic and Theistic Subscale items) should be interpreted according to their individual spiritual expressions (not exclusively from a theistic framework). Lastly, the internal consistencies of subscales have been reported to range from 0.91 to 0.98, providing a strong indicator of reliability. Because the ISCS aims to assess one's search for, or connection with, whatever is identified as sacred in one's life, the RiTE measure theoretically allows for points of convergence among respondents across religious and spiritual expressions (i.e., theistic, nontheistic, religious, non-religious).

Discriminant Validity. Evidence of discriminant validity for a new measure is established by investigating if a relationship exists between the new measure (ISCS) and a measure that is hypothetically and theoretically different. Measures of social desirability are often used in validation studies, especially when validating self-report measures due to response biases (DeVellis, 2012; McCoach et al., 2013). As such, for the purposes of the current study, a measure of social desirability was selected to establish discriminant validity. There are a number of established social desirability measures, as these measures are frequently used in correlational studies to control for response bias. The most commonly used measure for detecting socially desirable response patterns in respondents in the Marlowe-Crowne Social Desirability Scale (MCSDS; Crowne & Marlow, 1960). The MCSDS is a 33-item measure that uses a true/false response format. Another commonly cited social desirability measure that has been used in a number of validation studies is the Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1984; 1991). The BIDR assesses self-deception and impression management in respondents using a 40-item scale with a Likert-type response scale. While, the MCSDS and

BIDR are both commonly used measures, the length of the measures represents a limitation when respondent burden is of concern. Therefore, the Socially Desirable Response Set-5 (SDRS-5; Hays, Hayashi, & Stewart, 1989) was selected as a measure of discriminant validity for the current study. The SDRS-5 was developed based on the MCSDS and was designed to be a shorter measure of social desirability, consisting of only 5 items. The SDRS-5 was chosen for the current study due to its brevity and theoretical distinctions from the construct of spirituality. While it was expected at the outset that there would be a weak association between SDRS-5 scores and ISCS scores due to an artifact (i.e., both measures being self-report), patterns of extreme social approval are not inherently related to pursuits of sacred connection.

Chapter 3. Item Development & Preliminary Evidence

The current project expanded upon previous pilot testing of the ISCS. At this stage of instrument development and validation, the item pool consisted of 45 Likert response items and one frame of reference item (see Appendix A). The frame of reference asks participants to indicate the source of their spiritual connection (e.g., God, humanity, the universe, Buddha, multiple gods) (Hoots, 2017). The 45-item pool was a product of three iterative phases of development described below. During these three phases of instrument development, preliminary evidence of content validity of the ISCS was established through supportive evidence of congruence between items and the overarching spirituality construct (Hoots, 2017).

Phase 1 entailed establishment of measure characteristics and development of the initial item pool. Phase 1 began with an extensive review of the literature on spirituality and measurement development. Measure characteristics were outlined via a table of specifications (TOS) entailing distributed focus on three key spiritual processes: discovery, conservation, and transformation (Pargament 1999; 2013); with attention to all functional components (i.e., affective, behavioral, cognitive) being represented in items among these three spiritual processes. Each of the aforementioned processes and components in the TOS were intended to tap into areas within a unidimensional construct of spirituality. After measure characteristics were established, development of the initial item pool ensued. An initial pool of 65 items and corresponding Likert-type response choices were developed. Thirty-seven of the initial 65 items were developed by the author and the remaining 28 items were modified from existing validated measures. Selection, modification, and development of items were based on a theoretical foundation, the TOS, a set-forth conceptual definition of spirituality, and existing literature on the intersections of spirituality and health. A frame of reference item was created to allow

participants to identify the source of their spiritual connection (e.g., God, humanity, the universe, Buddha, multiple gods), if any, that could subsequently be used for item analysis purposes at future stages of validation (Hoots, 2017).

During Phase 2 of instrument development, the 65 items in this initial item pool underwent an internal review process in which two content-specific experts anonymously rated item form quality (i.e., clarity and 8th grade reading level) and congruence with spirituality construct (as specified by the provided theoretical conceptualization) using a 4-point Likert-type scale (1 = *poor quality*, 2 = *fair quality*, 3 = *good quality*, and 4 = *excellent quality*). The internal review procedure followed recommendations of Crocker and Algina (1986) in which reviewers assessed congruence between items and the construct based on a clear conceptualization of spirituality as a measurable construct. Of the 65 items, 57 items had mean ratings for item quality of ≥3, and 64 items had a mean rating of ≥3 for item congruence. Across reviewers, item means indicated good item form quality (M = 3.315) and evidence of congruence with the spirituality construct (M = 3.77). Of the initial pool of 65 items, 8 items with mean content and/or form quality ratings ≤ 2.5 were deleted and the remaining 55 items were modified in accordance with suggested revisions and open-ended feedback provided by the content-specific expert reviewers (Hoots, 2017).

Phase 3 of instrument development entailed a structured external review of the then 55-item pool. A panel of 10 experts with professional backgrounds in healthcare, psychological measurement, hospital chaplaincy, health research, theology, and spirituality research was selected to participate in this review process. External review experts anonymously rated the 55 items based on item form quality and item congruence with spirituality construct (as specified by the provided theoretical conceptualization) using the same 4-point Likert-type scale (1 = *poor*

quality, 2 = *fair quality*, 3 = *good quality*, and 4 = *excellent quality*). Across reviewers, item means indicated good item form quality (M = 3.34, SD = 0.72) and evidence of congruence with the spirituality construct (M = 3.53, SD = 0.65). Ten items were deleted from the 55-item pool as a result of the external review based on both quantitative (i.e., items with mean content and/or form quality ratings less than 3.0) and qualitative feedback (i.e., comments from reviewers indicating item redundancy and vague or intense item verbiage). The remaining 45 items were revised based on feedback received from reviewers. All remaining items were assessed for reading level using Microsoft Word Flesch-Kincaid Grade Level readability statistics (Hoots, 2017).

Chapter 4. Methods

For the current project, the 46-item ISCS underwent a validation and refinement process that entailed pilot testing across a split developmental sample, in order to examine psychometric qualities of the measure and validate its use with both nontheistic and theistic populations across the health spectrum.

Participants

Upon obtaining approval from the university's institutional review board, data were collected from a convenience sample of 736 participants. Participants were recruited from the U.S. using social media platforms (Facebook and Reddit), snowball sampling methods via email, and through The Sona Systems web-based participant pool management system. Advertising for this study targeted individuals who actively seek spiritual connection (see advertisement in Appendix E). The study was advertised heavily within Facebook groups and subReddits geared toward chronic illness or spiritual beliefs, with the aim of having a representative sample of participants across health status and theistic classification (theistic and nontheistic).

Advertisements directed individuals to the survey for the current study which was created and administered in REDCap (Research Electronic Data Capture). REDCap is a secure web-based application used for administration of surveys. Once individuals were directed to the REDCap webpage, they were presented with the informed consent document and were asked if they were 18 years of age or over. Those who were not at least 18 years of age or who did not provide consent were taken to another page, exiting them out of the survey. Individuals who indicated they were 18 years of age or older, and who consented to participating in the study were taken to the next REDCap webpage consisting of the full survey for the current study. All participants who were interested were entered to win a drawing for one of sixteen $50 Amazon

gift cards as a means of compensation. Entries for the gift card were made by participants clicking a checkbox (to indicate interest) at the end of the survey page, which directed them to a separate REDCap webpage. The separate REDCap webpage prompted participants to enter their email address and was not connected to their responses to the battery of measures. Participants were also given the opportunity at the end of the survey to enroll in a second timepoint of data collection (to examine test-retest reliability) by clicking a box indicating their interest in being contacted after two weeks. Participants who expressed interest in participating in the follow-up survey were prompted to provide a contact email address. Participants in this self-selected subsample were emailed a URL link two weeks after they completed the initial battery of measures, which directed them to a REDCap webpage that consisted only of the 46-item ISCS.

Data were collected from a total of 1124 participants. Listwise deletion procedures were used to remove participants with incomplete data and those who did not meet inclusion criteria for the current study (i.e., ≥18 years of age and classification as having a theistic or nontheistic source of spiritual connection). The resulting sample (N = 736) was then split into two developmental samples and contained a test-retest subsample. A detailed description of the listwise deletion process and the creation of developmental samples is outlined in the Procedures section of this chapter. Sample diversity characteristics for the full sample (N = 736), primary developmental sample (PDS; n = 368), secondary developmental sample (SDS; n = 368), and the test-retest self-selected subsample (n = 129) are provided in the Demographics section of "Chapter 5. Results."

Measures

Inclusive Spiritual Connection Scale. The ISCS by Hoots (2017) is a 46-item self-report measure (see Appendix A). The ISCS consists of a frame of reference item prompting

respondents to identify the source of their spiritual connection, and 45-items that employ a 4-point Likert-type response scale. Nine of the 45 items are reverse scored. Item examples include the following: "*I believe in a spiritual presence that provides a purpose for my life."* (*strongly disagree* to *strongly agree*)*; "I desire to be closer to the source of my spirituality."* (*not true of me* to *very true of me*); "*My spirituality is a source of frustration for me."* (*never* to *always*). Raw item values were summed to form a total score. Scores can range from 45 to 180, with higher scores reflecting a greater degree of spiritual connection. Group membership (theistic or nontheistic) was determined based on participant responses to the frame of reference item. Participants who indicated a theistic-based source of spiritual connection (i.e., God, multiple gods, a supreme being) were categorized as theistic; whereas, participants who indicated a non-theistic source of spiritual connection (i.e., nature, humanity, Buddha, etc.) were categorized as nontheistic. Categorization as theistic or nontheistic using these categories was completed by the author for analysis of measurement invariance purposes.

To assess convergent and discriminant validity, participants completed the following instruments in addition to the ISCS: RiTE Measure of Spirituality (Webb et al., 2014), Nottingham Health Profile (NHP; Hunt et al., 1980); Psychological Well-Being Scale (PWB; Ryff & Keyes, 1995); Socially Desirable Response Set-5 (SDRS-5; Hays et al., 1989); and demographic items.

RiTE Measure of Spirituality. The RiTE measure (Webb et al., 2014) is a previously established 30-item self-report measure scored on a 5-point Likert-type response scale (see Appendix B). The RiTE is designed to measure both nontheistic and theistic spirituality and is comprised of three subscales: Ritualistic Spirituality, Theistic Spirituality, and Existential Spirituality. Internal consistencies of the subscales have been reported to range from $\alpha = 0.91$ to

α = 0.98 (Webb et al., 2014). The RiTE demonstrated strong internal consistency within subscales in the current study (Theistic Spirituality, α = .95; Ritualistic Spirituality, α = .87; Existential Spirituality, α = .85). Item examples include the following: "*I regularly attend organized worship services.*" (ritualistic spirituality subscale); "*I feel connected to a deity or deities*." (theistic spirituality subscale); "*I see life as a journey toward fulfillment*." (existential spirituality subscale). Raw item scores were summed for each subscale with higher overall scores indicating higher levels of spirituality and a balance of scores across the three subscales is recognized as healthy spirituality according to Webb et al. (2014). The RiTE Measure of Spirituality was chosen as a measure of convergent validity due to theoretical similarities with the ISCS and design for use with spiritually and religiously diverse populations.

Socially Desirable Response Set-5. The SDRS-5 (Hays et al., 1989) is based on the commonly used Marlow-Crowne Social Desirability Scale (Crowne & Marlow, 1960) and was designed to be a shorter measure of social desirability. The SDRS-5 was designed to detect socially desirable response patterns in respondents using items stems that are not easily identifiable as social desirability items. The SDRS-5 consists of five items that use a 5-point Likert-type response scale (*definitely true* to *definitely false*) in which only one specified extreme response indicates social desirability on each item (see Appendix B). Item examples include the following: "*I am always courteous, even to people who are disagreeable*."; "*There have been occasions when I took advantage of someone*."; "*No matter who I'm talking to, I'm always a good listener*." The specified extreme response is scored as 1, and all other responses are scored as 0 (i.e., selecting *definitely true* in response to item stem *I am always courteous even to people who are disagreeable* would be scored as a 1). A higher score is typically interpreted as greater concern with social approval. Internal consistency estimates range from α = 0.66 to α = 0.68

(Hays et al., 1989). Similarly, the internal consistency of the SDRS-5 with the current sample is somewhat weak ($\alpha = .634$). While these internal consistency estimates are somewhat weak, the SDRS-5 is comprised of 5 items from the MCSDS and fall just below the lower bound of internal consistency estimates (.70 to .73) reported on the full MCSDS (Crino et al., 1983). The MCSDS is a widely cited scale of social desirability but was not selected for the current study due to length. The SDRS-5 was designed from the MCSDS and is much shorter. Thus, the SDRS-5 was chosen for this study due to its brevity, thereby reducing respondent burden. The SDRS-5 was included as a measure of discriminant validity. Social desirability is a distinct construct from spiritual connection and associations between the two were hypothesized to be weak or absent.

Nottingham Health Profile. The NHP (Hunt et al., 1980) is a self-report measure designed to assess perceived health problems and the degree to which these problems interfere with daily activities (see Appendix C). The NHP consists of 45 items with a yes/no response format. It is comprised of two parts: Part 1 assesses perceived health problems in 6 areas (38 items), and Part 2 assesses interference with seven life areas (7 items). The six subareas of perceived health problems include the following: energy level (3 items), pain (8 items), emotional reaction (9 items), sleep (5 items), social isolation (5 items), and physical abilities (8 items). The seven life areas include the following: work, social life, home life, sex life, interests/hobbies, vacations, and housework. Sample items from Part 1 include the following: *"I have unbearable pain."* (pain subarea); *"I'm tired all the time."* (energy level)*; "I sleep badly at night."* (sleep). Part 2 items entail respondents answering whether *"[Their] present state of health is causing problems with [their] Work?... Social life?... Sex life?"* with each of the seven areas of daily life separated with yes/no response format. Internal consistency of the NHP

subareas has been reported to fall between $\alpha = 0.62$ and $\alpha = 0.82$ (Essink-Bot et al., 1997). While an alpha of 0.62 is below the standard recommendation of .70, only two of the subareas fall below 0.70. Further, the NHP is comparable to the commonly used Short-Form Health Survey (SF-36; McHorney et al., 1993). When compared with the SF-36, the NHP performed better in terms of feasibility (based on missing value rate), acceptable but slightly lower in terms of internal consistency, and comparable in terms of construct validity (Essink-Bot et al., 1997). The NHP scale was selected as a general measure of perceived physical health and as such subscale scores will not be the focus of analyses, lessening concerns related to alpha estimates for the subscales. Further, the NHP composite yielded strong internal consistency in the current study ($\alpha = .89$).

Each item in Part 1 is associated with a weighted value. Relative weights are summed and subtracted from 100%, which is then reported in decimal format ranging from 0 to 1, with 1 indicating good health and 0 indicating poor health. The inclusion of the NHP was to assess self-reported general health status of participants, as such the individual 6 subscale scores were totaled resulting in a sum score ranging from 0 to 6, with lower scores indicating poor health and scores closer to 6 indicating good health. With the specific aim of validating the ISCS for use with both health and chronically ill populations, the NHP allowed assessment of general health status and the degree of functional impairment, with minimal respondent burden due to the dichotomous response format.

Psychological Well-Being Scale. The PWB (Ryff & Keyes, 1995) scale is a self-report measure designed to assess psychological well-being and is comprised of six subscales associated with key dimensions of psychological health: autonomy, self-acceptance, environmental mastery, positive relations with others, personal growth, and purpose in life. The

original scale consists of 42 items; however, for the purpose of the validation study, the 18-item scale will be used (see Appendix C). The 18-item scale consists of positively and negatively worded items with 3 items per subscale. Respondents use a 7-point Likert-type response scale (*strongly agree* to *strongly disagree*). Item examples include the following: *"The demands of everyday life often get me down."* (environmental mastery); "*In general, I feel I am in charge of the situation in which I live."* (autonomy); *"For me, life has been a continuous process of learning, changing, and growth."* (personal growth). After reverse scoring specified items (10 of the 18 items), total scores are calculated by summing item responses. Higher scores indicated higher levels of psychological well-being. Internal consistency estimates range from α =.36 to α = .59 for subscales, which represent relatively low alpha estimates; however, this is likely due to the low number of items per subscale. Internal consistency of the full PWB scale (3 items per scale; 18 items total) for a composite score has been reported to be α = .80, falling within an acceptable range (Boylan & Riff, 2015). Internal consistency of the PWB composite score in the current sample aligns with previously reported alpha estimates (α = .82). Cronbach's alpha was not estimated for the subscales of the PWB as use of the subscales was not the intended purpose of this measure for this study. The purpose of including a measure of psychological well-being for the current study was to ensure a representative sample of both healthy and chronically ill participants; therefore, the composite score for psychological well-being was used. The PWB scale was selected as a general measure of psychological health and as such subscale scores were not the focus of analyses, lessening the concern of previously reported low alpha estimates for the subscales.

Demographic Items. Participants were asked to provide their age, gender, race, sexual orientation, religious affiliation (if applicable), and current health conditions (if applicable).

Participants responded to age and gender items using an open-ended response format; whereas race, sexual orientation, religious affiliation, and current health condition utilized structured response formats (see Appendix D).

Procedure

Upon receiving study approval from the university's institutional review board, participants were given the opportunity to enroll in the study via a URL link (https://is.gd/spirituality1) that was provided on specified social media platforms (Facebook and Reddit) using a graphic social media ad (see Appendix E). The battery of measures (ISCS, RiTE Measure of Spirituality, SDRS-5, NHP, and demographic measure) were uploaded to Research Electronic Data Capture (REDCap) web-based application. REDCap is a secure web-based application used for administration of surveys. The URL link took participants to the REDCap web application, where an informed consent document was provided electronically, and participants gave consent by clicking "next."

Upon consent, participants completed the battery of measures and were provided with the author's contact information should they have any questions regarding the study or chose to retract consent. At completion, participants were asked if they would be willing to provide contact information (email address) for a follow-up contact 2 weeks from the time of initial completion in order to assess temporal consistency of the ISCS. Participants indicated interest in a follow-up contact by clicking either "yes" or "no" checkbox. Participants who checked "yes" were prompted to provide a working email address using survey branching logic. This self-selected subset completed the ISCS at timepoint 2, serving as the basis for test-retest reliability analyses. All participants in the self-selected test-retest subset were assigned a numeric identifier by the author. This numeric identifier allowed linking of ISCS scores from timepoint 1 and

timepoint 2. Participants in the self-selected subset were contacted via email at their provided email address. This email contact contained the unique numeric identifier and a link to a separate REDCap survey which contained only the ISCS scale and a field for participants to provide their assigned numeric identifier (see Appendix F for email template). Upon completion of the ISCS at timepoint 2, participants were again provided with the PI's contact information should they have any questions regarding the study or chose to retract consent.

As an incentive, all participants who completed the survey at time 1 were given the opportunity to be entered into a drawing to win one of sixteen $50 Amazon gift cards. The informed consent informed participants that the drawing would take place once data collection was complete. Lastly, participants indicated interest in being entered into the drawing by clicking a "yes" or "no" checkbox. Using survey branching logic, a URL was displayed for participants who checked "yes." Participants were asked to copy and paste the URL in a new window in order to enter into the drawing. The URL took participants to a separate REDCap survey where they were prompted to provide a working email address, thereby entering them into the drawing for one of sixteen $50 Amazon gift cards. All participants who entered the drawing were put into an excel sheet and 16 people were selected randomly using the random number generator function within Microsoft Excel. Participants who won the drawing were provided an electronic Amazon gift card via email in December 2019 after data collection ended. Additionally, participants who accessed the survey through the SONA system (n = 264) were given 1.0 SONA credit that could be applied toward their grade in a psychology course of the student's choice.

Prior to running analyses, data cleaning procedures were used to resolve issues related to inaccurate and incomplete data. Descriptive statistics were used to find unexpected values and investigate potential outliers. As an example, means and frequencies were used to ensure that age

range and survey item responses (based on specified response ranges) fell within an acceptable range. The current study had an initial sample size of 1124 participants, responses of 388 participants were removed with listwise deletion methods for the following reasons: opening the survey but not completing any items (n = 95), responding partially to demographic items and then not completing remaining demographic items or other survey items (n = 177), incomplete responses to the ISCS (i.e., failure to respond to at least 75% of ISCS items; n = 16), indicating they "do not seek spiritual connection" on the ISCS frame of reference item (n = 93), marking both theistic and nontheistic sources of spiritual connection on the ISCS frame of reference item (n = 3), not specifying a source of spiritual connection on the ISCS frame of reference item (n = 3), and a participant who indicated an age of 16 (n =1). Participants who did not respond to at least 75% of the ISCS items were removed using listwise deletion to allow factor analytic analysis techniques to be based on data from an adequate number of items. Participants who indicated that they did not seek spiritual connection on the ISCS frame of reference item were removed due to the tailored advertising of this project towards individuals who do seek spiritual connection. Further, participants who did not indicate the source of their spiritual connection on the ISCS frame of reference item or indicated both theistic and nontheistic sources of spiritual connection were removed due to the centrality of this item in assessing theistic classification and subsequent dichotomous analyses on this variable. After listwise deletion took place, the resulting sample consisted of 736 participants.

Prior to analyzing data, the final sample of 736 participants was split into two developmental samples, as mentioned previously, using a random stratified sampling procedure within Excel. The data file was sorted by theistic classification (nontheistic or theistic) based on participant response to the ISCS frame of reference item for spiritual connection. Random

numbers were generated, and the data file was then sorted by theistic classification and then by the random numbers from smallest to largest. The resulting samples consisted of 368 participants each (primary developmental sample, *n* = 368; secondary developmental sample, *n* = 368) with matching representation of theistic (66.8%; *n* = 246) and nontheistic (33.2%, *n* = 122) classifications in each sample. DeVellis' (2012) suggests a guideline of 5 to 10 participants per item for factor analysis; therefore, a split sample of 368 participants for the exploratory factor analysis and 368 participants for the confirmatory factor analysis satisfied this statistical guideline.

Data Analysis

Data analyses were conducted using SPSS version 26.0, R-3.6.1 (R packages included the following: broom, knitr, lavaan, semTools, and yarrr), and Microsoft Excel. Psychometric evaluation of the ISCS took place across three phases.

Phase 1. As previously mentioned, a stratified random sampling procedure was conducted on the initial sample of 736 participants to create the primary developmental sample (PDS; *n* = 368) and secondary developmental sample (SDS; *n* = 368). The two development samples of 368 participants each satisfies the commonly used ratio of respondents to items, thereby ensuring a sufficient number of respondents to support factor analysis techniques in phase 1 and phase 2 of analyses. Internal consistency was also calculated for each developmental sample.

Reliability. Cronbach's alpha was a planned analysis to assess internal consistency. Further, with the aim of developing a reliable, unidimensional final scale, inter-item correlation analyses were planned so that items with low inter-item correlations would be considered for removal.

Validity. The ISCS was designed to be a unidimensional broad measure of spirituality that assesses spirituality using nontheistic language. Although unidimensionality was the expected result of the factor analytic procedures, there was a possibility of multiple factors since the ISCS assesses numerous aspects of spirituality across all three functional domains (affective, behavioral, and cognitive). As such it was hypothesized that the 46-item ISCS would possess a unidimensional factor structure. In Phase 1, an exploratory factor analysis (EFA) was conducted with the primary developmental sample (n = 368) on the 46-item ISCS. Scree test and parallel analysis was planned to assess the number of factors to extract. While it was expected that the measure would be unidimensional, oblique rotation was planned in advance should multiple factors be extracted based on lack of theoretical independence among dimensions of spirituality. Additionally, item-scale correlations, item variances, and item means were planned allowing items with low item-scale correlations, and low communalities to be considered for removal. Results of aforementioned analyses, in light of the theoretical framework, dictated the removal of items during time 1.

Phase 2. Phase 2 of analyses focused on evaluation of the factor structure and temporal consistency of the ISCS after removing low performing items from phase 1 with the primary developmental sample (PDS). Phase 2 analyses were conducted on the secondary developmental sample (SDS; n = 368).

Reliability. I hypothesized that the refined ISCS measure used for analyses in Phase 2 would have high internal consistency as evidenced by an acceptable Cronbach's alpha. As with phase 1, inter-item correlations were planned for phase 2 to check item-level performance.

Validity. It was hypothesized that the refined ISCS (the ISCS comprised of high performing items from phase 1) would replicate in Phase 2 with the SDS (n = 368). It was also

hypothesized that the refined ISCS scale would possess measurement invariance across groups (theistic and nontheistic). Thus, a multi-group confirmatory factor analysis (MGCFA) was chosen as the appropriate statistical analysis to test not only the hypothesized model of factor structure (based on results of EFA) but also test measurement invariance between groups (i.e., theistic and nontheistic). Assessment of invariance of internal structure of the refined ISCS will allow examination of whether group membership moderates the relations specified in the measurement model of the ISCS. As with Phase 1, assessment of item-scale correlations, item variance, and item means were also planned in advance to check item performance.

Phase 3. Correlational analyses were used to assess discriminant and convergent relations between the ISCS and specified validity measures for both theistic and nontheistic groups and to assess internal consistency and test-retest reliability in the full sample (N = 736).

Reliability. The self-selected subset of participants (n = 129) represents a subsample of the overall sample. This subset provided responses for test-retest purposes in order to establish temporal stability of the measure. Pearson product-moment correlation was planned to assess temporal consistency by assessing the relationship between respondents' scores at the two testing timepoints. Spirituality, for the purposes of the ISCS, is conceptualized as a relatively stable construct; therefore, test-retest reliability was expected to be strong, as evidenced by strong statistically significant correlation between time 1 and time 2 in the self-selected subsample. Further, I hypothesized that the refined ISCS measure used for analyses in Phase 2 would have high internal consistency as evidenced by an acceptable Cronbach's alpha in the full sample (N = 736).

Convergent and Discriminant Validity. With regards to convergent validity, I hypothesized a strong statistically significant positive correlation between ISCS scores and RiTE

Existential Spirituality subscale scores due to absence of theistic language within the Existential Spirituality subscale item stems and the functional aspect of items tapping into meaning and purpose across categories of respondents (i.e., theistic and nontheistic). Correlations between ISCS scores and ritualistic and theistic subscales were expected to vary based on group membership (theistic vs. nontheistic) as identified by the ISCS frame of reference item. ISCS scores among theistic participants were expected to strongly positively correlate with the RiTE Theistic Spirituality subscale. Likewise, it was expected that scores on the ISCS would strongly positively correlate with the RiTE Ritualistic Spirituality subscale, with stronger correlations between ISCS and RiTE Ritualistic Spirituality subscale within theistic respondents, relative to nontheistic respondents. Lastly, I hypothesized a nonsignificant correlation between ISCS scores and SDRS-5 scores, providing evidence of discriminant validity. While both the SDRS-5 and the ISCS are self-report measures which inherently increases the likelihood of socially desirable response patterns; social desirability and spirituality are unrelated. Thus, if a correlation exists, it was expected to be weak both across and between groups (theistic and nontheistic).

Factor analysis, convergence, discriminant, and test-retest analyses on the two development samples provide the foundation for future larger scale validation studies and preliminary use of the measure in health-related and research settings.

Chapter 5. Results

Demographics

The sample (*N* = 736 participants) consisted of predominantly white (86.8%, *n* = 639), heterosexual (74.6%, *n* = 549), theistic (66.8%, *n* = 492), females (64.8%, *n* = 477) ranging in age from 18 to 82 years (*M* = 32.46, *SD* = 16.01). Most participants indicated having a religious affiliation (73.8%, *n* = 536), within which the predominant affiliations were in the Christian tradition (61.5%, *n* = 453). This breakdown of religious affiliation and no religious affiliation is fairly representative of the religious landscape in the U.S. adult population. Pew Research Center (2014) reports that approximately 76.5% of US adults (*n* = 50,000) report alignment with a religious affiliation (70.6% of which within the Christian tradition) and 23.4% identify as unaffiliated with religion. Similarly, in a Gallup (2017) interview-based poll, 78.8% of U.S. adults (*n* = 126,965) reported affiliation with a religious tradition and 21.3% identified as religiously unaffiliated. In terms of health status representation in the sample for the current study, approximately 39% (*n* = 288) of participants reported 1 or more health conditions and 41.3% (*n* = 304) of participants reported health-related impairments in 1 or more areas of their life (i.e., work, social life, home life, sex life, vacationing, engagement in interests/hobbies, and/or looking after their home). This is a fairly representative sample with regards to health status of the U.S. population, as the CDC reported that in 2005 approximately 50% of U.S. adults had at least on chronic illness (National Center for Chronic Disease Prevention and Health Promotion, & Centers for Disease Control and Prevention & CDC, 2009). See Figure 1 and Figure 2 for general physical health and psychological well-being distributions of the full sample (*N* = 736) based on scores from the NHP and PWB.

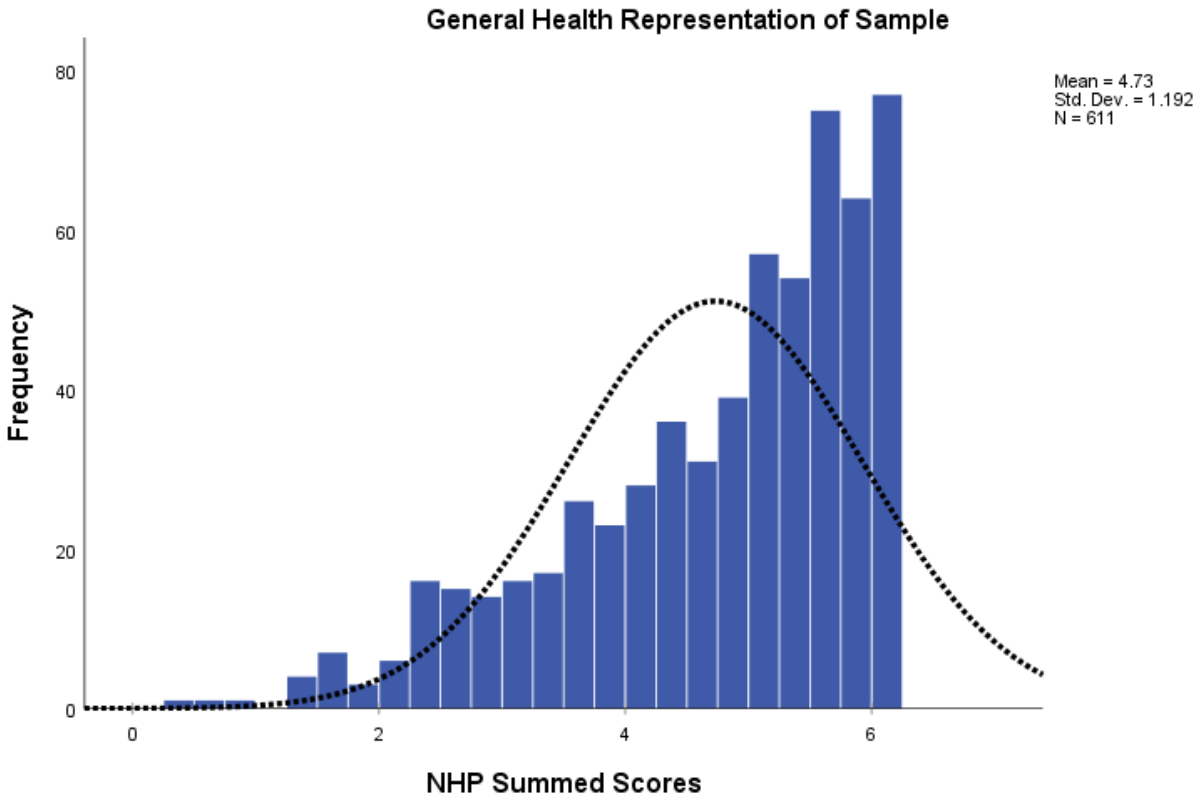
As outlined in in the Procedures section of "Chapter 4. Methods," the full sample of 736 participants was split into two developmental samples using a random stratified sampling procedure within Excel in order to accomplish validation goals of the current study. Diversity characteristics for each sample are discussed below (see Table 11 in Appendix H for a breakdown of demographic variables across the samples).

As discussed in the Procedures section, 388 participants were removed from the original sample (N = 1124). Of the 388 participants removed from the sample, fewer than 29% of those participants had complete demographic data. Within this 29%, 16 participants were removed due to failure to complete 75% or more of the ISCS before leaving the survey. While there is demographic data on these participants, comparisons between these 16 participants and the retained participants in the larger sample (N = 736) would not yield meaningful information in terms of potential differences between those who completed the survey and those who did not. However, within this 29%, a moderate proportion of participants removed from the sample did differ from the retained participants demographically in terms of theistic classification (n = 96; those who "do not seek spiritual connection" or left this item blank). This is an accepted and desired difference as this sample represents individuals who seek spiritual connection. Within this group of participants there were a few other notable differences in terms of other diversity characteristics, in that this group of participants had a slightly lower mean age and age range (M = 27.76; ranging from 18 to 69 years of age), a more equal distribution of male (46.9%, n = 45) and female (47.9%, n = 46) participants, a slightly lower percentage of participants reporting 1 or more health conditions (29.2%, n = 28), but a slightly higher percentage of participants who reported health-related impairments in 1 or more areas of their daily life (47.3%, n = 43). As expected within this subset of removed participants who do not seek spiritual connection, there

was also a greater percentage of participants who reported having no religious affiliation (76.4%, *n* = 68). Otherwise, there were no differences in sexual orientation or race between those participants who were retained and those who were removed for indicating that they do not seek spiritual connection.

Figure 1

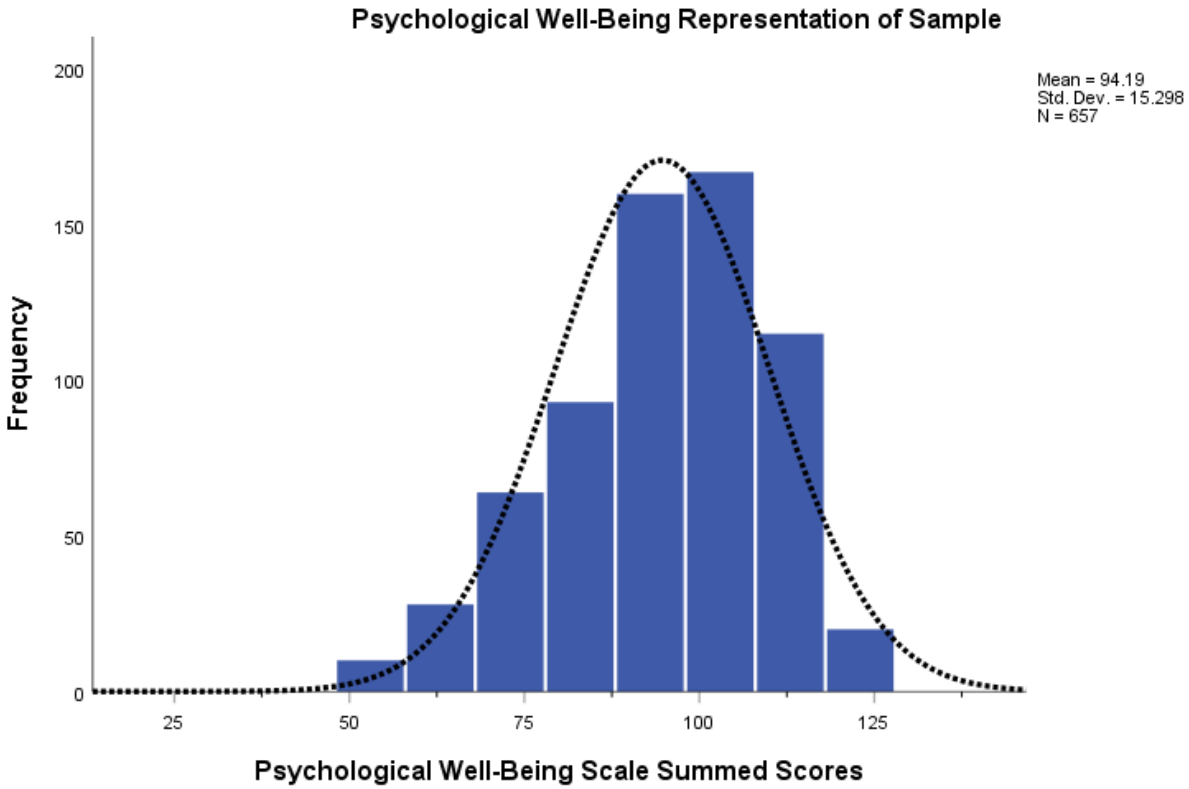
General Physical Health Representation of Sample



Note. Summed scores from the NHP (Nottingham Health Profile) could range from 0 to 6, with lower scores indicating poor health and scores closer to 6 indicating good health. This distribution of NHP scores are from the full sample (*N* = 736), though there is missing data from 125 participants yielding a sample of 611.

Figure 2

Psychological Well-Being Representation of Sample



Note. Summed scores from the Psychological Well-Being (PWB) scale could range from 18 to 126, with higher scores indicated higher levels of psychological well-being. This distribution of PWB scores are from the full sample (*N* = 736), though there is missing data from 79 participants yielding a sample of 657.

Primary Developmental Sample. The primary developmental sample (PDS; *n* = 368) consisted predominantly of white (87.2%, *n* = 321), heterosexual (74.2%, *n* = 273), theistic (66.8%, *n* = 246), females (64.7%, *n* = 238) ranging in age from 18 to 80 years (*M* = 32.21, *SD* = 16.07). Most participants indicated having a religious affiliation (74.7%, *n* = 275), within which the predominant affiliations were in the Christian tradition (62%, *n* = 228). Approximately 38% (*n* = 139) of participants reported 1 or more health conditions and 39.7% (*n* = 146) of participants reported health-related impairments in 1 or more areas of their life (i.e., work, social

life, home life, sex life, vacationing, engagement in interests/hobbies, and/or looking after their home).

Secondary Developmental Sample. The secondary developmental sample (SDS) of 368 participants consisted predominantly of white (86.4%, *n* = 318), heterosexual (75%, *n* = 276), theistic (66.8%, *n* = 246), females (64.9%, *n* = 239) ranging in age from 18 to 82 years (*M* = 32.71, *SD* = 15.97). Most participants indicated having a religious affiliation (72.8%, *n* = 268), within which the predominant affiliations were in the Christian tradition (61.1%, *n* = 225). Approximately 40% (*n* = 149) of participants reported 1 or more health conditions and 42.9% (*n* = 158) of participants reported health-related impairments in 1 or more areas of their life (i.e., work, social life, home life, sex life, vacationing, engagement in interests/hobbies, and/or looking after their home).

Test-Retest Subsample. Within the larger sample (*N* = 736), the self-selected subsample consisted of 129 participants who completed the ISCS at a second timepoint, approximately two-weeks (*M* = 15.2 days, *SD* = 3.2) after their initial participation submission. The self-selected subsample consisted of predominantly white (90.7%, *n* = 117), heterosexual (73.6%, *n* = 95), theistic (58.1%, *n* = 75), females (69.8%, *n* = 90) ranging in age from 18 to 80 years (*M* = 37.34, *SD* = 17.47). Most participants indicated having a religious affiliation (67.4%, *n* = 87), within which the predominant affiliations were in the Christian tradition (55%, *n* = 71). Approximately 45% (*n* = 58) of participants reported 1 or more health conditions and 40.3% (*n* = 52) of participants reported health-related impairments in 1 or more areas of their life (i.e., work, social life, home life, sex life, vacationing, engagement in interests/hobbies, and/or looking after their home).

Phase 1

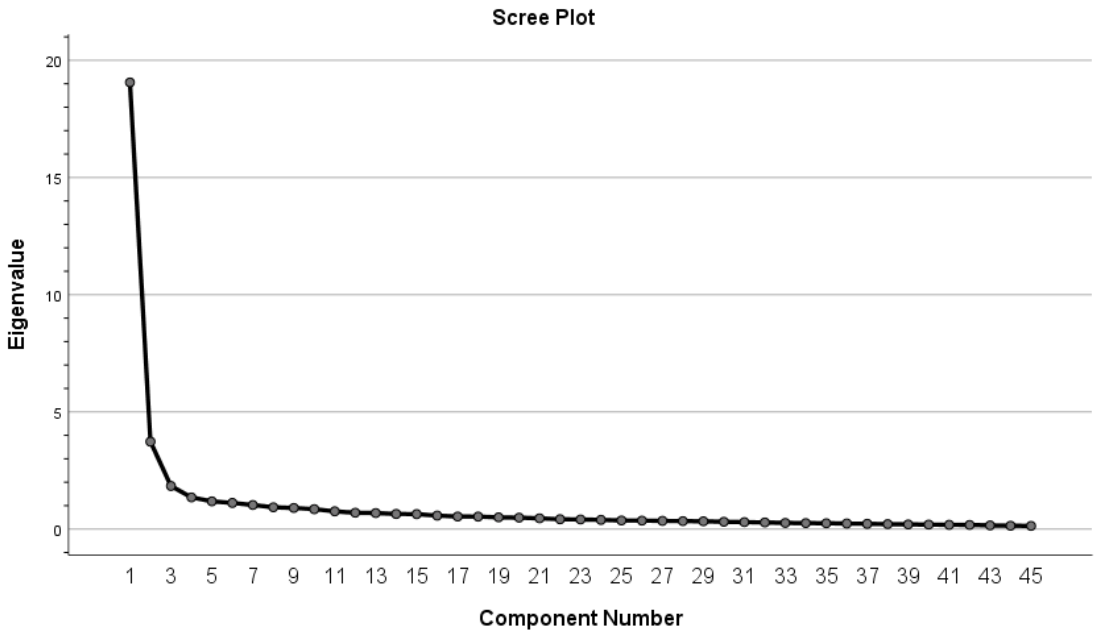
Descriptive statistics for primary developmental sample (PDS; *n* = 368) are provided in Table 11 located in Appendix H.

Reliability. Internal consistency of the 45-item ISCS in the PDS was strong (α = .96). See Table 12 for inter-item correlations of the 45-item ISCS.

Validity. In phase 1, an exploratory factor analysis (EFA) was conducted on the 45-item ISCS using the PDS comprised of 368 participants. This sample size resulted in an average of 8.18 participants per item, satisfying the guideline of 5 to 10 participants per item (DeVellis, 2012). An EFA using principal components extraction method was conducted on the 45 items of the ISCS. Results from the EFA indicated that 5 factors had eigenvalues greater than 1. The scree plot analysis also indicated multidimensionality; however, the location of the elbow in the curve (see Figure 3) suggested a need to extract two factors.

Figure 3

Scree Plot with 45-Item ISCS Pool



To cross-check the scree plot criterion, a parallel analysis was conducted. The parallel analysis aligned with the scree plot, supporting a two-factor solution in which the two factors had eigenvalues greater than the minimum eigenvalues produced by the parallel analysis and greater than 1 (see Table 2). The remaining 3 factors with eigenvalues greater than 1 previously noted in the EFA results did not meet the minimum eigenvalues produced by the parallel analysis suggesting those factors are likely no more than a product of chance.

Table 1

Eigenvalues for Parallel Analysis and Exploratory Factor Analysis

Factor	Parallel Analysis Eigenvalues	EFA Eigenvalues
1	1.745767	15.849
2	1.660904	3.059
3	1.60604	1.510
4	1.556252	1.082
5	1.506873	1.008
6	1.466015	0.838

Based on the statistical criteria (scree plot and parallel analysis) supporting a two-factor solution, an EFA was conducted using principal components with the number of extracted factors fixed at 2. The extracted factor matrix was then rotated using Promax rotation, an oblique rotation method. As previously discussed, oblique rotation was the planned method as this approach allows factors to correlate with one another. The absence of theoretical independence among dimensions of spirituality tapped into by ISCS items supports the need for an oblique rotation method. The factor pattern indicates a two-pattern solution with a weak correlation between the two factors (r = .258). See Table 2 for factor loadings.

Table 2

Phase 1: EFA Two-Factor Solution

Item	Factor Loading 1	2
1. I believe it is important to stay connected with what is sacred in my life.	.214	-.001
2. My spirituality helps me understand my purpose in life.	**.784**	.174
3. I believe in a spiritual presence that provides a purpose for my life.	**.718**	.001
4. I engage in spiritual practices to stay close to what is sacred in my life.	**.748**	.285
5. I believe life's ups and downs are all part of my spiritual journey.	**.63**	.127
6. I rely on my spirituality to help me make major life decisions.	**.788**	.135
7. I believe personal struggles are an important part of my spiritual growth.	.52	.001
8. I try to live in a way that aligns with my spiritual values.	.547	.326
9. My bond with the sacred helps me understand difficulties in life.	**.811**	.267
10. I feel spiritual strength when facing challenges in life.	**.753**	.288
11. My spirituality is a source of comfort for me.	**.773**	.303
12. I feel a spiritual presence in my life on a regular basis.	**.764**	.407
13. I desire to be closer to the source of my spirituality.	**.665**	.069
14. I meditate to maintain my relationship with the sacred.	.42	.235
15. I rely on my spirituality to help me deal with stressful situations.	**.777**	.224
16.I believe events in my life happen according to a greater plan.	**.617**	-.098
17. My spirituality guides the direction of my life.	**.792**	.105
18. My spirituality is often a source of frustration for me.	.168	**.647**
19. I am unhappy with my spiritual journey thus far.	.278	.441
20. I feel unsure about my relationship with what is sacred in my life.	.511	**.602**
21. I feel confident about my relationship with what is sacred in my life.	**.651**	.525
22. I feel emotionally close to what is sacred in my life.	**.625**	.397
23. My spirituality often causes me to be hard on myself.	-.122	.422
24. I am kind to myself because of my spirituality.	.554	.37
25. My spirituality gives meaning to my life.	**.809**	.179
26. I use spiritual activities to deepen my bond with sacred aspects of my life.	**.731**	.233
27. I believe it is important to pursue connection with what is sacred in my life.	**.68**	.141
28. Practices (such as, prayer, meditation, or worship) are key to my spiritual growth.	**.753**	.065
29. Spiritual practices help me to be more aware of areas in my life that need improvement.	**.708**	.1
30. Spiritual beliefs guide the way I live my life.	**.795**	.22
31. I experience inner peace when I engage in spiritual practices.	**.719**	.269
32. My spirituality is a guiding influence in my daily life.	**.841**	.251
33. I struggle with my spirituality which leads me to question sacred aspects of my life.	.314	.713
34. My spirituality does not help me understand why bad things happen in life.	.532	.32
35. Understanding where my life fits into a greater plan is a source of stress for me.	.099	.581
36. I feel guilty when I doubt my spiritual beliefs.	-.187	.492
37. It is important to me to find connection with the source(s) of my spirituality.	**.635**	-.012
38. Knowing that my life is part of a larger spiritual plan makes me feel grateful.	**.746**	.022

Item	Factor Loading 1	2
39. My spirituality gives meaning in my daily life.	**.836**	.194
40. I grow spiritually when I go through hard emotional times.	**.715**	.119
41. When I doubt and/or question my spiritual beliefs, I experience spiritual growth.	.523	.022
42. When I doubt my spiritual beliefs, I feel distant from the source(s) of my spirituality.	-.085	.585
43. I gain my understanding of the world through my spiritual journey.	**.686**	.264
44. I have a deeper bond with the sacred because of the challenges I face in life.	**.793**	.164
45. I experience the sacred when I engage in spiritual practices.	**.746**	.218

Notes. Extraction method: Principal Axis Factoring. Rotation method: Promax oblique rotation method with Kaiser Normalization. Loadings larger than .60 are in bold.

The first factor contained items that tapped into all three key spiritual processes (discovery, conservation, and transformation) and the three functional components (affective, behavioral, and cognitive) the ISCS was designed to assess. Eight items loaded more strongly on factor 2 than factor 1. All eight items tapped into the transformation spiritual process, with most tapping into affective components (n = 6) and the remaining items (n = 2) tapping into cognitive components. When examining the content of these eight items, it became evident they were tapping into a specific aspect of spirituality, that of spiritual struggle. As the ISCS was not designed to assess this related yet independent construct of spirituality, items from factor 2 were removed. Further, items that cross-loaded on factor 2 (loaded ≥ .35) were removed. Following Netemeyer's (2003) guidance to focus on items that load ≥ .60, items that loaded greater than .70 on Factor 1 and had no cross loadings greater than .35 were retained. The remaining items that loaded on factor 1 were examined based on communalities, corrected item-total correlations, item mean, variance, kurtosis, skewness, and inter-item correlations. Based on guidelines in literature, low performing items were removed (i.e., item-total correlations less than .50, negative correlation with other items, low inter-item correlations, and/or highly skewed) (DeVellis, 2012; McCoach et al., 2013; Netemeyer, 2003). See Table 12 for inter-item correlations and Table 13

for item-level statistics and deletion/retention rationales (located in Appendix I). With the intention of the ISCS to be used in healthcare settings, length of the measure was of importance; therefore, additional well-performing items were removed based on content representation to support a more balanced distribution of the three spiritual processes (i.e., discovery, conservation, and transformation; see Table 6).

Table 3

Representation of Item Classifications

Classification	Initial 45-item Pool	Final ISCS Items
Spiritual Process		
Discovery	15 (33.3%)	4 (30.8%)
Conservation	15 (33.3%)	6 (46.2%)
Transformation	15 (33.3%)	3 (23.1%)
Functional Component		
Affective	17 (37.8%)	5 (38.5%)
Behavioral	10 (22.2%)	3 (23.1%)
Cognitive	18 (40.0%)	5 (38.5%)

Note. Some items overlap content areas and may represent more than one spiritual process. Likewise, some items overlap functional domains and may represent more than one functional component.

This process resulted in a unidimensional 13-item measure with factor loadings ranging from .715 to .841, item communalities ranging from .644 to .798, and corrected item-total correlations ranging from .695 to .821.

Phase 2

After removal of low performing items in phase 1, the resulting 13-item ISCS was used for analyses in phase 2 with the secondary developmental sample (SDS; n = 368). Descriptive statistics for secondary developmental sample (SDS; n = 368) are provided in Table 11 in Appendix H.

Reliability. Internal consistency of the 13-item ISCS with the secondary developmental sample remained very strong (α = .96) after removal of low performing items in phase 1 of analyses. See Table 4 for inter-item correlations of the 13-item ISCS.

Table 4

Phase 2: Inter-Item Correlations for 13-item ISCS

Item	2	6	9	10	11	15	28	30	31	32	39	40	44
2	—												
6	.722	—											
9	.594	.665	—										
10	.629	.678	.671	—									
11	.675	.697	.696	.707	—								
15	.630	.709	.652	.659	.755	—							
28	.589	.648	.563	.576	.640	.642	—						
30	.608	.729	.606	.596	.652	.695	.631	—					
31	.540	.596	.625	.596	.684	.616	.637	.627	—				
32	.692	.772	.648	.645	.712	.732	.635	.794	.613	—			
39	.709	.762	.614	.650	.679	.677	.647	.720	.643	.768	—		
40	.562	.627	.559	.627	.595	.598	.521	.550	.539	.584	.612	—	
44	.576	.615	.605	.602	.607	.586	.526	.610	.532	.625	.647	.684	—

Note. All correlations are significant at $p \leq .001$.

Validity. In phase 2 the focus of analyses was on testing the hypothesized unidimensional latent structure of the 13-item ISCS, as well as testing measurement invariance across key groups (theistic and nontheistic). As such, multi-step multi-group confirmatory factor analysis (MGCFA) was conducted on using the SDS consisting of 368 participants. This sample size resulted in an average of 28.31 participants per item, with a breakdown between groups of an average of 18.92 theistic participants per item and 9.38 nontheistic participants per item. The average participant per item breakdown, even within nontheistic and theistic groups, satisfies the guideline of 5 to 10 participants per item (DeVellis, 2012).

The MGCFA allows assessment of how the 13-item ISCS performs across groups to determine if comparison between groups is possible using the ISCS. There are 4 steps to this analysis: Step 0—Confirmatory Factor Analysis; Step 1—Test Configural Invariance; Step 2—Test Metric Invariance; Step 3—Test Scalar Invariance. I conducted these steps using lavaan version 0.06-6 in R version 3.6.1.

In Step 0, a CFA using maximum likelihood estimation was conducted on the 13 items retained from the EFA in phase 1 on the full SDS sample (n = 368). A CFA was not conducted on each group (nontheistic and theistic) independently at Step 0, as this step focused exclusively on replicating the unidimensional model from phase 1 in the full SDS sample. Further, the nontheistic group within the SDS consisted of 122 participants and running a CFA on a sample with less than 200 participants is not recommended due to concerns of sample representativeness (Barrett, 2007). According to guidelines outlined by Vandenberg and Lance (2000), McCoach et al. (2013), and Hu and Bentler (1999), the unidimensional, single-factor model for the 13-item ISCS in Step 0 on the full SDS sample (n = 386) was shown to have acceptable fit (χ^2 = 246.467, df = 65, p < .001; CFI = .954; SRMR = .032; RMSEA = .087; 90% RMSEA CI [.076, .099]), with the exception of the RMSEA index. The CFI is an incremental fit index, whereas, the SRMR and RMSEA are absolute fit indices (Vandenberg & Lance, 2000). The RMSEA fit index is a bit higher than desired; however, the SRMR is much lower than the cut-off of .08 which indicates excellent fit (Vandenberg & Lance, 2000). The SRMR model fit index is sensitive to misspecification of the model and RMSEA cutoff guidelines vary widely in literature, with some indicating acceptable values below .06 (Hu & Bentler, 1999), others indicating values at or below .08 are acceptable (i.e., Fischer & Karl, 2019; Vandenberg & Lance, 2000), and others indicating a cut-off of .10 as indicative of poor fit (MacCallum et al., 1996). Thus, the RMSEA

value in the current study is debatably borderline. Further, the Chi-Squared test yielded a significant *p*-value. A significant *p*-value in samples larger than 200 with the CFA approach is not uncommon due to χ^2 dependence on sample size (Barrett, 2007; Fisher & Karl, 2019; Hooper et al., 2008), and as such is typically viewed more as a descriptor of goodness of fit and less as a formal criterion for rejecting model fit due to its sensitivity to sample size (Barrett, 2007; Fischer & Karl, 2019; Hooper et al., 2008). Thus, based on recommendations in literature, evaluation of the χ^2/df ratio was used for the current study. Lower ratios indicate better model fit; though, there are varying guidelines of numerical cutoffs ranging from 2.0 to 5.0 with little agreement (Hooper et al., 2008; Vanderberg & Lance, 2000; Wheaton et al., 1977). The χ^2/df ratio at step 0 indicates a ratio of 3.79, falling under the upper limit for acceptable model fit outlined in existing literature (Hooper et al., 2008; Wheaton et al., 1977).

Table 5

Phase 2: Item-level Statistics Across Groups for 13-item ISCS

Item	*M*	*SD*	Skew	Kurtosis	Corrected Item-Total Correlation
2. My spirituality helps me understand my purpose in life.	3.20	0.823	-0.677	-0.409	0.766
6. I rely on my spirituality to help me make major life decisions.	2.73	1.003	-0.206	-1.065	0.842
9. My bond with the sacred helps me understand difficulties in life.	2.80	0.945	-0.167	-1.015	0.761
10. I feel spiritual strength when facing challenges in life.	2.64	0.920	-0.060	-0.860	0.776
11. My spirituality is a source of comfort for me.	3.02	0.971	-0.554	-0.825	0.826
15. I rely on my spirituality to help me deal with stressful situations.	2.95	0.927	-0.592	-0.480	0.812
28. Practices (such as, prayer, meditation, or worship) are key to my spiritual growth.	3.05	0.927	-0.759	-0.250	0.735
30. Spiritual beliefs guide the way I live my life.	2.90	0.965	-0.468	-0.778	0.799
31. I experience inner peace when I engage in spiritual practices.	2.86	0.909	-0.389	-0.659	0.735
32. My spirituality is a guiding influence in my daily life.	2.79	1.035	-0.403	-0.993	0.843
39. My spirituality gives meaning in my daily life.	2.86	1.040	-0.455	-0.996	0.832

Item	*M*	*SD*	Skew	Kurtosis	Corrected Item-Total Correlation
40. I grow spiritually when I go through hard emotional times.	2.69	0.917	-0.087	-0.869	0.714
44. I have a deeper bond with the sacred because of the challenges I face in life.	2.70	1.005	-0.238	-1.025	0.731

Standardized factor loadings within the SDS sample ranged from .721 to .870. See Table 8 for item-level statistics. Thus, the single-factor model of the 13 items retained from phase 1 were successfully replicated through the CFA with the SDS. As such, analysis of measurement equivalence between groups (nontheistic and theistic respondents) was conducted in a hierarchical manner across 3 steps (Steps 1 through 3), with increasingly strict constraints imposed at each step. See Table 9 for intercepts and factor loadings for steps 0 through 3.

For Step 1, the model was evaluated in terms of configural variance, which tests the 13-item unidimensional model in both groups simultaneously with all parameters free to vary. Achieving configural invariance indicates that the same items are assessing the same factors across theistic and nontheistic groups (Pendergast et al., 2017). As such, if configural variance is achieved then all 13 ISCS items should load on the same factor in both theistic and nontheistic groups as indicated by an acceptable unidimensional model fit. This model (Model 1) demonstrated acceptable fit ($\chi^2 = 345.100$, $df = 130$, $p < .001$; χ^2/df ratio of 2.65; nontheistic $\chi^2 = 173.569$ and theistic $\chi^2 = 171.532$; CFI = .936; SRMR = .040; RMSEA = .095; 90% RMSEA CI [.083, .107]) according to recommended model fit guidelines (Hu & Bentler, 1999; McCoach et al., 2013; Vandenberg & Lance, 2000) with the exception of the RMSEA index being higher than recommended indicating potential errors of approximation. However, as with Step 0, the other absolute fit index, SRMR, indicated excellent fit with an estimate well below the .08 cutoff

(Vandenberg & Lance, 2000). With evidence of model fit from the CFI (incremental fit index), SRMR (absolute fit index), and the ratio of Chi-square statistic to degrees of freedom, there is evidence of configural invariance across nontheistic and theistic groups. Further, moving through steps 1 through 3, attention is focused on change in chi-square ($\chi^2\Delta$) and change in the CFI incremental fit index (ΔCFI).

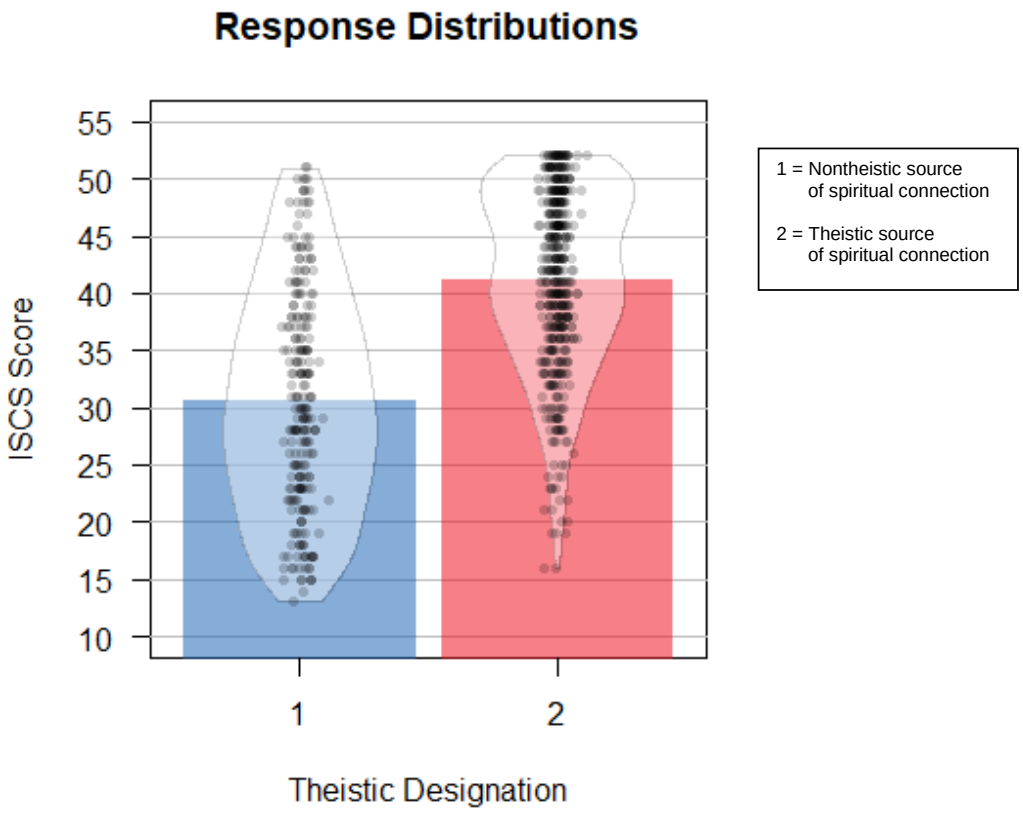
For Step 2, the model was evaluated for metric invariance, which constrains factor loadings to be equal across groups. When a measure possesses metric invariance, this means that the strength of the relationships between the items and the latent construct (in this case, spirituality) are equal across nontheistic and theistic groups (Pendergast et al., 2016). If there is evidence of metric invariance, then the fit of Step 2 will not be statistically significantly different from the fit from Step 1 (the configural model; Model 1). This model (Model 2) demonstrated acceptable fit ($\chi^2 = 360.577$, $df = 142$, $p < .001$; χ^2/df ratio of 2.54; nontheistic $\chi^2 = 184.980$ and theistic $\chi^2 = 175.596$; CFI = .935; SRMR = .054; RMSEA = .092; 90% RMSEA CI [.080, .0104]) according to recommended model fit guidelines (Hu & Bentler, 1999; McCoach et al., 2013; Vandenberg & Lance, 2000), with the exception again of the RMSEA index being higher than recommended. Model fit comparison between Model 1 to 2 revealed no statistically significant difference ($\chi^2\Delta = 15.476$, $df = 12$, $p = .216$) and a ΔCFI of less than .01 (as recommended by Vandenberg & Lance, 2000), thus providing evidence of metric invariance across nontheistic and theistic groups.

With evidence of metric invariance, the next step was to test scalar invariance. Step 3 entailed testing a model that constrains both factor loadings and intercepts. Establishing scalar invariance demonstrates that intercepts are equal across both nontheistic and theistic groups, that is both groups have the same baseline (Pendergast et al., 2016). To demonstrate evidence of

metric invariance, the fit of Step 3 will not be statistically significantly different from the fit from Step 2 (the metric model). This model (Model 3) demonstrated weaker fit (χ^2 = 405.337, *df* = 154, $p < .001$; χ^2/df ratio of 2.63; nontheistic χ^2 = 213.606 and theistic χ^2 = 191.731; CFI = .926; SRMR = .070; RMSEA = .095; 90% RMSEA CI [.083, .0106]). Model fit comparison between Model 2 to 3 revealed a statistically significant difference ($\chi^2\Delta$ = 44.761, *df* = 12, $p < .001$), thus failing to provide evidence of strict scalar invariance across nontheistic and theistic groups. Figure 4 demonstrates the distribution of scores within each group and provides evidence of the variation in mean baseline for theistic compared with nontheistic participants.

Figure 4

Response Distributions by Group Classification



Note. This figure illustrates raw data points for each group. The bean shape represents a smoothed density curve and the bar represents the mean scores for each group.

Table 6 provides factor loadings and intercepts for Steps 0 through 3 and Table 7 provides a summary of model fit indices across Steps 0 through 3.

Table 6

MGCFA Factor Loadings & Intercepts

	Step 0: CFA		Step 1: Configural Invariance				Step 2: Metric Invariance			
			Nontheistic		Theistic		Nontheistic		Theistic	
Item	Loading	Intercept	Loading	Intercept	Loading	Intercept	Loading	Intercept	Loading	Intercept
2	0.788	0.378	0.738	0.455	0.756	0.429	-	0.432	-	0.437
6	0.866	0.251	0.797	0.365	0.849	0.279	-	0.323	-	0.295
9	0.775	0.400	0.742	0.450	0.732	0.464	-	0.464	-	0.457
10	0.788	0.379	0.703	0.506	0.774	0.400	-	0.448	-	0.424
11	0.841	0.292	0.765	0.415	0.833	0.307	-	0.429	-	0.306
15	0.832	0.307	0.804	0.354	0.798	0.364	-	0.388	-	0.354
28	0.751	0.435	0.685	0.531	0.667	0.556	-	0.652	-	0.520
30	0.824	0.321	0.794	0.370	0.781	0.390	-	0.416	-	0.374
31	0.746	0.443	0.698	0.513	0.717	0.486	-	0.540	-	0.478
32	0.870	0.243	0.837	0.300	0.854	0.270	-	0.328	-	0.261
39	0.853	0.272	0.757	0.427	0.857	0.266	-	0.400	-	0.271
40	0.721	0.479	0.623	0.612	0.721	0.480	-	0.537	-	0.512
44	0.740	0.453	0.690	0.524	0.716	0.488	-	0.516	-	0.490

Note. Step 3: Scalar invariance is not included as both intercepts and loadings were constrained in step 2. Dash (-) indicates constraint within Step 2.

Table 7

MGCFA Model Fit Statistics

	Chi-Squared			Fit Indices			Δ Chi-Squared			Δ Fit Indices		
Step	*df*	χ^2	χ^2/df ratio	CFI	SRMR	RMSEA	Δ*df*	Δχ2	*p*	ΔCFI	ΔSRMR	ΔRMSEA
Step 0: CFA	65	246.467	3.79	.954	.032	.087 90% CI [.076, .099]	-	-	-	-	-	-
Step 1: Configural	130	345.100	2.65	.936	.040	0.095 90% CI [.083, .107]	-	-	-	-	-	-
Step 2: Metric	142	360.577	2.54	.935	.054	0.092 90% CI [.080, .104]	12	15.476	$p = 0.216$	-0.001	0.01	-0.003
Step 3: Scalar	154	405.337	2.63	.926	.070	0.095 90% CI [.083, .106]	12	44.761	$p \leq .001$	-0.009	0.02	0.003

Phase 3

Statistical analyses in phase 3 were conducted on the full sample (N = 736) to assess internal consistency, as well as convergent and discriminant validity of the 13-item ISCS. Further temporal stability analysis was conducted on the self-selected subsample (n = 129). Descriptive statistics for validity and health measures for the full sample are provided in Table 8. Item-level descriptive statistics for the 13-item ISCS are provided in Table 9.

Reliability. The 13-item ISCS with the full sample (n = 736) demonstrated very strong internal consistency (α = .95), aligning with Cronbach's alpha estimates of the 45-item ISCS in the PDS and of the 13-item ISCS in the SDS. Furthermore, spirituality, within the framework of this study, is understood to be a relatively stable motivational construct, thus it was hypothesized that scores at two timepoints would be highly correlated. The self-selected subsample (n = 129) completed the ISCS at a second timepoint, approximately two-weeks (M = 15.2 days, SD = 3.2) after their initial participation submission. A Pearson-product-moment correlation was conducted using listwise deletion yielding a sample of 125 participants. Test-retest reliability was strong (r = .916, p < .001) between timepoint 1 (M = 37.47, SD = 9.21) and timepoint 2 (M = 36.53, SD = 9.64).

Table 8

Descriptives for Validity and Health Measures

	Across Groups				Between Groups							
					Nontheistic				Theistic			
Item	Min	Max	*M*	*SD*	Min	Max	*M*	*SD*	Min	Max	*M*	*SD*
RiTE Existential Subscale	0	40	32.56	7.23	0	40	32.03	7.06	0	40	32.83	7.30
RiTE Theistic Subscale	0	40	25.29	12.61	0	37	13.39	6.94	0	40	31.29	10.37
RiTE Ritualistic Subscale	0	40	20.76	9.31	0	35	14.40	5.44	0	40	23.96	9.22
SDRS-5	0	5	.50	0.81	0	3	0.48	0.77	0	5	.51	0.83
PWB Scale	48	126	94.19	15.30	48	124	90.67	16.63	50	126	95.99	14.25
NHP	0.41	6.00	4.73	1.19	0.41	6.00	4.50	1.29	1.57	6.00	4.86	1.12

Table 9

Item-level Descriptives Between Groups for 13-item ISCS

Item	Nontheistic		Theistic		*M* difference
	M	*SD*	*M*	*SD*	
2. My spirituality helps me understand my purpose in life.	2.78	0.870	3.46	0.705	0.68
6. I rely on my spirituality to help me make major life decisions.	2.10	0.922	3.05	0.847	0.96
9. My bond with the sacred helps me understand difficulties in life.	2.34	0.966	3.07	0.828	0.73
10. I feel spiritual strength when facing challenges in life.	2.20	0.895	2.94	0.819	0.74
11. My spirituality is a source of comfort for me.	2.48	1.000	3.34	0.783	0.87
15. I rely on my spirituality to help me deal with stressful situations.	2.43	0.924	3.22	0.773	0.79
28. Practices (such as, prayer, meditation, or worship) are key to my spiritual growth.	2.27	0.982	3.45	0.651	1.18
30. Spiritual beliefs guide the way I live my life.	2.37	0.995	3.23	0.785	0.86
31. I experience inner peace when I engage in spiritual practices.	2.47	0.937	3.10	0.766	0.63
32. My spirituality is a guiding influence in my daily life.	2.26	1.045	3.13	0.850	0.87
39. My spirituality gives meaning in my daily life.	2.23	1.057	3.22	0.858	0.99
40. I grow spiritually when I go through hard emotional times.	2.33	0.929	2.95	0.827	0.63
44. I have a deeper bond with the sacred because of the challenges I face in life.	2.27	1.051	3.01	0.888	0.73
13-item ISCS Sum Score	***30.54***	***9.669***	***41.18***	***7.970***	***10.64***

Note. All items have a minimum score of 1 and maximum score of 4 across groups. *M* difference represents the difference in mean response scores for each item between groups.

Convergent and Discriminant Validity. To assess convergent and discriminant validity of the 13-item ISCS, Pearson-product moment correlations with listwise deletion were conducted to assess potential relationships between the ISCS and specified validity measures (RiTE Measure of Spirituality and SDRS-5). Due to multiple comparisons (12 planned comparisons) and the associated increased risk of family-wise error rate, Bonferroni correction was applied to statistical significance criterion for convergent and discriminant validity analyses across groups and between groups, as well as the test-retest reliability analysis resulting in a *p*-value statistical significance cut-off of .004 (i.e. .05/12 = .004). See Table 10 for validity correlation coefficients.

Table 10

Validity Correlation Coefficients

Measure	α	ISCS (α = .955)		
		Across Groups	Between Groups	
		Nontheistic and Theistic	Nontheistic Group	Theistic Group
RiTE Existential Subscale	.852	.214 ($p \leq .001$)*	0.14 ($p = .041$)	.264 ($p \leq .001$)*
RiTE Theistic Subscale	.947	.581 ($p \leq .001$)*	.213 ($p = .002$)*	.452 ($p \leq .001$)*
RiTE Ritualistic Subscale	.868	.631 ($p \leq .001$)*	.377 ($p \leq .001$)*	.592 ($p \leq .001$)*
SDRS-5	.634	.181 ($p \leq .001$)*	.203 ($p = .002$)*	.204 ($p \leq .001$)*

Note. The asterisk (*) denotes statistical significance after applying the Bonferroni correction.

RiTE Measure of Spirituality. The 13-item ISCS demonstrated weak statistically significant association with the RiTE Existential Subscale ($r = .214$, $p < .001$) across groups. However, nontheistic participant ISCS scores did not correlate with the Existential Subscale ($r = .140$, $p = .041$) while theistic participant ISCS scores correlated weakly ($r = .264$, $p < .001$). The ISCS demonstrated strong convergence with the RiTE Ritualistic Subscale ($r = .631$, $p < .001$) across groups, as well as moderate convergence between groups (nontheistic: $r = .377$, $p < .001$; theistic: $r = .592$, $p < .001$). Similarly, there is evidence of strong convergence with the RiTE Theistic Subscale ($r = .581$, $p < .001$) across groups, with anticipated weaker convergence within nontheistic participants ($r = .213$, $p = .002$) and stronger convergence among theistic participants ($r = .452$, $p < .001$).

Socially Desirable Response Set-5. The 13-item ISCS weakly correlated with the SDRS-5 both across groups ($r = .181$, $p < .001$) and between groups (nontheistic: $r = .203$, $p = .002$; theistic: $r = .204$, $p < .001$) providing questionable evidence of discriminant validity.

Chapter 6. Discussion

The current study concludes a multiphase project that aimed at the outset to develop an inclusive measure of spirituality and establish initial psychometric evidence, validating its use across both theistic and nontheistic spiritual populations. The ISCS consistently demonstrated strong reliability, consistency of measurement, across each phase of data analysis in terms of internal consistency, and in terms of temporal stability in phase 3. The initial 45-item ISCS (excluding the frame of reference item) was reduced to 13 items based primarily on factor analytic procedures. This process resulted in a unidimensional (single factor structure) measure of spiritual connection. The single-factor structure established through exploratory factor analysis was replicated and demonstrated good fit through confirmatory factor analysis procedures. When looking specifically at measurement invariance (or measurement equivalence) across theistic and nontheistic groups using the multi-group confirmatory factor analysis approach, the 13-item ISCS replicated the unidimensional factor structure and demonstrated equivalent relationships between the items and the latent variable (i.e., spiritual connection) across groups; however, the baseline level of spiritual connection appeared to differ between theistic and nontheistic participants. Lastly, adequate convergent validity was established, though not entirely as hypothesized, and limited divergent validity was observed.

Based on initial psychometric properties, the 13-item ISCS appears to be a valid measure of spiritual connection capable of assessing spiritual connection in both theistic and nontheistic populations; however, use of the ISCS to compare spiritual connection in theistic populations with spiritual connection in nontheistic populations is not supported at this point in instrument validation and such use would require further refinement. Nonetheless, the ISCS represents an important step in providing healthcare providers and researchers with a valid tool for spiritual

assessment, particularly for nontheistic individuals which to date represents a largely understudied and frequently overlooked population in spirituality research.

Sample and Measure Characteristics

As discussed in "Chapter 1. Introduction," the majority of existing measures in the field of Psychology of Religion and Spirituality focus heavily on religiosity with prominent ties to a Judeo-Christian framework, both of which promote inherent affiliations with religion and theism (Berry, 2005; Hill & Edwards, 2013; Selman et al., 2011). As healthcare organizations strive to improve quality of life through more holistic care, the limitation of spirituality measurement within the field of psychology represents a major limitation. With continued and growing evidence of spiritual expressions outside of theistic religious belief systems (Baker & Smith, 2009; Currier et al., 2012; Moore, 2017; Pew Research Center, 2017), the current study responds directly to existing measurement limitations. A key strength of the current study is the representation of both theistic and nontheistic participants within the sample. The breakdown of theistic to nontheistic participants aligns with the breakdown that has been reported within larger studies and polls in the U.S. (i.e., Gallup, 2017 and Pew Research Center, 2014); thereby increasing external validity of this study. Similarly, with an overarching aim of utilizing the ISCS in both research and healthcare settings, the current study assessed health status of participants from a variety of perspectives (e.g., psychological well-being, health conditions, aspects of physical health such as energy, pain, etc., and subsequent levels of impairment in daily life). These measurement approaches were used to outline the overall health status of the current sample and to assess representativeness with the larger U.S. adult populations. As with theistic and nontheistic spirituality, the percentage of participants who reported health conditions in the current study aligned with prevalence rates of chronic health conditions among U.S. adults

reported by the CDC (National Center for Chronic Disease Prevention and Health Promotion, & Centers for Disease Control and Prevention & CDC, 2009). The development of a unidimensional spirituality measure that consists of fewer than 15 items and entails straightforward summation to assess level of spiritual connection and quick evaluation of the respondent's source of spiritual connection supports efficient and simple administration for researchers or healthcare providers. Further, with the ISCS being a self-report and self-administered measure, brevity in measure length reduces the likelihood of respondent fatigue (Netemeyer, 2003).

The reduction of the ISCS from 45 to 13 items was driven largely by statistical criteria derived from factor analytic procedures, theoretical considerations for content representation, and the overarching goal of validating the ISCS for use within healthcare settings. As outlined in Table 13, low performing items (i.e., cross loaded, low item communality, low item-total correlations, skewed or kurtotic, low or negative inter-item correlations) were removed in phase 1, as were all items that loaded highly on the second factor in the EFA. As briefly discussed in "Chapter 5. Results," items loading substantially on the second factor seemed to tap more into spiritual struggle. For example, the following items loaded substantially on the second factor: "*My spirituality is often a source of frustration for me*," "*I feel unsure about my relationship with what is sacred in my life*," "*I struggle with my spirituality which leads me to question sacred aspects of my life*," and "*Understanding where my life fits into a greater plan is a source of stress for me*." From a content-based analysis of these items, the theme of spiritual struggle is evident. Spiritual struggle, sometimes referred to as "religious and spiritual struggle" or "r/s struggle," represents an aspect of spirituality, but is a distinct construct with an existing established measure (Religious and Spiritual Struggles Scale; Exline et al., 2014). Spiritual

struggles can take the form of interpersonal, intraindividual, or personal struggles in one's relationship with God and often occur when part of one's belief system or experience from their belief system involves conflicts or is wrapped up in negative cognitions or emotions (Hill & Pargament, 2003; Exline et al., 2014). Spiritual struggles have been shown to be an independent predictor of various health outcomes (Hill & Pargament, 2003; Keonig, 2013; Park et al., 2013). With this knowledge of spiritual struggle as a distinct yet related construct of spirituality and the goal of validating the ISCS as a general measure of spiritual connection, items loading on the second factor were dropped resulting in a unidimensional factor structure. Further, with theory-based item development in focus and a goal of validating a brief measure suitable for administration in healthcare settings, items that were neither low performing nor high performing were evaluated based on content representation. As discussed in "Chapter 3. Item Development & Preliminary Evidence," items for the ISCS were developed to tap into three processes of spiritual connection (discovery, conservation, and transformation) across the three functional domains (affective, behavioral, and cognitive) (Hoots, 2017). In an attempt to balance content representation, items from each spiritual process and each functional domain were retained. Items designed to tap into transformation and items designed from a behavioral framework were the lowest performing items, thus they have lower representation in the final 13 ISCS items. Content representation of the retained 13-item ISCS relative to the initial 45-item pool are provided in Table 3.

Overall, measure characteristics of brevity, unidimensional structure, broad use, and clear-cut administration and scoring make the ISCS ideal for use in a healthcare setting, a setting in which time is of the essence. These characteristics ease both administration and respondent

burden. Further, each of these characteristics within the final ISCS form are the product of empirically supported development and validation methods.

Reliability Considerations

Evidence from the current study support the refined 13-item ISCS as an internally consistent measure of spiritual connection with temporal stability. As a necessary condition of validity, establishment of reliability is central to validation efforts (DeVellis, 2012; McCoach et al., 2013). With $\alpha = 1.0$ representing perfect reliability, the 13-item ISCS demonstrates excellent scale quality in terms of internal consistency with an alpha of .95. Internal consistency is dependent on high inter-item correlations, with high inter-item correlations suggesting robust associations between the items/indicators and the latent construct (DeVellis, 2012). Cronbach's alpha is considered a lower bound estimate of reliability; thus, it often underestimates reliability (DeVellis, 2012). Nonetheless, the 13-item ISCS maintained a high alpha across all phases of analyses in the current study. Cronbach's alpha of .95 implies that less than .05 of variance in scale scores is attributable to error/noise (sources other than true score variance). Further, the current study demonstrates strong evidence of temporal stability of spiritual connection and of the ISCS via test-retest analysis. The underlying assumption of temporal stability is that if the ISCS is assessing spiritual connection in a meaningful manner than it should be equally capable of assessing spiritual connection at different time points (DeVellis, 2012). In the current study, the suggested time frame of two weeks for establishing temporal stability was utilized and the ISCS demonstrated substantial test-retest reliability ($r = .91$) according to established criteria (Shrout & Lane, 2012).

Validity Considerations

Validation of broad assessments is not without its challenges; however, a core strength of the ISCS entails its validation with both nontheistic and theistic individuals. With the aim of creating an inclusive measure of spirituality, assessment of measurement equivalence across nontheistic and theistic individuals was a central task in the current study. Measurement equivalence (also referred to as measurement invariance) was assessed through the multi-group confirmatory factor analysis (MGCFA) procedure via a series of steps assessing model fit, with each step constraining additional model parameters. The MGCFA has the ability to provide both item and scale information (Fischer & Karl, 2019). When discussing MGCFA, there are three types of invariance under evaluation: configural invariance (or structural equivalence), metric invariance (or weak invariance), and scalar invariance (or threshold invariance) (Boer et al., 2018; Fischer & Karl, 2019; Pendergast et al., 2016). As discussed in "Chapter 5. Results," results from the current study provide evidence of both configural invariance and metric invariance; however, model fit parameters and the Chi-Squared difference test result do not support scalar invariance. Thus, the ISCS in its final refined form (13 items) is supported by evidence indicating the construct of spirituality is not significantly different across nontheistic and theistic groups (configural invariance) and the strength of associations between items and the underlying dimension—spiritual connection—are equivalent (metric invariance). That is, spirituality is conceptualized in the same manner across groups (theistic and nontheistic) and the same items are measuring the same dimension of spirituality to similar degrees in both nontheistic and theistic groups (Boer et al., 2019; Pendergast et al., 2016). However, strong invariance (i.e., scalar invariance) is not supported based on results of the current study. Scalar invariance may be impeded due to bias at item-level or method-level, such as response styles

(Boer et al., 2019). With theistic and nontheistic groups possessing equivalent slopes between items and spiritual connection, but different baseline levels (i.e., the intercepts), direct comparison of nontheistic participant scores with theistic participant scores or inferences about levels of spiritual connection between groups would yield a meaningless result and introduce bias in cross-cultural research (Boer et al., 2019; Fischer & Karl, 2019).

ISCS Score Interpretation. An inability to compare scores between nontheistic and theistic participants does not invalidate use of the ISCS across groups, but it requires attention to score interpretation by measure administrators. In its current form, scores on the ISCS range from 13 to 52, with scores closer to 13 indicating lower levels of spiritual connection and scores closer to 52 indicating higher levels of spiritual connection in the respondent. Based on measurement invariance results and examination of item-level mean scores between groups (see Table 9), theistic participants score on average 10 points higher on the scale than nontheistic participants. Thus, a middle level score on the ISCS of 32, for example, would likely indicate a high level of spiritual connection in a nontheistic respondent, but a moderate level of spiritual connection in a theistic respondent. Based on results from the MGCFA, this score attenuation in nontheistic respondents does not indicate a weakening of spiritual connection but represents the lower baseline level of spiritual connection. With differing baseline levels of spiritual connection, interpretation of ISCS scores could be simplified by applying weights to items based on the respondents group affiliation (theistic or nontheistic). However, with spiritual connection being assessed on a continuum, low levels of spiritual connection (i.e., scores close to 13) can be interpreted similarly for both theistic and nontheistic groups—the individual assigns little value to discovering and maintaining sources of spiritual connection.

With an intended use of the ISCS in healthcare settings to assist providers in identifying importance of spirituality to the patient, the main question that should be addressed is whether spiritual connection is or is not important to the patient. The answer to this question would allow the provider to determine if the patient treatment plan should incorporate spiritual components. This question can be answered with the ISCS. Scores closer to 13 would indicate that spiritual connection is not central to the respondent, whereas scores closer to 32 (midpoint range from 13 to 52) indicate more centrality of spiritual connection. These interpretations would apply to both nontheistic and theistic individuals, with the caveat that centrality may be stronger for a nontheistic respondent who scores 32 than a theistic respondent who scores 32. In this way, the ISCS would serve the intended use as a quick screener to determine whether spirituality should be considered in the treatment plan.

Further, use of the ISCS for research purposes remains a viable option with the ISCS in its current form despite falling short of demonstrating full measurement equivalence, something that very few measures demonstrate in the world of research (Fischer & Karl, 2019). The ISCS demonstrated strong psychometric properties when assessing spiritual connection across groups, thus any research use entailing across group investigations and/or within group changes would be feasible based on current score interpretations of the ISCS. The need for continued investigation of invariance is, however, core to replication, as well as cross-group comparisons, especially in light of varying guidelines for assessing model fit and interpreting model fit indices. As discussed in “Chapter 5. Results,” there is much disagreement surrounding recommended cutoff guidelines for model fit indices, particularly around the RMSEA (Boer et al., 2018; Fischer & Karl, 2019; Hu & Bentler, 1999; Vanderberg & Lance, 2000), though, Netemeyer (2003) argues that the RMSEA can be used as an independent index of model fit because it

corrects the interaction issues with the Chi-Squared statistic and large sample sizes. Amid these varying guidelines for cutoff criteria, the more we can investigate measurement invariance in diverse samples, the more opportunity for refinement of the measure and the more information gleaned regarding patterns of invariance, bringing us closer to cross-group comparisons. Cross-group comparisons were not the focus of the current study and thus outside the bounds of this project, but if cross-group comparisons are desired in future studies, researchers may consider weighting scores for nontheistic participants to match baseline point of origin of theistic participants, or continue measurement equivalence investigation of the ISCS using differential item functioning analyses to detect potential sources of bias in the 13-item form of the ISCS..

Convergent and Discriminant Relations. Further, there are considerations for convergent and discriminant validity that necessitate discussion. The current study aimed to establish evidence of convergent and discriminant validity using concurrent methodology. It was hypothesized that there would be varying degrees of relationship between the ISCS and the RiTE Measure of Spirituality based on group membership (theistic or nontheistic) and based on the RiTE subscale, but that the correlations would be significant due to construct similarity. It was also hypothesized that the ISCS would not correlate highly with the SDRS-5, a measure of social desirability, because those should be different constructs. In line with recommendations for establishing convergent and discriminant evidence, the current study utilized correlation analyses to assess the degree to which the final 13-item ICSC correlated with the RiTE Measure of Spirituality for convergent validity, and the degree to which the ISCS correlated with the SDRS-5 for discriminant validity (DeVellis, 2012; Grimm & Widaman, 2012; McCoach et al., 2013). The current study demonstrated limited evidence of convergent and discriminant validity and the patterns of convergence were not completely as hypothesized.

The ISCS showed limited evidence of statistical convergence with the Existential Subscale of the RiTE measure across groups and with theistic participants, and no evidence of convergence among nontheistic participants. The ISCS was expected to show the strongest patterns of convergence with the Existential Subscale due to the absence of theistic language within these items and theoretical underpinning of spiritual connection being a source of meaning; however, when examining items within this subscale, item content seemed to focus more heavily on values. For example, "*I feel that taking care of nature is very important*," "*I feel that helping others is very important,"* "*I feel that understanding oneself is very important*," "*There is a right way to treat other people*," and "*It is the responsibility of each person to find their purpose in life."* Though the Existential Subscale is described by the scale developers as search for meaning and purpose within a nontheistic framework (Webb et al., 2014), these items within this subscale seem to focus more on secondary aspects of spiritual connection and less on spiritual connection itself. The items do not use theistic language, but the theoretical ties with spiritual connection (as conceptualized by the ISCS) are very weak. When looking more at item-level content and less at the defined framework of the Existential Subscale by Webb and colleagues (2014), the theoretical convergence is indirect with direct convergence being limited to an absence of theistic underpinnings in item language. Evaluations of convergent validity are theory driven; thus, evaluation of item-content clarifies the demonstrated limited convergence with the ISCS in the current study.

The strongest evidence of convergence of the ISCS with the RiTE Measure of Spirituality was with the Ritualistic Subscale across participants, as well as with both nontheistic and theistic participants separately. According to the scale developers, the Ritualistic Subscale is defined as a ritualistic-based spiritual connection with a deity that is structured in nature, with deity being

applied to both theistic and nontheistic expressions of divine qualities (e.g., God, goddesses, Buddha, nature, universe, Higher Power, etc.) (Webb et al., 2014). Items within this subscale align closely with this definition, as they seem to emphasize ritualistic practices that support their spiritual connection (whether theistic or nontheistic in nature). Item examples include the following: "*I regularly perform traditional spiritual practices*," "*I set aside time to contemplate issues related to religious or spiritual teachings,"* "*Observing or following traditions is a very important part of spirituality or faith*," "*I regularly attend organized worship services*," and "*I regularly meditate as I have been taught in my faith."* From a theoretical standpoint, the Ritualistic Subscale aligns well with the underlying theory for the ISCS, specifically the conservation-based framework (Pargament, 2013). Items for the ISCS were developed to tap into three aspects of spiritual connection (i.e., discovery, conservation, and transformation) according to Pargament's (2013) theory of spirituality across three core functional domains (affective, behavioral, and cognitive) (Hoots, 2017). Within Pargament's (2013) theory of spirituality, conservation represents the ways in which individuals maintain their connection with what they view as sacred in their lives. According to Pargament (2013) and in alignment with how ISCS items were development, conservation entails pathways that can be expressed behaviorally (i.e., rituals/practices), relationally (i.e., through a faith community), experientially (i.e., encounters with nature or worship), or cognitively (knowledge from reading or studying about one's spiritual beliefs). Of the 13 items in the ISCS, 5 items tap into the conservation framework. This theoretical convergence between the ISCS and the Ritualistic Subscale of the RiTE Measure of Spirituality aligns with the statistical evidence of convergence found within the current study. Further, the statistical evidence of convergence falls within acceptable range of concurrent convergent validity (Grimm & Widaman, 2012). While evidence of convergence was stronger

for theistic participants relative to nontheistic participants, this difference in degree of convergence may be attributable to the emphasis on "traditional" and "organized" rituals within the Ritualistic Subscale items in the RiTE Measure of Spirituality. Traditional and organized verbiage often connotes engagement in rituals within an organized religious framework or belief system. In the current study, most of the nontheistic participants reported no religious affiliation, thus nontheistic participants may have assigned lower levels of agreement to Ritualistic Subscale items implying practices associated with an organized religious framework.

Lastly, in terms of convergent validity, it was hypothesized that the ISCS would show the strongest evidence of convergence with the Theistic Subscale among theistic participants. Evidence of convergence was found across groups, with evidence of moderate convergence among theistic participants as hypothesized, and weak convergence among nontheistic participants. Scale developers of the RiTE Measure of Spiritualty describe the Theistic Subscale as unstructured connection with a deity (again with deity implying sacred qualities in both theistic and nontheistic expressions) (Webb et al., 2014). With every item of the Theistic Subscale containing the phrase "deity or deities" it was expected that nontheistic participants would score lower on this subscale (despite measure instructions indicating inclusive interpretation of deity language) thus yielding a smaller magnitude of convergence between the ISCS and Theistic Subscale for nontheistic participants (relative to theistic participants). Item examples within the Theistic Subscale include the following: "*I believe in deity or deities*," "*I feel connected to a deity or deities,"* "*I feel belief in a deity or deities is very important*," "*I believe in a deity or deities who has/have power to control world events*," and "*The world was created by a deity or deities*." The weak convergence between the ISCS and Theistic Subscale among nontheistic participants is likely due to attenuation from theistic-centric language in items

and emphasis on belief in deity or deities. Further, the theoretical convergence between the ISCS and the Theistic Subscale appears to be moderate when looking at item content, with the RiTE Theistic Subscale emphasizing belief in a deity or deities and ISCS items emphasizing the centrality of spiritual connection in one's life. Overall, the ISCS appears to be most consistent with the Ritualistic Subscale of the RiTE Measure of Spirituality and least consistent with the Existential Subscale. In light of the outlined limitations of theoretical and item-level content convergence, along with the absence of a gold standard measure for spiritual connection, there is a need for continued investigation of convergent validity. Equally as important, the lack of a "gold standard" measure or even a good measure with strong theoretical convergence illuminates and reinforces the pressing need for a valid inclusive measure of spirituality. Nonetheless, limitations of existing evidence of convergent validity in the current study should be considered when using the ISCS.

With regards to discriminant validity, the ISCS correlated significantly but very weakly with the measure of social desirability (i.e., SDRS-5) with no differences between theistic and nontheistic participants. While the ISCS was hypothesized to be unrelated to the SDRS-5, the relationship is very weak and falls under Grimm and Widaman's (2012) statistical guideline for concurrent administration of constructs that are different but related. Though it is a weak relationship, the magnitude is similar to the association between the ISCS and Theistic Subscale for nontheistic participants and the Existential Subscale across groups, presenting a dilemma when interpreting evidence of convergence or divergence with the ISCS. While some association between the ISCS and SDRS-5 may occur due to administration similarities (i.e., self-report with Likert-response), it was hypothesized that the convergence between subscales of the ISCS and RiTE Spirituality Measure would be stronger in magnitude than any association found between

the ISCS and the SDRS-5. As previously discussed, theoretical divergence between the Existential Subscale and the ISCS, and theistic language in the Theistic Subscale of the RiTE provide some explanation of the weak patterns of convergence, but there remains a need to continue investigation of convergent and discriminant validity of the ISCS.

Limitations and Recommendations for Future Research and Use

Though the ISCS represents a unique measurement tool in its demonstrated ability to assess spiritual connection within the nontheistic population, there are a number of limitations to be noted and considered. First, though the current study obtained a fairly representative sample of U.S. adults in terms of spirituality and health status, there is limited diversity within the two developmental samples with regards to other diversity characteristics such as gender, race, and sexual orientation, thus limiting external validity of this study. Additionally, while the current study aligns with US adults in terms of representativeness of religious affiliation and most US adults reporting affiliation with Christianity (e.g., reports ranging from 70.6% to 78.8%; Gallup, 2017; Pew Research Center, 2014), the validation of the ISCS would likely be strengthened if future validation research oversampled more Eastern religious traditions. Cultural and spiritual traditions vary across Western and Eastern religious affiliations.

Second, there is a need to carefully select alternative measures for continued validation in the areas of convergent and discriminant validity. As previously discussed, there is no "gold standard" measure of spiritual connection and most measures of spirituality have limited to no validation outside of theistic populations. Establishing convergent validity is always limited by the degree to which the measure of convergence aligns with the measure being validated. While the RiTE measure of spirituality was designed to assess spirituality across three dimensions (Existential, Ritualistic, and Theistic), and assess spirituality from a more inclusive framework

than the majority of existing spirituality measures, theoretical convergence with the ISCS is somewhat limited. Further, the RiTE Measure of Spirituality assesses spirituality from a multidimensional framework (meaning, organized practices, and external entity-focused connectedness) and it was validated with a sample of undergraduate students in a rural area of eastern Tennessee with less than 10% of the developmental sample who identified as being religiously non-affiliated (Webb et al., 2014). For the ISCS, over one-third of the sample identified as nontheistic and over one-quarter reported being religiously unaffiliated. The limited *theoretical* convergence and limited external validity in terms of generalization to nontheistic populations could be key drivers in the limited *statistical* convergence demonstrated in the current study. Further, social desirability was the selected construct for discriminant validity for the current study; however, to ease respondent burden, a shorter, less reliable scale of social desirability was selected (SDRS-5). Limited reliability of the SDRS-5 may have limited the current study's ability to demonstrate strong statistical divergence with the ISCS. In an effort to establish stronger evidence of discriminant validity, it is recommended that future validation research for the ISCS utilize a longer, more reliable scale of social desirability, such as the Marlow-Crowne Social Desirability Scale (Crowne & Marlow, 1960), or explore an alternative construct to establish evidence of divergence from the ISCS.

Third, beyond limitations of the current study, there are inherent construct-related limitations that impact measurement of spirituality that must always be acknowledged when utilizing spirituality measures. Aside from the innate abstraction of spirituality and how to navigate this abstraction when operationalizing and measuring spirituality (Hill et al., 2000), creating a broad measure of spiritual connection and defining spirituality from a universal framework can risk blurring boundaries with other existential constructs (e.g., meaning and

purpose) (Baumsteiger & Chenneville, 2015; McSherry & Cash, 2004; Zinnbauer et al., 1999). However, amid the growing need for a conceptualization (and subsequent measurement tool) of spirituality that reaches diverse populations, and an increasing pressure for medical providers to increase cultural competence and practice medicine from a more holistic framework, the limitation of a broad inclusive measure was an accepted and carefully weighed limitation from the outset (Oman, 2013; Pearce, 2013; WHO, 2003).

Recommendations for Future Research. With these limitations in mind, future research should continue validation efforts of the ISCS. Particularly, the ISCS would benefit from research aimed at strengthening evidence of convergence and discriminant validity with a more diverse sample in terms of gender, race, sexual orientation, and religious affiliation. It is important that future studies maintain a comparable representation of nontheistic and theistic participants as is in the current study, while aiming to secure a larger sample size (i.e., $N > 200$ per group) to replicate and extend measurement invariance validation efforts. Further, the current study has a fairly representative sample in terms of chronic illness; however, a key step in furthering validation of the ISCS will be piloting the measure in healthcare settings, specifically health care settings that regularly incorporate assessment of spirituality, such as palliative care. Future considerations for in-person interview-style measure administration should be made if the ISCS is used with participants who have health challenges that significantly impair functional abilities (e.g., reading, writing). Lastly, in terms of furthering evidence of validity in future research, one approach to continuing validation in the absence of a "gold standard" measure would be assessing the degree to which the ISCS predicts health outcomes across and between groups (theistic and nontheistic). The relationships between health and religiosity/spirituality are well supported in extant literature. If the ISCS demonstrates equitable relationships with health

outcomes as reported in existing literature this could provide further evidence of validity and allow investigation of relations between health and spirituality with populations who endorse nontheistic spiritual expressions.

Recommendations for Future Use. Existing research supports associations between religiosity/spirituality and health but only *within the parameters of existing measures*, thus the need for an inclusive measure such as the ISCS is central to understanding these associations within diverse secular spiritual populations. It is this growth in understanding that yields opportunity for translation to improved patient care.

At present, healthcare organizations across the U.S. are working to move away from a tunnel vision symptom management approach toward a whole person integrative approach. A treatment approach in which symptoms are treated but not in isolation of, rather in light of and in combination with, other health factors (e.g., mental health, socioemotional health, and spiritual health) that could be maintaining, triggering, or suppressing those symptoms. Integrated healthcare is part of this movement. The ISCS is also part of this movement. The simultaneous shift towards more holistic care by healthcare organizations and the increasing number of U.S adults endorsing practice of alternative and nontraditional expressions of spirituality, yield a strong need for spirituality measurement to meet the demand. There are very few measures that utilize inclusive language, even fewer that assess nontheistic expressions, and many fewer that have been validated with secular populations (Berry, 2005; Hill & Edwards, 2013; Moore, 2017; Selman et al., 2011). The ISCS was developed and validated as a direct response to this demand and for use in healthcare settings.

Leaders in the medical community, such as the WHO and the American College of Physicians, recognize the centrality of spirituality for many adults when it comes to their

physical and mental health (Pearce, 2013; WHO, 2003); however, with limited access to valid measures and limited knowledge of spirituality outside of the traditional theocentric religious bounds, incorporation of spiritual assessment has not been systematically adopted. Nursing and palliative care organizations are known to address and embrace spiritual care within their models of care (Strada, 2011; Vachon et al., 2009). Thus, with an existing framework already in place, incorporation of the ISCS as an assessment tool within these fields of healthcare would be both feasible and supported.

Researchers have pointed to the need for comprehensive assessment of patients in order to gain greater awareness around factors that interact with their overall well-being, with some pointing out the specific need to understand how theism or lack of theism interact with how one copes with life as they near death (i.e., McFadden, 2015 and Currier et al., 2012, respectively). The ISCS in its current form can provide an indication of the centrality of spiritual connection in an individual's life, both in nature and in magnitude. Low scores on the ISCS, regardless of theistic or nontheistic group affiliation, would allow health care providers to screen out spirituality as a key factor. Whereas, moderate to high scores would indicate active seeking and maintaining of spiritual connection, pointing to a need to address spirituality within treatment/care and prompting a need to evaluate whether spirituality serves more as a protective or risk factor. This would be a particularly salient use among palliative care organizations, as existential realities inherently interact with one's beliefs about life, their evaluation of their purpose in life and the meaning of their death, and their engagement in life review. Additionally, the ISCS frame of reference item would provide healthcare providers with specific information on the substantive nature of a person's spiritual expression and further guide more personalized support (e.g., chaplain support) for the person in their care. On the patient side of this equation,

the ISCS seems to have the power to also give voice to individuals who value spiritual connection but do not affiliate with a theistic religious organization and decline pastoral care, but still need the area of spiritual support attended to and affirmed. Beyond palliative care, if future validation supports the ISCS as a predictor of health, as do existing measures of religiosity, then the ISCS could be used as a screener in health organizations (e.g., substance abuse treatment centers or mental health clinics) for its role either as a protective or risk factor in the lives of those seeking treatment.

Conclusion

The current study established psychometric properties that support the ISCS as a reliable and valid measure of spiritual connection with both theistic and nontheistic populations. The expanded inclusive conceptualization of spirituality upon which the ISCS was developed (Hoots, 2017) and subsequent validation of the ISCS represent important steps in advancing our current understanding of spirituality, especially among those whose spiritual expressions fall outside of the bounds of theistic and/or religious-based expressions. Spirituality is an inherently abstract and complex construct which can complicate measurement. However, the ISCS in its current 13-item form was developed and refined through rigorous and established empirical instrument development procedures. Statistical procedures utilized in the current study across two developmental samples provide a strong foundation for larger scale validation studies, while also supporting preliminary use of the ISCS in research settings with theistic and nontheistic populations, as well as with populations across the health spectrum. It is recommended that future validation studies of the ISCS utilize additional or alternative validity measures, samples consisting of a larger number of nontheistic participants, and varied administration settings (i.e., community and healthcare settings).

It is only through continued investigation of spirituality using validated measures with spiritually diverse samples that we will gain a deeper understanding of how spirituality interacts with the human experience. As we grow in our understanding of the spectrum of spiritual expressions, investigations of spirituality and health can be advanced. In its current form, psychometric evidence supports use of the ISCS with diverse populations. The ISCS's brief and straight-forward administration make it an ideal measure for use in research and community health settings. The noticeable lack of inclusive spirituality assessments has limited researchers' understanding of spirituality and has directly impacted our health care providers' ability to provide holistic care to all U.S. adults. The establishment of initial psychometric qualities of the ISCS is a significant and crucial step in responding to existing gaps in literature and patient care. While this step brings us much closer to equipping researchers and healthcare providers with a tool that was designed to increase understanding of our spiritual minorities, continued validation and research is essential to understanding and responding to the spiritual needs of the growing number of US adults with diverse spiritual expressions.

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APPENDICES

Appendix A: Inclusive Spiritual Connection Scale (ISCS)

Reference: Hoots, V. M. (2017). Conceptualization and measurement of spirituality: Towards the development of a nontheistic spirituality measure for use in health-related fields. (Unpublished master's thesis). East Tennessee State University, Johnson City, TN.

Item 1 provides a demographic reference for the respondent's identification as theistic or non-theistic. Items 2-46 are scored on a 4-point Likert-type response scale. Items 19, 20, 21, 24, 34, 35, 36, 37, and 43 are reverse coded. Scores may range from 45 to 180. Higher scores indicate higher levels of spiritual connection.

1. Using the list below, please tell how you would describe yourself in terms of spirituality. That is, which of the following **best** describes you in terms of spirituality? (Select one.)
    - ☐ I do not seek spiritual connection
    - ☐ I seek spiritual connection from nature
    - ☐ I seek spiritual connection from Mother Earth
    - ☐ I seek spiritual connection from multiple gods
    - ☐ I seek spiritual connection from a general supreme being
    - ☐ I seek spiritual connection from God
    - ☐ I seek spiritual connection from Allah
    - ☐ I seek spiritual connection from Buddha
    - ☐ I seek spiritual connection from the universe
    - ☐ I seek spiritual connection from having an awareness of meaning/purpose in life
    - ☐ I seek spiritual connection from humanity
    - ☐ I seek spiritual connection from something other than what is listed above (please specify: _____)

Instructions for questions 2-46: This survey is supposed to tell how spiritual you are. For this survey, spirituality is defined as how much you search for, and whether you connect with, something you think is sacred. Sacred means things in your life that you think are greater than you are. So, sacred can mean different things to different people. Something sacred could include, but is not limited to, any of the following: nature, God, gods, a Higher Power, humanity, arts, being a parent or partner or friend, having such virtues as hope or love, etc. The words 'sacred' and 'spiritual presence' mean wherever your spirituality comes from based on your own beliefs. This may or may not be tied to a religion or whether you believe in a god or gods. The phrase "spiritual practices" means things you do to connect with those things you think are sacred. This may include, but is not limited to, any of the following: meditation, prayer, worship, or other things that help you connect with whatever you think is sacred. Please read each item carefully and answer what you are usually like spiritually.

1. I believe it is important to stay connected with what is sacred in my life.
   - Strongly disagree
   - Disagree
   - Agree
   - Strongly agree

2. My spirituality helps me understand my purpose in life.
   - Not at all
   - Very little
   - Quite a bit
   - A great deal

3. I believe in a spiritual presence that provides a purpose for my life.
   - Strongly disagree
   - Disagree
   - Agree
   - Strongly agree

4. I engage in spiritual practices to stay close to what is sacred in my life.
   - Never
   - Sometimes
   - Often
   - Always

5. I believe life's ups and downs are all part of my spiritual journey.
   - Strongly disagree
   - Disagree
   - Agree
   - Strongly agree

6. I rely on my spirituality to help me make major life decisions.
   - Never
   - Sometimes
   - Often
   - Always

7. I believe personal struggles are an important part of my spiritual growth.
   - Strongly disagree
   - Disagree
   - Agree
   - Strongly agree

8. I try to live in a way that aligns with my spiritual values.
    - Never
    - Sometimes
    - Often
    - Always

9. My bond with the sacred helps me understand difficulties in life.
    - Never
    - Sometimes
    - Often
    - Always

10. I feel spiritual strength when facing challenges in life.
    - Never
    - Sometimes
    - Often
    - Always

11. My spirituality is a source of comfort for me.
    - Never
    - Sometimes
    - Often
    - Always

12. I feel a spiritual presence in my life on a regular basis.
    - Strongly disagree
    - Disagree
    - Agree
    - Strongly Agree

13. I desire to be closer to the source of my spirituality.
    - Not true of me
    - Slightly true of me
    - Fairly true of me
    - Very true of me

14. I meditate to maintain my relationship with the sacred.
    - Never
    - Sometimes
    - Often
    - Always

15. I rely on my spirituality to help me deal with stressful situations.
    - Not at all
    - Very little
    - Quite a bit
    - A great deal

16. I believe events in my life happen according to a greater plan.
    - Strongly disagree
    - Disagree
    - Agree
    - Strongly Agree

17. My spirituality guides the direction of my life.
    - Strongly disagree
    - Disagree
    - Agree
    - Strongly Agree

18. My spirituality is often a source of frustration for me.
    - Never
    - Sometimes
    - Often
    - Always

19. I am unhappy with my spiritual journey thus far.
    - Strongly disagree
    - Disagree
    - Agree
    - Strongly Agree

20. I feel unsure about my relationship with what is sacred in my life.
    - Not true of me
    - Slightly true of me
    - Fairly true of me
    - Very true of me

21. I feel confident about my relationship with what is sacred in my life.
    - Not true of me
    - Slightly true of me
    - Fairly true of me
    - Very true of me

22. I feel emotionally close to what is sacred in my life.
    - I never do
    - I sometimes do
    - I often do
    - I always do

23. My spirituality often causes me to be hard on myself.
    - Not true of me
    - Slightly true of me
    - Fairly true of me
    - Very true of me

24. I am kind to myself because of my spirituality.
    - Not true of me
    - Slightly true of me
    - Fairly true of me
    - Very true of me

25. My spirituality gives meaning to my life.
    - Not at all
    - Very little
    - Quite a bit
    - A great deal

26. I use spiritual activities to deepen my bond with sacred aspects of my life.
    - I never do
    - I sometimes do
    - I often do
    - I always do

27. I believe it is important to pursue connection with what is sacred in my life.
    - Strongly disagree
    - Disagree
    - Agree
    - Strongly agree

28. Practices (such as, prayer, meditation, or worship) are key to my spiritual growth.
    - Strongly disagree
    - Disagree
    - Agree
    - Strongly agree

29. Spiritual practices help me to be more aware of areas in my life that need improvement.
    - Never
    - Sometimes
    - Often
    - Always

30. Spiritual beliefs guide the way I live my life.
    - Not true of me
    - Slightly true of me
    - Fairly true of me
    - Very true of me

31. I experience inner peace when I engage in spiritual practices.
    - I never do
    - I sometimes do
    - I often do
    - I always do

32. My spirituality is a guiding influence in my daily life.
    - Not true of me
    - Slightly true of me
    - Fairly true of me
    - Very true of me

33. I struggle with my spirituality which leads me to question sacred aspects of my life.
    - Never
    - Sometimes
    - Often
    - Always

34. My spirituality does not help me understand why bad things happen in life.
    - Strongly disagree
    - Disagree
    - Agree
    - Strongly Agree

35. Understanding where my life fits into a greater plan is a source of stress for me.
    - Never
    - Sometimes
    - Often
    - Always

36. I feel guilty when I doubt my spiritual beliefs.
    - Never
    - Sometimes
    - Often
    - Always

37. It is important to me to find connection with the source(s) of my spirituality.
    - Strongly disagree
    - Disagree
    - Agree
    - Strongly Agree

38. Knowing that my life is part of a larger spiritual plan makes me feel grateful.
    - Not true of me
    - Slightly true of me
    - Fairly true of me
    - Very true of me

39. My spirituality gives meaning in my daily life.
    - Not true of me
    - Slightly true of me
    - Fairly true of me
    - Very true of me

40. I grow spiritually when I go through hard emotional times.
    - I never do
    - I sometimes do
    - I often do
    - I always do

41. When I doubt and/or question my spiritual beliefs, I experience spiritual growth.
    - I never do
    - I sometimes do
    - I often do
    - I always do

42. When I doubt my spiritual beliefs, I feel distant from the source(s) of my spirituality.
    - I never do
    - I sometimes do
    - I often do
    - I always do

43. I gain my understanding of the world through my spiritual journey.
    - Strongly disagree
    - Disagree
    - Agree
    - Strongly agree

44. I have a deeper bond with the sacred because of the challenges I face in life.
    - Not true of me
    - Slightly true of me
    - Fairly true of me
    - Very true of me

45. I experience the sacred when I engage in spiritual practices.
    - Never
    - Sometimes
    - Often
    - Always

Appendix B: Validity Measures

The RiTE Spirituality Measure

This survey is for use with different cultures, so keep in mind that deity/deities can have several meanings, including supremeness of one God or Goddess, multiple gods/goddesses, a higher power, a divine quality in nature and/or the universe, etc. As such, please think of the term deity/deities as it applies to you. For example, if you are a:

Buddhist, read deity or deities as "Buddha, "
Christian or Jew, read deity or deities as "God," "Jehovah," or "Yahweh"
Hindu, read deity or deities as "Brahma," "Shiva," "Vishnu," "Ram," etc.
Muslim, read deity or deities as "Allah"
Spiritual, non-specific, read deity or deities as "Nature," "Higher Power," etc.
Wiccan, read deity or deities as "The Goddess," "Horned God," etc.

Instructions: READ EACH ITEM AND MARK THE LEVEL OF AGREEMENT THAT COMES CLOSEST TO HOW YOU THINK, FEEL, OR BELIEVE.

- Each item uses the following scale:
  - Strongly disagree
  - Disagree
  - Neutral/No opinion
  - Agree
  - Strongly agree

1. A deity or deities was/were responsible for the creation of the universe.
2. The world was created by a deity or deities.
3. I believe in a deity or deities.
4. I believe in a deity or deities who know/s me.
5. A deity or deities is/are at some time going to judge the rightness or wrongness of the actions of individuals.
6. I feel connected to a deity or deities.
7. I feel belief in a deity or deities is very important.
8. I believe in a deity or deities who has/have a purpose/plan for my life.
9. I believe in a deity or deities who has/have power to control world events.
10. It is important to acknowledge the existence or reality of a deity or deities.
11. I regularly perform traditional spiritual practices.
12. I observe or follow the rules of a formal belief system.
13. I regularly attend organized worship services.
14. I feel faith-related rituals and/or practices are very important.
15. I set aside time to contemplate issues related to religious or spiritual teachings.
16. I regularly meditate as I have been taught in my faith.
17. I feel good after I attend organized worship services.
18. Observing or following traditions is a very important part of spirituality or faith.
19. It is important to tell others about one's own spiritual path in order to try and convince them of the correct path.

20. I would not be in good judgment of a deity or deities if I did not practice my faith as prescribed.
21. I feel that helping others is very important.
22. Helping other people is very important.
23. I feel that understanding oneself is very important.
24. I believe that finding meaning and purpose in life is very important.
25. I feel that taking care of nature is very important.
26. Human life is a beautiful thing.
27. There is a right way to treat other people.
28. There is a wrong way to treat other people.
29. It is the responsibility of each person to find their purpose in life.
30. I see life as a journey toward fulfillment.

SDRS-5 Instructions and Items

Instructions: Listed below are a few statements about your relationship with others.

How much is <u>each</u> statement TRUE or FALSE for you?

	Definitely True	Mostly True	Don't Know	Mostly False	Definitely False
1. I am always courteous even to people who are disagreeable	1[a]	2	3	4	5
2. There have been occasions when I took advantage of someone.	1	2	3	4	5[a]
3. I sometimes try to get even rather than forgive and forget.	1	2	3	4	5[a]
4. I sometimes feel resentful when I don't get my way.	1	2	3	4	5[a]
5. No matter who I'm talking to, I'm always a good listener.	1[a]	2	3	4	5

<u>Note</u>. Shown above is the contiguous, block format approach to administration of the SDRS-5.

[a] Indicates the direction of the extreme SDRS response, scored <u>1</u>. All other responses are scored <u>0</u>.

Appendix C: Health and Well-Being Measures

Psychological Well-Being Scales

Instructions: Click one response for each statement to indicate how much you agree or disagree.

- All items use the following scale:
  - Strongly agree
  - Somewhat agree
  - A little agree
  - Neither agree nor disagree
  - A little disagree
  - Somewhat disagree
  - Strongly disagree

1. I like most parts of my personality.
2. When I look at the story of my life, I am pleased with how things have turned out so far.
3. Some people wander aimlessly through life, but I am not one of them.
4. The demands of everyday life often get me down.
5. In many ways I feel disappointed about my achievements in life.
6. Maintaining close relationships has been difficult and frustrating for me.
7. I live life one day at a time and don't really think about the future.
8. In general, I feel I am in charge of the situation in which I live.
9. I am good at managing the responsibilities of daily life.
10. I sometimes feel as if I've done all there is to do in life.
11. For me, life has been a continuous process of learning, changing, and growth.
12. I think it is important to have new experiences that challenge how I think about myself and the world.
13. People would describe me as a giving person, willing to share my time with others.
14. I gave up trying to make big improvements or changes in my life a long time ago.
15. I tend to be influenced by people with strong opinions.
16. I have not experienced many warm and trusting relationships with others.
17. I have confidence in my own opinions, even if they are different from the way most other people think.
18. I judge myself by what I think is important, not by the values of what others think is important.

Nottingham Health Profile

Breakdown of questionnaire

(1) Part I: 38 questions in 6 subareas, with each question assigned a weighted value; the sum of all weighted values in a given subarea adds up to 100
- energy level (EL): 3
- pain (P): 8
- emotional reaction (ER): 9
- sleep (S): 5
- social isolation (SI): 5
- physical abilities (PA): 8

(2) Part II: 7 life areas affected Completing questionnaire

- Each question answered "Yes" or "No"
- If the patient is not sure whether to say "yes" or "no" to a problem, s/he are instructed to answer the one more true at that time.

- Part 1—Relative weights for each "yes" response is provided. "No" responses are 0.
  1. I'm tired all the time. y = 39.20
  2. I have pain at night. y = 12.91
  3. Things are getting me down. y = 10.47
  4. I have unbearable pain. y = 19.74
  5. I take pills to help me sleep. y = 22.37
  6. I've forgotten what it's like to enjoy myself. y = 9.31
  7. I'm feeling on edge. y = 7.22
  8. I find it painful to change position. y = 9.99
  9. I feel lonely. y = 22.01
  10. I can walk about only indoors. y = 11.54
  11. I find it hard to bend. y = 10.57
  12. Everything is an effort. y = 36.80
  13. I'm waking up in the early hours of the morning. y = 12.57
  14. I'm unable to walk at all. y = 21.30
  15. I'm finding it hard to make contact with people. y = 19.36
  16. The days seem to drag. y = 7.08
  17. I have trouble getting up and down stairs and steps. y = 10.79
  18. I find it hard to reach for things. y = 9.30
  19. I'm in pain when I walk y = 11.22
  20. I lose my temper easily these days. y = 9.76
  21. I feel there is nobody that I am close to. y = 20.13
  22. I lie awake for most of the night. y = 27.26
  23. I feel as if I'm losing control. y = 13.99
  24. I'm in pain when I'm standing. y = 8.96
  25. I find it hard to get dressed by myself. y = 12.61
  26. I soon run out of energy. y = 24.00
  27. I find it hard to stand for long (e.g., at the kitchen sink, waiting in line). y = 11.20

28. I'm in constant pain. y = 20.86
29. It takes me a long time to get to sleep. y = 16.10
30. I feel I am a burden to people. y = 22.53
31. Worry is keeping me awake at night. y = 13.95
32. I feel that life is not worth living. y = 16.21
33. I sleep badly at night. y = 21.70
34. I'm finding it hard to get along with people. y = 15.97
35. I need help to walk about outside (e.g., a walking aid or someone to support me). y = 12.69
36. I'm in pain when going up or down stairs. y = 5.83
37. I wake up feeling depressed. y = 12.01
38. I'm in pain when I'm sitting. y = 10.49

- Part 2
  - Is your present state of health causing problems with your…
    a. Work (that is, paid employment)?
       Yes (1) No (0)
    b. Looking after the home (cleaning & cooking, repairs, odd jobs around the home, etc.)?
       Yes (1) No (0)
    c. Social life (going out, seeing friends, going to the movies, etc.)?
       Yes (1) No (0)
    d. Home life (that is, relationships with other people in your home)?
       Yes (1) No (0)
    e. Sex life?
       Yes (1) No (0)
    f. Interests and hobbies (sports, arts and crafts, do-it-yourself, etc.)?
       Yes (1) No (0)
    g. Vacations (summer or winter vacations, weekends away, etc.)?
       Yes (1) No (0)

Appendix D: Demographic Items

Instructions: Please provide us with some demographic information. If you do not feel comfortable providing some of this information, you do not have to respond.

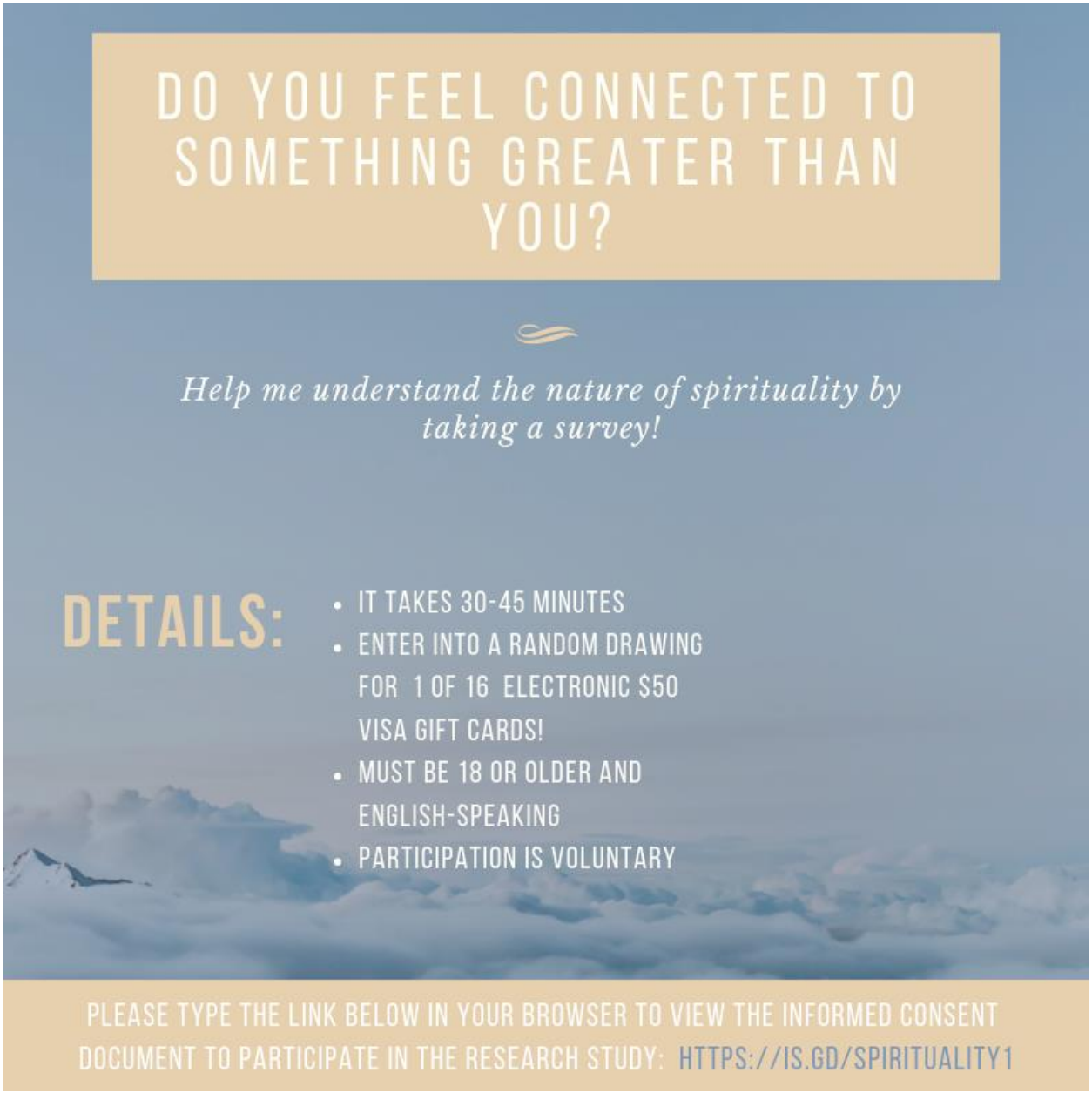
1. Age: *Open field*
2. Gender: *Open field*
3. Race (select one only)
    - American Indian or Alaska Native
    - Asian
    - Black or African American
    - Native Hawaiian or Other Pacific Islander
    - White
    - Multiracial
    - Other
        - If selected "other" for Race, please specify: _____
4. Sexual orientation (select one only)
    - Asexual
    - Bisexual
    - Gay
    - Straight (heterosexual)
    - Lesbian
    - Pansexual
    - Questioning or unsure
    - An identity not listed
        - An identity not listed; please specify: _____
5. Religious affiliation (select one only)
    - Buddhist
    - Christian—Catholic
    - Christian—Protestant (Baptist, Lutheran, Methodist, Presbyterian, Pentecostal, Quaker, UCC, non-denominational)
    - Episcopalian/Anglican
    - Jehovah's Witness
    - Jewish
    - Hindu
    - Mormon
    - Muslim
    - Sikh
    - Unitarian/Universalist
    - Wiccan
    - No religious affiliation—Atheist
    - No religious affiliation—Agnostic
    - No religious affiliation—Humanistic
    - No religious affiliation—not specified

- Other
    - If selected “other” for Religious Affiliation, please specify: _____

6. Please list any current health conditions, if applicable (select all that apply)
    - Autoimmune conditions
    - Blood disorders
    - Cancer
    - Cardiovascular conditions
    - Chronic pain disorders
    - Endocrine conditions
    - Gastrointestinal conditions
    - Musculoskeletal conditions
    - Neurological conditions
    - Reproductive conditions
    - Respiratory conditions
    - Sensory impairments
    - Urinary conditions
    - Other
        - If selected “other” for health conditions, please specify: _____

Appendix E: Recruitment Advertisements

Social Media Ad



[Note: The image will be attached with this text on the social media post.]

Hi! I am a doctoral candidate at ETSU. I am conducting a research study investigating the nature of spirituality. I am recruiting individuals from all religious and spiritual backgrounds and individuals who do not affiliate with any religion. Please type the link below or copy it and paste it into your browser to view the informed consent to participate in the study: https://is.gd/spirituality1

If you have any questions, please contact Valerie Hoots (423-439-4619) or Dr. Andrea Clements (423-439-6661).

Snowball Email Template

Subject line: Spirituality Survey Request—Please help and pass along to others!

Hi [insert title/name],

I am a doctoral candidate at ETSU. For my dissertation I am investigating the nature of spirituality across diverse spiritual expressions, ranging from those whose spirituality comes from being a part of a religious group (e.g. Christian, Hindu, Muslim, etc.) to those whose spirituality comes from humanity and/or nature. I am interested in learning how spirituality functions in the lives of individuals across all spiritual expressions; therefore, I am recruiting individuals from all religious and spiritual backgrounds, including individuals who do not associate with any religion and/or believe in a higher power.

Please consider participating in this research study and then please forward this email to colleagues, friends, and family who may be interested in this topic/research study (or who may know of others who would be interested).

Details of this research study:

- The survey takes 30-45 minutes
- You may enter a random drawing for 1 of 16 electronic $50 Amazon gift cards
- Must be 18 years or older and English-speaking
- Participation is voluntary

You may view the informed consent document to participate in the research study and take the survey by clicking the following link (or copy and paste it into your browser): https://is.gd/spirituality1

If you have any questions, please feel free to contact me by email at hootsv@etsu.edu or Dr. Andrea Clements by phone at (423) 439-6661.

Thank you for your consideration and for passing this email along!

Best,

Valerie

Valerie Hoots, M.A., PhD candidate
Graduate Assistant & Instructor
HeART Lab
Psychology Department
East Tennessee State University

SONA Ad Description

Investigation of the nature of spirituality, and how it functions in the lives of individuals across all spiritual expressions, ranging from those whose spirituality comes from being a part of a religious group (e.g. Christian, Hindu, Muslim, etc.) to those whose spirituality comes from humanity and/or nature, including individuals who do not associate with any religion and/or believe in a higher power.

Appendix F: Timepoint 2 Follow-up Email

Subject line: Spirituality Survey 2-week Follow-up

Hello,

Thank you for volunteering to complete a second survey! Please click on the link provided (https://is.gd/spirituality2) to complete this brief survey. Enter the following record number (#####) at the beginning of the survey. This will allow me to match your responses from this survey to your other responses from the previous survey.

Please complete this survey within 5-7 days. Thank you in advance for your time!

Best,

Valerie

Valerie Hoots, MA, PhD candidate
Graduate Student & Instructor
HeART Lab
Psychology Department
East Tennessee State University

Appendix G: Amazon Gift Card Winner Email

Subject Line: Amazon Gift Card Winner (Spirituality Survey Participation)

Hello!

Thank you again for participating in the research study investigating the nature of spirituality. At the time of your participation, you entered into a drawing for one of sixteen $50 Amazon gift cards. Random selection of the sixteen winners has been completed and you are one of the sixteen winners! Please see attached for the $50 Amazon gift card.

If you have any questions or concerns, please feel free to email me back at this email address.

Warm regards,

Valerie Hoots, MA, PhD candidate
Graduate Student & Instructor
HeART Lab
Psychology Department
East Tennessee State University

Appendix H: Diversity Characteristics Across Samples

Table 11

Diversity Characteristics Across Samples

Diversity Characteristic		Total Sample (N = 736)	Primary Developmental Sample (n = 368)	Secondary Developmental Sample (n = 368)	Test-Retest Subsample (n = 129)
Age					
	Mean	32.46	32.21	32.71	37.34
	Median	26	25	26	31.5
	SD	16.01	16.1	15.97	17.5
	Min	18	18	18	18
	Max	82	80	82	80
	Missing	7 (0.95%)	3 (0.82%)	4 (1.1%)	1 (0.8%)
Gender					
	Male	230 (31.3%)	116 (31.5%)	114 (31%)	34 (26.4%)
	Female	477 (64.8%)	238 (64.7%)	239 (64.9%)	90 (69.8%)
	Non-binary	8 (1.1%)	3 (0.8%)	5 (1.4%)	1 (0.8%)
	Other	6 (0.8%)	2 (0.6%)	4 (1.1%)	1 (0.8%)
	Missing	15 (2%)	9 (2.4%)	6 (1.6%)	3 (2.3%)
Race					
	American-Indian or Alaska Native	7 (1%)	4 (1.1%)	3 (0.8%)	1 (0.8%)
	Asian	18 (2.4%)	12 (3.3%)	6 (1.6%)	4 (3.1%)
	Black or African American	35 (4.8%)	14 (3.8%)	21 (5.7%)	1 (0.8%)
	White	639 (86.8)	321 (87.2%)	318 (86.4%)	117 (90.7%)
	Multiracial	17 (2.3%)	9 (2.4%)	8 (2.2%)	2 (1.6%)
	Other	17 (2.3%)	7 (1.9%)	10 (2.7%)	3 (2.3%)
	Missing	3 (0.4%)	1 (0.3%)	2 (0.5%)	1 (0.8%)
Sexual Orientation					
	Asexual	11 (1.5%)	8 (2.2%)	3 (0.8%)	1 (0.8%)
	Bisexual	83 (11.3%)	45 (12.2%)	38 (10.3%)	11 (8.5%)
	Gay	23 (3.1%)	10 (2.7%)	13 (3.5%)	3 (2.3%)
	Lesbian	26 (3.5%)	12 (3.3%)	14 (3.8%)	12 (9.3%)
	Straight (heterosexual)	549 (74.6%)	273 (74.2%)	276 (75%)	95 (73.6%)
	Pansexual	20 (2.7%)	9 (2.4%)	11 (3.0%)	3 (2.3%)
	Questioning	19 (2.6%)	8 (2.2%)	11 (3.0%)	3 (2.3%)
	An identity not listed	1 (0.1%)	1 (0.3%)	0 (0%)	0 (0%)
	Missing	4 (0.5%)	2 (0.5%)	2 (0.5%)	1 (0.8%)
Spiritual Classification					
	Theistic	492 (66.8%)	246 (66.8%)	246 (66.8%)	75 (58.1%)
	Nontheistic	244 (33.2%)	122 (33.2%)	122 (33.2%)	54 (41.9%)
	Missing	0 (0%)	0 (0%)	0 (0%)	0 (0%)

Diversity Characteristic	Total Sample (N = 736)	Primary Developmental Sample (n = 368)	Secondary Developmental Sample (n = 368)	Test-Retest Subsample (n = 129)
Religious Affiliation				
Buddhist	11 (1.5%)	4 (1.1%)	7 (1.9%)	1 (0.8%)
Christian	453 (61.5%)	228 (62%)	225 (61.1%)	71 (55%)
Muslim	13 (1.8%)	6 (1.6%)	7 (1.9%)	2 (1.6%)
Unitarian/Universalist	15 (2%)	8 (2.2%)	7 (1.9%)	5 (3.9%)
Wiccan	7 (1%)	5 (1.4%)	2 (0.5%)	3 (2.3%)
Other religious affiliation	44 (5.9%)	24 (6.5%)	20 (5.4%)	5 (3.9%)
No religious affiliation/Atheist	21 (2.9%)	15 (4.1%)	6 (1.6%)	2 (1.6%)
No religious affiliation/Agnostic	64 (8.7%)	32 (8.7%)	32 (8.7%)	15 (11.6%)
No religious affiliation/Humanistic	13 (1.8%)	3 (0.8%)	10 (2.7%)	3 (2.3%)
No religious affiliation/not specified	78 (10.6%)	38 (10.3%)	40 (11.1%)	18 (14%)
Unsure/Questioning	3 (0.4%)	2 (0.5%)	1 (0.3%)	0 (0%)
Missing	14 (1.9%)	3 (0.8%)	11 (3%)	4 (3.1%)

Appendix I: Phase 1 Results Tables

Table 12

Phase 1: Inter-Item Correlations for 45-item ISCS

Item	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10	Item 11	Item 12
Item 1	____											
Item 2	.186***	____										
Item 3	.221***	.654***	____									
Item 4	.178**	.558***	.533***	____								
Item 5	.138**	.576***	.571***	.455***	____							
Item 6	.163**	.628***	.588***	.713***	.520***	____						
Item 7	.134*	.446***	.466***	.324***	.673***	.426***	____					
Item 8	.260***	.389***	.341***	.499***	.338***	.516***	.314***	____				
Item 9	.190***	.635***	.576***	.611***	.526***	.640***	.441***	.498***	____			
Item 10	.171**	.595***	.619***	.593***	.506***	.576***	.408***	.412***	.661***	____		
Item 11	.164**	.571***	.528***	.578***	.445***	.561***	.325***	.400***	.627***	.661***	____	
Item 12	.114*	.584***	.524***	.620***	.459***	.590***	.344***	.435***	.602***	.608***	.610***	____
Item 13	.164**	.535***	.525***	.463***	.390***	.496***	.377***	.355***	.503***	.435***	.574***	.507***
Item 14	.103*	.435***	.226***	.458***	.207***	.343***	.158**	.313***	.396***	.350***	.297***	.352***
Item 15	.123*	.616***	.528***	.582***	.475***	.622***	.335***	.365***	.604***	.597***	.709***	.635***
Item 16	.089	.445***	.598***	.424***	.530***	.530***	.463***	.195***	.464***	.491***	.467***	.426***
Item 17	.153**	.628***	.617***	.553***	.526***	.663***	.443***	.470***	.637***	.598***	.634***	.582***
Item 18	-.042	.121*	-.002	.121*	.144**	.040	.075	.161**	.090	.159**	.212**	.240***
Item 19	.005	.150**	.123*	.186***	.193***	.132*	.139**	.232***	.209***	.229***	.304***	.300***
Item 20	.122*	.366***	.274***	.416***	.274***	.411***	.188***	.381***	.388***	.397***	.409**	.508***
Item 21	.123*	.474***	.384***	.564**	.330***	.490***	.272***	.460***	.519***	.531***	.501**	.603***
Item 22	.106*	.429***	.362***	.513***	.336***	.433***	.218***	.391***	.541***	.497***	.547***	.589***
Item 23	-.045	-.109*	-.156**	-.069	-.093	-.201**	-.094	-.024	-.060	-.024	-.038	-.054
Item 24	.154**	.457***	.268***	.420***	.338***	.400***	.198***	.333***	.470***	.467***	.489***	.402***
Item 25	.180**	.677***	.619***	.561***	.476***	.633***	.393***	.4233***	.663***	.591***	0.642***	.590***
Item 26	.164**	.512***	.471***	.671***	.349***	.582***	.289***	.484***	.586***	.537***	.567***	.545***
Item 27	.251***	.496***	.427***	.476***	.394***	.488***	.344***	.426***	.538***	.469***	.551***	.499***
Item 28	.146**	.533***	.564***	.668***	.498***	.600***	.347***	.341***	.528***	.517***	.584***	.569***
Item 29	.535***	.507***	.532***	.316***	.367***	.582***	.450***	.580***	.492***	.555***	.204***	.528***
Item 30	.178**	.629***	.562***	.655***	.431***	.691***	.360***	.544***	.603***	.561***	.602***	.614***
Item 31	.097	.506***	.403***	.530***	.424***	.491***	.283***	.353***	.576***	.502***	.578***	.548***
Item 32	.160**	.659***	.546***	.646***	.465***	.699***	.377***	.547***	.698***	.598***	.633***	.645**
Item 33	.037	.217***	.163**	.288***	.189***	.193***	.095	.226***	.247***	.315***	.283***	.400***
Item 34	.036	.432***	.362***	.339***	.457***	.376***	.344***	.257***	.548***	.428***	.378***	.457***
Item 35	-.016	.106*	-.007	.093	.083	.051	.012	.206***	.111*	.155**	.147**	.160**
Item 36	-.078	-.122*	-.268***	-.024	-.124*	-.163**	-.140**	.115*	-.065	-.079	-.120*	-.066

Table 12 (cont.)

Item	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10	Item 11	Item 12
Item 37	.209***	.449***	.421***	.419***	.349***	.475***	.336***	.326***	.501***	.372***	.462***	.419***
Item 38	.112*	.576***	.649***	.493***	.524***	.616***	.442***	.289***	.586***	.571***	.576***	.519***
Item 39	.190***	.691***	.612***	.590***	.523***	.668***	.416***	.446***	.650***	.627***	.661**	.611***
Item 40	.125*	.546***	.491***	.450***	.532***	.524***	.529***	.319***	.568***	.565***	.551***	.505***
Item 41	.134**	.471***	.370***	.361***	.312***	.385***	.311***	.230***	.430***	.371***	.372***	.340***
Item 42	-.026	-.119	-.141	-.017	-.082	-.136	-.133	.074	-.007	-.019	-.050	.038
Item 43	.191***	.502***	.366***	.461***	.439***	.529***	.364***	.445***	.602***	.464***	.510***	.526**
Item 44	.164**	.578***	.536***	.542***	.566***	.589***	.494***	.422***	.642***	.567***	.588***	.523***
Item 45	.193***	.508***	.483***	.561***	.420***	.570***	.285***	.408***	.590***	.570***	.599***	.605***

Note. *indicates $p \leq .05$; **indicates $p \leq .01$; ***indicates $p \leq .001$

Table 12 (cont.)

Item	Item 13	Item 14	Item 15	Item 16	Item 17	Item 18	Item 19	Item 20	Item 21	Item 22	Item 23	Item 24
Item 13	____											
Item 14	.267***	____										
Item 15	.571***	.382***	____									
Item 16	.341***	.092	.467***	____								
Item 17	.488***	.299***	.619***	.571***	____							
Item 18	.018	.054	.133*	.034	.066	____						
Item 19	,168**	.054	.189***	.109*	.233***	.441***	____					
Item 20	.249***	.236***	.408***	.199***	.357***	.495***	.435***	____				
Item 21	.330***	.335***	.515***	.275***	.433***	.323***	.317***	.614***	____			
Item 22	.394***	.319***	.516***	.259***	.447***	.192***	.252***	.446***	.652***	____		
Item 23	-.162**	.055	-.106*	-.165**	-.169**	.310***	.134*	.177**	.102	-.005	____	
Item 24	.332***	.391***	.463***	.214***	.390***	.146**	.194***	.343***	.446***	.472***	.136**	____
Item 25	.481***	.308***	.632***	.500***	.715***	.087	.205***	.432***	.515***	.529***	-.104*	.478***
Item 26	.460***	.460***	.562***	.364***	.537***	.059	.171**	.324***	.548***	.535***	-.082	.461***
Item 27	.572***	.326***	.516***	.364***	.512***	.041	.154**	.271***	.411***	.443***	-.071	.358***
Item 28	.509***	.312***	.577***	.579***	.598***	.056	.118*	.328***	.421***	.404***	-.176**	.336***
Item 29	.489***	.333***	.523***	.455***	.598***	.082	.173**	.315***	.395***	.373***	-.155**	.326***
Item 30	.491***	.345***	.593***	.419***	.674***	.069	.016*	.403***	.498***	.485***	-.175**	.427***
Item 31	.515**	.371***	.495***	.343***	.487***	.179**	.204***	.396***	.507***	.560***	.007	.467***
Item 32	.537***	.356***	.630***	.407***	.682***	.078	.218***	.420***	.560***	.558***	-.164**	.474***
Item 33	.128***	.126***	.227***	.127*	.182***	.601***	.353***	.505***	.413***	.328***	.246***	.210***
Item 34	.331***	.215***	.382***	.359***	.384***	.264***	.198***	.340***	.357***	.286***	.045	.255***
Item 35	.070	.057	.056	-.128*	.042	.421***	.292***	.315***	.316***	.126*	.255***	.161**
Item 36	-.170**	.162**	-.144**	-.380***	-.189***	0.187***	.129*	.077	.030	.010	.392***	.076
Item 37	.622***	.212***	.507***	.382***	.456***	-.003	.096	.189***	.317***	.358***	-.128*	0.322***
Item 38	.492***	.213***	.586***	.732***	.630***	.054	.160**	.293***	.394***	.337***	-.149**	.361***
Item 39	.528***	.299***	.658***	.539***	.684***	.096	.210***	.382***	.527***	.507***	-.102	.491***
Item 40	.459***	.309***	.574***	.509***	.550***	.131*	.222***	.353***	.424***	.419***	-.016	.422***
Item 41	.357***	.282***	.399***	.305***	.475***	-.032	.114*	.171**	.263***	.262***	-.104*	.277***
Item 42	-.114*	.024	-.114*	-.227***	-.130*	.369***	.178**	.205***	.103*	.095	.328***	.071*
Item 43	.482***	.337***	.543***	.324***	0.546***	.152*	.220***	.319***	.412***	.481***	-.071	.455***
Item 44	.530***	.369***	.614***	.548***	.620***	.112*	.216***	.364***	.471***	.480***	-.085	.480***
Item 45	.527***	.363***	.545***	.423***	.552***	.128*	.217***	.396***	.504***	.568***	-.059	.433***

Note. *indicates $p \leq .05$; **indicates $p \leq .01$; ***indicates $p \leq .001$

Table 12 (cont.)

Item	Item 25	Item 26	Item 27	Item 28	Item 29	Item 30	Item 31	Item 32	Item 33	Item 34	Item 35	Item 36
Item 25	____											
Item 26	.573***	____										
Item 27	.511***	.518***	____									
Item 28	.570***	.546***	.553***	____								
Item 29	.553***	.521***	.515***	.663***	____							
Item 30	.675***	.600***	.526***	.620***	.584**	____						
Item 31	.518***	.536***	.460***	.556***	.525***	.521***	____					
Item 32	.717**	.643***	.561***	.598***	.572***	.799***	.604***	____				
Item 33	.277***	.264***	.177**	.138**	.156**	.273***	.246***	.239***	____			
Item 34	.368***	.318***	.345***	.352***	.362***	.359***	.369***	.401***	.354***	____		
Item 35	.086	.087	.074	.022	.010	.121*	.076	.104*	.461***	.268***	____	
Item 36	-.185***	-.059	-.074	-.241***	-.163**	-.091	-.136**	-.129**	.252	.017	.407***	____
Item 37	.506***	.438***	.584***	.584***	.466***	.463***	.517***	.537***	.026	.282***	.014	-.221***
Item 38	.632**	.504***	.451***	.569***	.522**	.555***	.479***	.591***	.185***	.420***	-.035	-.298***
Item 39	.755***	.581***	.589***	.627***	.586***	.686***	.559***	.739***	.245***	.425***	.127*	-.198***
Item 40	.582***	.496***	.430***	.533***	.517***	.503***	.497****	.551***	.179***	.399***	-.015	-.190***
Item 41	.447***	.442***	.350***	.366***	.461***	.449***	.353***	.482***	.078	.218***	-.015	-.073
Item 42	-.086	-.063	-.072	-.172**	-.096	-.053	-.068	-.061	.448***	.182***	.414***	.511***
Item 43	.546***	.466***	.530***	.452***	.480***	.490***	.522***	.591***	.239***	.389***	.123*	-.017
Item 44	.617***	.568***	.524***	.574***	.550***	.582***	.571***	.598***	.197***	.425***	.034	-.147**
Item 45	.579***	.611***	.492***	.552***	.534***	.554***	.700***	.607***	.255***	.337***	.094	-.133*

Note. *indicates $p \leq .05$; **indicates $p \leq .01$; ***indicates $p \leq .001$

Table 12 (cont.)

Item	Item 37	Item 38	Item 39	Item 40	Item 41	Item 42	Item 43	Item 44	Item 45
Item 38	.483***	____							
Item 39	.556***	.729***	____						
Item 40	.454***	.583***	.583***	____					
Item 41	.340***	.419***	.438***	.455***	____				
Item 42	-.146**	-.178	-.115*	-.138**	-.023	____			
Item 43	.514***	.481***	.604***	.540***	.413***	.015	____		
Item 44	.546***	.602***	.611***	.715***	.473***	-.062	.639***	____	
Item 45	.471***	.530***	.571***	.524***	.364***	-.085	.533***	.613***	____

Note. *indicates $p \leq .05$; **indicates $p \leq .01$; ***indicates $p \leq .001$

Table 13

Item-level Statistics and Item Retention Decisions

Item	Classification	*M*	*SD*	Skew	Kurtosis	Corrected Item-Total Correlation	Comm.	Factor 1 Loading	Factor 2 Loading	Decision	Rationale
1. I believe it is important to stay connected with what is sacred in my life.	Conservation; Cognitive	3.35	0.858	-1.504	1.811	0.213	.192	.214	-.001	Remove	Poor item-level performance and poorly loads on factor 1.
2. My spirituality helps me understand my purpose in life.	Discovery; Cognitive	3.26	0.831	-0.870	-0.076	0.765	.701	.784	.174	Keep	Strong item-level performance (substantial item-total correlation, communality, and moderate inter-item correlations) and strongly loads on factor 1.
3. I believe in a spiritual presence that provides a purpose for my life.	Discovery; Cognitive	3.23	2	-0.950	0.020	0.676	.682	.718	.001	Remove	Moderate inter-item correlations but removed due to wordiness and existing representation of strong discovery items. Removal maintains more equal content representation in final measure.
4. I engage in spiritual practices to stay close to what is sacred in my life.	Conservation; Behavioral	2.78	0.893	-0.119	-0.893	0.748	.721	.748	.285	Remove	Moderate inter-item correlations but removed due to wordiness and existing representation of strong conservation items. Removal maintains more equal content representation in final measure.
5. I believe life's ups and downs are all part of my spiritual journey.	Transformation; Cognitive	3.34	0.776	-1.088	0.815	0.623	.645	.63	.127	Remove	Skewness and low inter-item correlations relative to stronger items.
6. I rely on my spirituality to help me make major life decisions.	Conservation; Behavioral[Cg]	2.75	0.961	-0.216	-0.946	0.754	.716	.788	.135	Keep	Strong item-level performance (substantial item-total correlation, communality, and moderate inter-item correlations) and strongly loads on factor 1

Item	Classification	*M*	*SD*	Skew	Kurtosis	Corrected Item-Total Correlation	Comm.	Factor 1 Loading	Factor 2 Loading	Decision	Rationale
7. I believe personal struggles are an important part of my spiritual growth.	Transformation; Cognitive	3.36	0.710	-1.011	1.000	0.499	.571	.52	.001	Remove	Skewness, kurtosis, and low inter-item correlations relative to stronger items
8. I try to live in a way that aligns with my spiritual values.	Conservation; Behavioral	3.19	0.745	-0.473	-0.555	0.574	.527	.547	.326	Remove	Cross-loaded with no strong loading on eithe factor.
9. My bond with the sacred helps me understand difficulties in life.	Conservation[T]; Cognitive	2.86	0.937	-0.301	-0.902	0.805	.722	.811	.267	Keep	Strong item-level performance (substantial item-total correlation, communality, and moderate inter-item correlations) and strongly loads on factor 1
10. I feel spiritual strength when facing challenges in life.	Transformation[C]; Affective	2.74	0.907	-0.145	-0.840	0.756	.654	.753	.288	Keep	Strong item-level performance (substantial item-total correlation, and moderate inter-item correlations) and item performance is better than other transformation items.
11. My spirituality is a source of comfort for me.	Conservation[D]; Affective	3.09	0.933	-0.591	-0.791	0.771	.7	.773	.303	Keep	Moderate item-level performance with moderate inter-item correlations. Retained because it succintly taps into general aspect of spiritual connection and aligns with designed use in healthcare settings.
12. I feel a spiritual presence in my life on a regular basis.	Discovery; Affective	3.02	0.841	-0.703	0.073	0.777	.671	.764	.407	Remove	Cross-loaded with moderate loading on factor 2
13. I desire to be closer to the source of my spirituality.	Discovery; Affective	3.41	0.832	-1.280	0.789	0.634	.62	.665	.069	Remove	Skewness, kurtosis, and low inter-item correlations relative to stronger items

Item	Classification	*M*	*SD*	Skew	Kurtosis	Corrected Item-Total Correlation	Comm.	Factor 1 Loading	Factor 2 Loading	Decision	Rationale
14. I meditate to maintain my relationship with the sacred.	Conservation; Behavioral	2.07	0.953	0.487	-0.743	0.445	.39	.42	.235	Remove	Poor item-level performance (i.e., low inter-item correlations and low item-total correlation) and lacking substantial loading on either factor.
15. I rely on my spirituality to help me deal with stressful situations.	Conservation; Affective[B]	2.96	0.888	-0.533	-0.448	0.760	.685	.777	.224	Keep	Strong item-level performance (substantial item-total correlation, and moderate inter-item correlations) and strong loading on factor 1.
16. I believe events in my life happen according to a greater plan.	Discovery; Cognitive	2.97	1.051	-0.667	-0.791	0.562	.7	.617	-.098	Remove	Lower inter-item correlations relative to other discovery items.
17. My spirituality guides the direction of my life.	Discovery; Cognitive	3.05	0.832	-0.629	-0.114	0.756	.691	.792	.105	Remove	Strong item, but has strong content overlap with Items 30 and 32 and has slightly lower communalities, factor 1 loading, and item-total correlation.
18. My spirituality is often a source of frustration for me.	Transformation; Affective	3.13	0.783	-0.636	-0.003	0.271	.566	.168	.647	Remove	Factor 2 loading. Removed due to factor 2 tapping seeming to tap into more spiritual struggle construct.
19. I am unhappy with my spiritual journey thus far.	Transformation; Affective	3.20	0.782	-0.707	-0.039	0.342	.361	.278	.441	Remove	Lacks substantial loading on either factor and loads heavier on factor 2.
20. I feel unsure about my relationship with what is sacred in my life.	Transformation[D]; Affective	3.25	0.905	-0.997	0.040	0.579	.584	.511	.602	Remove	Cross loaded
21. I feel confident about my relationship with what is sacred in my life.	Conservation[D]; Affective	2.99	0.978	-0.570	-0.759	0.693	.668	.651	.525	Remove	Cross-loaded

Item	Classification	*M*	*SD*	Skew	Kurtosis	Corrected Item-Total Correlation	Comm.	Factor 1 Loading	Factor 2 Loading	Decision	Rationale
22. I feel emotionally close to what is sacred in my life.	Discovery; Affective	2.91	0.840	-0.324	-0.581	0.644	.623	.625	.397	Remove	Lower inter-item correlations relative to other discovery items and loads on both factors.
23. My spirituality often causes me to be hard on myself.	Transformation; Affective	2.90	0.973	-0.404	-0.911	-0.021	.359	-.122	.422	Remove	Factor 2 loading. Removed due to factor 2 tapping seeming to tap into more spiritual struggle construct.
24. I am kind to myself because of my spirituality.	Conservation; Affective	2.62	0.951	-0.145	-0.895	0.592	.48	.554	.37	Remove	Cross-loaded and lacks substantial loading on either factor.
25. My spirituality gives meaning to my life.	Discovery; Cognitive	3.11	0.925	-0.734	-0.419	0.782	.725	.809	.179	Remove	Repetitive of Item 39 and 39 has slightly more variability and higher item-total correlation and communality so item 25 was removed and item 39 was retained.
26. I use spiritual activities to deepen my bond with sacred aspects of my life.	Conservation; Behavioral	2.66	0.907	-0.119	-0.796	0.723	.659	.731	.233	Remove	Moderate inter-item correlations but removed due to stronger and more concise items retained for conservation content area. Removal maintains more equal content representation in final measure.
27. I believe it is important to pursue connection with what is sacred in my life.	Discovery; Behavrioal[Cg]	3.37	0.708	-1.135	1.538	0.666	.582	.68	.141	Remove	Skewness and low inter-item correlations relative to stronger items.
28. Practices (such as, prayer, meditation, or worship) are key to my spiritual growth.	Conservation; Behavioral	3.07	0.982	-0.884	-0.210	0.712	.718	.753	.065	Keep	Strong item-level performance (substantial item-total correlation) and strong loading on factor 1.

Item	Classification	*M*	*SD*	Skew	Kurtosis	Corrected Item-Total Correlation	Comm.	Factor 1 Loading	Factor 2 Loading	Decision	Rationale
29. Spiritual practices help me to be more aware of areas in my life that need improvement.	Conservation[T]; Behavioral	2.85	0.901	-0.328	-0.714	0.683	.588	.708	.1	Remove	Moderate inter-item correlations but removed due to stronger and more concise items retained for conservation content area. Removal maintains more equal content representation in final measure.
30. Spiritual beliefs guide the way I live my life.	Discovery[C]; Cognitive	2.99	0.934	-0.564	-0.618	0.776	.758	.795	.22	Keep	Strong item-level performance (substantial item-total correlation, communality, and moderate inter-item correlations) and strong loading on factor 1.
31. I experience inner peace when I engage in spiritual practices.	Conservation; Behavioral	2.92	0.846	-0.372	-0.541	0.715	.67	.719	.269	Keep	Moderate item-level performance with moderate inter-item correlations. Retained because it succintly taps into general aspect of spiritual connection and aligns with designed use in healthcare settings.
32. My spirituality is a guiding influence in my daily life.	Discovery; Affective[B; Cg]	2.89	0.973	-0.440	-0.843	0.821	.798	.841	.251	Keep	Strong item-level performance (substantial item-total correlation, communality, and moderate inter-item correlations) and strong loading on factor 1.
33. I struggle with my spirituality which leads me to question sacred aspects of my life.	Transformation; Cognitive	2.98	0.836	-0.664	0.062	0.420	.604	.314	.713	Remove	Factor 2 loading. Removed due to factor 2 tapping seeming to tap into more spiritual struggle construct.
34. My spirituality does not help me understand why bad things happen in life.	Transformation; Cogntive[A]	2.92	0.933	-0.525	-0.590	0.566	.491	.532	.32	Remove	Cross-loaded and lacks substantial loading on either factor.

Item	Classification	*M*	*SD*	Skew	Kurtosis	Corrected Item-Total Correlation	Comm.	Factor 1 Loading	Factor 2 Loading	Decision	Rationale
35. Understanding where my life fits into a greater plan is a source of stress for me.	Transformation; Cognitive	3.08	0.899	-0.798	-0.081	0.202	.41	.099	.581	Remove	Factor 2 loading. Removed due to factor 2 tapping seeming to tap into more spiritual struggle construct.
36. I feel guilty when I doubt my spiritual beliefs.	Transformation; Affective	3.00	1.023	-0.706	-0.657	-0.073	.51	-.187	.492	Remove	Factor 2 loading. Removed due to factor 2 tapping seeming to tap into more spiritual struggle construct.
37. It is important to me to find connection with the source(s) of my spirituality.	Discovery; Behavrioal [Cg]	3.15	0.773	-0.836	0.657	0.593	.608	.635	-.012	Remove	Less substantial item-total correlation & lower inter-item correlations relative to other discovery items. Removal maintains more equal content representation in final measure.
38. Knowing that my life is part of a larger spiritual plan makes me feel grateful.	Discovery; Affective	2.79	1.143	-0.400	-1.276	0.705	.732	.746	.022	Remove	Kurtosis; stronger more concise items for discovery content area.
39. My spirituality gives meaning in my daily life.	Discovery; Cognitive	2.92	1.037	-0.541	-0.916	0.812	.77	.836	.194	Keep	Strong item-level performance (substantial item-total correlation, communality, and moderate inter-item correlations) and strong loading on factor 1.
40. I grow spiritually when I go through hard emotional times.	Transformation; Cogntive[A]	2.80	0.902	-0.164	-0.894	0.695	.644	.715	.119	Keep	Item-level performance is moderate, but item was retained because it is one of the stronger transformation items based on item-level statistics

Item	Classification	*M*	*SD*	Skew	Kurtosis	Corrected Item-Total Correlation	Comm.	Factor 1 Loading	Factor 2 Loading	Decision	Rationale
41. When I doubt and/or question my spiritual beliefs, I experience spiritual growth.	Transformation; Cognitive	2.45	0.947	0.046	-0.903	0.506	.417	.523	.022	Remove	Lower inter-item correlations and only moderate loading on factor 1. Item is also wordy.
42. When I doubt my spiritual beliefs, I feel distant from the source(s) of my spirituality.	Transformation; Affective	2.94	0.888	-0.565	-0.358	0.037	.47	-.085	.585	Remove	Factor 2 loading. Removed due to factor 2 tapping seeming to tap into more spiritual struggle construct.
43. I gain my understanding of the world through my spiritual journey.	Discovery; Cognitive	3.04	0.815	-0.717	0.232	0.692	.597	.686	.264	Remove	Moderate inter-item correlations but removed as stronger items have been retained for discovery content area and removal maintains more equal content representation in final measure.
44. I have a deeper bond with the sacred because of the challenges I face in life.	Transformation; Affective	2.82	1.005	-0.372	-0.965	0.774	.714	.793	.164	Keep	Strong item-level performance (substantial item-total correlation, communality, and moderate inter-item correlations) and strong loading on factor 1.
45. I experience the sacred when I engage in spiritual practices.	Conservation; Cognitive	2.74	0.923	-0.224	-0.815	0.730	.66	.746	.218	Remove	Moderate inter-item correlations but removed as stronger items have been retained for discovery content area and removal maintains more equal content representation in final measure.

Note. Content areas with a superscript indicated items with overlapping content areas and may represent more than one spiritual process. Likewise, some items overlap functional domains and may represent more than one functional component.

Appendix J: Final Item Selections

ITEM 2: My spirituality helps me understand my purpose in life.
- Discovery/Cognitive
- Modified item from Spiritual Transcendence Index (Q7)

ITEM 6: I rely on my spirituality to help me make major life decisions.
- Conservation/Behavioral
- Modified item from Intrinsic Spirituality Scale (Q3)

ITEM 9: My bond with the sacred helps me understand difficulties in life.
- Conservation/Cognitive
- Modified from WHOQOL SRPB (Question F24.4)

ITEM 10: I feel spiritual strength when facing challenges in life.
- Transformation/Affective
- Modified from WHOQOL SRPB (Question SP5)

ITEM 11: My spirituality is a source of comfort for me.
- Conservation/Affective
- Rationale: Content and purpose of measure
- Modified from WHOQOL SRPB (Question SP8.2)

ITEM 15: I rely on my spirituality to help me deal with stressful situations.
- Conservation/Affective
- Modified from MMRS R/S Coping (Q23)

ITEM 28: Practices (such as prayer, meditation, or worship) are key to my spiritual growth.
- Conservation/Behavioral
- Developed by scale developer

ITEM 30: Spiritual beliefs guide the way I live my life.
- Discovery/Cognitive
- Developed by scale developer

ITEM 31: I experience inner peace when I engage in spiritual practices.
- Conservation/Behavioral
- Rationale: Content and purpose measure
- Developed by scale developer

ITEM 32: My spirituality is a guiding influence in my daily life.
- Discovery/Affective
- Developed by scale developer

ITEM 39: My spirituality gives meaning in my daily life.

- Discovery/Cognitive
- Developed by scale developer

ITEM 40: I grow spirituality when I go through hard emotional times.

- Transformation/Cognitive
- Developed by scale developer

ITEM 44: I have a deeper bond with the sacred because of the challenges I face in life.

- Transformation/Affective
- Developed by scale developer

Appendix K: Final ISCS Measure

Inclusive Spiritual Connection Scale (ISCS)

Item 1 provides a demographic reference for the respondent's identification as theistic or non-theistic. Items 2-14 are scored on a 4-point Likert-type response scale. Scores may range from 0 to 39. Higher scores indicate higher levels of spiritual connection.

1. Using the list below, please tell how you would describe yourself in terms of spirituality. That is, which of the following **best** describes you in terms of spirituality? (Select one.)
   - ☐ I do not seek spiritual connection
   - ☐ I seek spiritual connection from nature
   - ☐ I seek spiritual connection from Mother Earth
   - ☐ I seek spiritual connection from multiple gods
   - ☐ I seek spiritual connection from a general supreme being
   - ☐ I seek spiritual connection from God
   - ☐ I seek spiritual connection from Allah
   - ☐ I seek spiritual connection from Buddha
   - ☐ I seek spiritual connection from the universe
   - ☐ I seek spiritual connection from having an awareness of meaning/purpose in life
   - ☐ I seek spiritual connection from humanity
   - ☐ I seek spiritual connection from something other than what is listed above (please specify: _____)

Instructions for questions 2-14: This survey is supposed to tell how spiritual you are. For this survey, spirituality is defined as how much you search for, and whether you connect with, something you think is sacred. Sacred means things in your life that you think are greater than you are. So, sacred can mean different things to different people. Something sacred could include, but is not limited to, any of the following: nature, God, gods, a Higher Power, humanity, arts, being a parent or partner or friend, having such virtues as hope or love, etc. The words 'sacred' and 'spiritual presence' mean wherever your spirituality comes from based on your own beliefs. This may or may not be tied to a religion or whether you believe in a god or gods. The phrase "spiritual practices" means things you do to connect with those things you think are sacred. This may include, but is not limited to, any of the following: meditation, prayer, worship, or other things that help you connect with whatever you think is sacred. Please read each item carefully and answer what you are usually like spiritually.

2. My spirituality helps me understand my purpose in life.
   - ☐ Not at all
   - ☐ Very little
   - ☐ Quite a bit
   - ☐ A great deal

3. I rely on my spirituality to help me make major life decisions.
    - Never
    - Sometimes
    - Often
    - Always

4. My bond with the sacred helps me understand difficulties in life.
    - Never
    - Sometimes
    - Often
    - Always

5. I feel spiritual strength when facing challenges in life.
    - Never
    - Sometimes
    - Often
    - Always

6. My spirituality is a source of comfort for me.
    - Never
    - Sometimes
    - Often
    - Always

7. I rely on my spirituality to help me deal with stressful situations.
    - Not at all
    - Very little
    - Quite a bit
    - A great deal

8. Practices (such as, prayer, meditation, or worship) are key to my spiritual growth.
    - Strongly disagree
    - Disagree
    - Agree
    - Strongly agree

9. Spiritual beliefs guide the way I live my life.
    - Not true of me
    - Slightly true of me
    - Fairly true of me
    - Very true of me

10. I experience inner peace when I engage in spiritual practices.
    - I never do
    - I sometimes do
    - I often do
    - I always do

11. My spirituality is a guiding influence in my daily life.
    - Not true of me
    - Slightly true of me
    - Fairly true of me
    - Very true of me

12. My spirituality gives meaning in my daily life.
    - Not true of me
    - Slightly true of me
    - Fairly true of me
    - Very true of me

13. I grow spiritually when I go through hard emotional times.
    - I never do
    - I sometimes do
    - I often do
    - I always do

14. I have a deeper bond with the sacred because of the challenges I face in life.
    - Not true of me
    - Slightly true of me
    - Fairly true of me
    - Very true of me

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	Stubbs, B., **Hoots, V.**, Clements, A.D., & Bailey, B.A. (2019). Psychosocial well-being and efforts to quit smoking in pregnant women of South-Central Appalachia. *Addictive Behaviors Reports, 9,* 1-5. https://doi.org/10.1016/j.abrep.2019.100174
	Hoots, V. (2017). Conceptualization and measurement of spirituality: Towards the development of a nontheistic spirituality

measure for use in health-related fields. *Electronic Theses and Dissertations.* Paper 3345. https://dc.etsu.edu/etd/3345

Select Presentations:

Hoots, V., Barnet, J., Morelen, D., Haas, B., Clements, A.D. (2019 March). Self-assessed change attributed to Trauma-Informed Care (TIC) training. Poster presented at the 39th Annual Meeting and Scientific Sessions of the Society of Behavioral Medicine, Washington, DC.

Hoots, V., Stephens, R., Clements, A.D., & Bailey, B.A. (2019 March). Perinatal risk factors of postpartum depression in adolescent mothers of South-Central Appalachia. Poster presented at the 39th Annual Meeting and Scientific Sessions of the Society of Behavioral Medicine, Washington, DC.

Hoots, V. (2018 March). Development of a nontheistic-based spirituality measure for health-related fields. Poster presented at the annual Southeastern Psychological Association, Charleston, SC.

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Hoots, V. M. (March 2017) Spirituality, religiosity, and self-compassion. Poster session presented at the annual meeting of the Southeastern Psychological Association, Atlanta, GA.

Hoots, V. M. (March 2015) Conceptualization and measurement of spirituality. Oral presentation at the annual meeting of the Southeastern Psychological Association, Hilton Head, SC

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