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### Recommended Citation

Cragun, Ryan T., Joseph H. Hammer, Michael Nielsen. 2015. "The Nonreligious – Nonspiritual Scale (NRNSS): Measuring Everything from Atheists to Zionists." *Secularism and Nonreligion*, 2 (3): 36-53. doi: <https://doi.org/10.17582/journal.src/2015/2.3.36.53> source: <http://researcherslinks.com/current-issues/The-NonReligious-NonSpiritual-Scale-NRNSS-Measuring-Everyone-from-Atheists-to-Zionists/9/16/119/html>  
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## Article



## Special Issue: Atheism, Secularity, and Science

# The NonReligious-NonSpiritual Scale (NRNSS): Measuring Everyone from Atheists to Zionists

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**Abstract** | Although hundreds of measures of personal religiousness and spirituality exist, none are capable of reliably and validly assessing individuals who identify as nonreligious and nonspiritual. There is a need to develop a valid and reliable measure of (non)religiousness and (non)spirituality. This article discusses these problems, and presents the development and initial validation of a 17-item Nonreligious-Nonspiritual Scale (NRNSS) across three studies. The NRNSS exhibited high internal consistency ( $\alpha > .94$ ) and high test-retest reliability ( $r = .92$ ). Two exploratory and one confirmatory factor analysis of the NRNSS supported the hypothesized two-factor solution: (a) institutional religiousness and (b) individualistic spirituality. The NRNSS also demonstrated convergent validity through theoretically-expected correlations with established measures of religiousness and spirituality (the Cross-Cultural Dimensions of Religiosity, Humanistic Morality, and Traditional Religious Morality scales). In summary, the NRNSS may work as an initial attempt to address the limitations of other scales for capturing how religious/nonreligious/nonspiritual individuals are.

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Citation | Cragun, R.T., J. H. Hammer and M. Nielsen. 2015. The nonreligious-nonspiritual scale (NRNSS): Measuring everyone from atheists to zionists. *Science, Religion and Culture*, 2(3): 36-53.

DOI | <http://dx.doi.org/10.17582/journal.src/2015/2.3.36.53>

Guest Editors | John R. Shook PhD, Ralph W. Hood Jr. PhD, and Thomas J. Coleman III

Karel Dobbelaere (2002) proposed that there are three levels at which secularization takes place: (a) at the macro or societal level, (b) at the meso or organizational/institutional level, and (c) at the micro or individual level. While Dobbelaere provided compelling evidence to support his claim that secularization can occur at all three levels, he noted that there were not, at that time, clear ways to measure secularization at any of these three levels. Surrogate measures have been employed by various scholars, but still no widely accepted measures exist at any of the three levels. In this paper we focused on the micro level, discussing existing measures that attempt to measure individual-level religiosity and/or spirituality. Finding existing measures lacking, we developed and validated a measure of personal religiousness and spirituality

that was designed to accurately capture the extent of one's religiosity (or lack thereof; i.e., nonreligiosity) and spirituality (or lack thereof; i.e., nonspirituality). In line with trends in the social science of religion, we define *spirituality* as "personal or group search for the sacred" and *religiousness* as "personal or group search for the sacred that unfolds within a traditional sacred context" (Zinnbauer and Pargament, 2000; p. 35). For our purposes and the development of our scale, the sacred refers to supernatural (i.e., beyond the natural world) concepts like "God, higher powers, transcendent beings, or other aspects of life that have been sanctified" (p. 35). According to this framework, spirituality is the broader term, and encompasses the search for the sacred both within and outside of traditional institutional religion (though see Zinnbauer

and Pargament, 2000, for an alternative framework). Importantly, this distinction between religiousness and spirituality honors the existence of those who identify as “spiritual but not religious” (Zinnbauer et al., 1997), though not everyone will agree with our definition (see the limitations section). Similar to, though not perfectly aligned with the recent recommendations of Lee (2012), we refer to the *absence* of personal religiousness and spirituality as “nonreligiousness” and “nonspirituality” and understand that to mean that which is different from, or the opposite of, that which is religious or spiritual. Thus, those who are more nonspiritual are less likely to personally value or engage in the search for the sacred, and those who are more nonreligious are less likely to personally value or engage in the search for the sacred within a traditional sacred context or organized faith tradition. In summary, according to this framework, individuals can self-identify as religious and spiritual (RS), nonreligious and spiritual (NRS), or nonreligious and nonspiritual (NRNS).

### Rationale for a New Measure of Personal Religiousness and Spirituality

There are hundreds of measures of religion and/or spirituality (R/S; Hill and Hood, 1999). However, these measures are problematic. Hill and Hood’s collection of 126 measures of R/S can be used to illustrate some of these problems. First, 87 of the 126 measures include one-and-a-half barreled items (explained below) that compromise the validity of the measures when administered to NRNS individuals. An item from the “Brief Multidimensional Measure of Religiousness/Spirituality” (Fetzer Institute/National Institute of Aging Working Group, 1999) illustrates the problem: “I believe in a God who watches over me.” Possible responses range from 1 (*strongly agree*) to 4 (*strongly disagree*). How might a self-identified atheist answer this question? Consider the possibilities. If the atheist chooses “strongly agree,” that would suggest he or she believes in a god who watches over him or her, which is an unlikely choice for an atheist. If the atheist respondent chooses “strongly disagree,” this response could indicate that he or she either (a) believes in a non-watchful god, which is also an unlikely choice, or (b) does not believe in any god whatsoever. Given the question wording, the atheist respondent, regardless of his or her true answer, is forced to *implicitly recognize* the existence of a god, but gets to choose between a watchful or non-watchful god. If a research

team looked at that respondent’s “strongly disagree” response and went on to conclude that this person must therefore believe in a non-watchful god, they would be making an unwarranted and potentially invalid conclusion. Such items are known as one-and-a-half barreled questions: the items ask respondents to accept an assumption which they may not hold (Sudman and Bradburn, 1982). Survey methodologists consider such questions problematic and to be avoided (Fowler, 1995), as they risk engendering (a) respondent frustration and attrition, (a) random and thus unreliable responding, and (c) invalid measurement of the construct, when used with populations who don’t subscribe to the corresponding assumption.

Therefore, it is the responsibility of researchers to either use a measure of R/S that does not rely on one-and-a-half barreled questions or carefully screen out individuals who do not subscribe to the assumptions built into the questions. Unfortunately, researchers routinely administer such measures to samples which include NRNS individuals, operating under the assumption that they are validly measuring the R/S of everyone in their sample. Furthermore, researchers and lay readers routinely assume that low scores on such measures accurately indicate a NRNS orientation (Hall, Koenig, and Meador, 2008). Thus, the “Brief Multidimensional Measure of Religiousness/Spirituality,” like 86 of the measures in Hill and Hood (1999), facilitates implicit comparison of RS individuals to NRNS individuals, but asks questions that cannot reliably or validly assess the perspective of NRNS respondents. Additional examples abound. For example, the self-report measure of religiousness used by Cohen, Shariff, and Hill (2008) includes items like “My personal religious beliefs are very important to me,” measured from a 1 (*strongly disagree*) to 5 (*strongly agree*). Again, this item assumes that respondents hold *religious* beliefs and that these beliefs are either very important, somewhat important, or not that important to respondents. For example, Bob (NRNS), Danica (NRS), and Jill (RS) could all choose “strongly disagree” for this item, but mean different things by this same response. While it would be valid to conclude that Jill’s response indicates that she holds religious beliefs but acknowledges that they play a small role in her life, it would be inaccurate to conclude that Bob or Danica hold *religious* beliefs that play a small role in their lives. Rather, Bob may hold secular humanist beliefs and Danica may hold spiritual beliefs that fall outside of an organized faith tradition.

In summary, of the 126 measures in Hill and Hood (1999), 87 are unable to validly assess the views of NRNS individuals, such as atheists or agnostics. What about the remaining 39? Twenty of the measures are Christian-centric—meaning they are only suitable for administration to Christians (e.g., the items assume the respondent subscribes to certain Christian beliefs and practices), one is occult-centric, and several measure constructs related to R/S rather than R/S itself (e.g., The Right-Wing Authoritarianism Scale, Altemeyer, 1996; Death Acceptance Scale, Ray and Naiman, 1974). In short, there is not a single measure reported in Hill and Hood that can validly assess how religious (vs. nonreligious) and spiritual (vs. nonspiritual) individuals consider themselves, regardless of whether they self-identify as religious, spiritual, or neither. This is a major oversight considering the growing percentage of the world population that is NRS and NRNS.

In the U.S. in 2008, 15% of adults—34 million people—self-identified as having no religious affiliation, 2.7% reported not believing in a god or higher power, and 4.5% reported there is no way to know whether a god exists or not (Cragun, Kosmin, Keysar and Hammer, 2012). As of 2012, 20% of adults identify as having no religious affiliation (Pew, 2012). Young people in the U.S. were particularly likely to have no religious affiliation, with one third falling into the “no religion” category (Pew, 2012); this percentage is continuing to rise (Kosmin et al., 2009). The above, of course, is just the U.S., which is relatively religious compared to many other developed countries where large numbers of people are nonreligious (Zuckerman, 2006) and the trend in that direction will likely continue (Bruce, 2002; Cragun and Lawson, 2010). It is understandable that many measures of R/S have been created to facilitate valid assessment of the large population of individuals who specifically identify as RS. However, because nearly one sixth of the world’s population does not identify as being affiliated with a religion, there is a clear need for a new measure which can validly assess the R/S of individuals across the entire (non)belief spectrum.

The key advantage of such a scale is that it could facilitate cross-worldview comparisons (e.g., atheists, the spiritual but not religious, Christians, Muslims). A major drawback might be that it has a difficult time differentiating among people at either end of the scale. For instance, people who score high in R/S

could be Catholic Cardinals or Buddhist monks and such a scale would not be able to distinguish between the two. Likewise, people who score low in R/S could be atheists, secular humanists, or wavering believers. However, such a measure would be able to distinguish between an atheist (e.g., Richard Dawkins), a person who identifies as spiritual but not religious (e.g., Jefferson Bethke), and a devout Catholic (e.g., Pope Francis) as they would each fall in different locations on a continuum ranging from RS to NRNS. Given that social scientists of (non)religion have shown increasing interest in the study of NRNS individuals and how they compare and contrast to RS individuals (Baker and Smith, 2009), there is a crucial need to develop a valid and reliable measure of R/S that can be appropriately administered to NRNS as well as NRS and RS individuals.

Below we describe the development of the Nonreligious-Nonspiritual Scale (NRNSS), which is our attempt to develop such a scale. We describe three studies conducted to validate the measure (this particular name was chosen to highlight the scale’s unique attention to facilitating valid assessment of NRNS individuals). We conclude with a discussion of the strengths and weaknesses of the scale and recommendations for future research in this area.

## Construction of the NRNSS

The NRNSS is informed by two themes. One is the suggestion that religiosity or spirituality may be better understood as functioning through psychological universals, characteristics shared by all people, but which manifest themselves in different ways across cultures and individuals (Reich, 2008). The notion here is that, by using interdisciplinary work to examine psychological universals, researchers can better understand the consistency and similarity of religious phenomena across cultural variations. In this vein is work such as that of Saroglou (2011), who considers religion as a unified but multi-dimensional construct involving “believing, bonding, behaving, and belonging.” These four dimensions, Saroglou argues, satisfy the need to make psychologically informed distinctions across cultures. In this formula, the dimensions may vary from culture to culture, and nonreligious people would score low on all four dimensions.

A second theme informing the NRNSS is the multidimensional nature of religiousness and spirituality.

Since [Glock and Stark's](#) pioneering work (1966), social scientists have recognized that religiousness and spirituality are multi-dimensional, with measures offering from 3 to 15 dimensions ([Hill and Hood, 1999](#)). [DeJong et al. \(1976\)](#) proposed a measure that captures six dimensions, including belief, experience, knowledge, morality, practice, and social consequences. Focusing on spirituality, [Wulff \(1997\)](#) divides the construct into seven categories. More recent classification schemes for religiousness and spirituality are found in [Hall, Meador and Koenig \(2008\)](#) and [Hill \(2000\)](#). Empirical studies of spirituality have also demonstrated multiple dimensions. For example, [Piedmont's](#) Spiritual Transcendence Scale (1999) has three components: universality, prayer fulfillment, and connectedness, and has been applied to Hindus, Christians and Muslims in India ([Piedmont and Leach, 2002](#)) and Christians in the Philippines (2007).

Building on these themes of universality and multi-dimensionality, the first and second author examined existing scales of religiosity and spirituality – primarily those found in [Hill and Hood \(1999\)](#) – in order to locate items that might apply to non-religious and non-spiritual individuals. They also generated original items based on the various dimensions of multi-dimensional scales, working independently to develop items that assessed dimensions from approximately 15 existing scale measures. One exception to this process involved dimensions that assessed knowledge, which is present in some multidimensional views of religiousness or spirituality. NRNS individuals may or may not have some types of knowledge in common, like scientific knowledge, but these forms of knowledge are also known to many RS individuals. There is no special, esoteric, or unifying knowledge which NRNS individuals are regarded to possess. Given the potential diversity of backgrounds from which NRNS individuals hail, asking for naturalistic explanations for religious or spiritual phenomena would subject the NRNSS to the same criticism we have leveled against many R/S measures – being tradition-specific. Thus, we opted to not generate any questions about knowledge.

Because an increasing percentage of the population self-identify as NRS ([Zinnbauer et al., 1997](#)), we thought it important to generate items focused on institutionally-independent spirituality. Additionally, many Eastern religions do not include formal religious services and have cosmologies that more closely align with the increasingly popular “spirituality”

of the West ([Bruce, 2002](#)). Thus, assessing both the institutional religion domain and the spirituality domain was indicated. However, in deciding to assess the domain of spirituality, we inherited the difficulties associated with assessing spirituality. Specifically, research has found that respondents define spirituality in significantly diverging ways. For some, spirituality is “the presence of a relationship with a Higher Power” ([Armstrong, 1995](#), p. 3) but for others it is merely a synonym for “‘fulfilling’, ‘moving’, ‘important’, or ‘worthwhile’” ([Hill et al., 2000](#), p. 64). The fluidity of this term introduces error variance through variable responding across individuals who differentially interpret this same term, hampering a scale’s ability to reliably stratify individuals on a continuum of spirituality. This poses particular problems for accurately differentiating NRS individuals from NRNS individuals. To address this issue, we purposely defined the term “spirituality” in the Scale’s instructions:

Some people use the terms “spirituality” and “spiritual” in a broad, NON-supernatural sense. They see those terms as just having to do with: a special or intense experience, an appreciation for existence, meaning in life, peacefulness, harmony, the quest for well-being, or emotional connection with people, humanity, nature, or the universe. In this way, an atheist could technically describe her or himself as being “spiritual” or as having had a “spiritual experience.” In contrast to that broad approach, when you answer the items in THIS questionnaire we’d like you to think about “spirituality” and “spiritual” in the specific, SUPERNATURAL sense. And by “SUPERNATURAL” we mean: having to do with things which are beyond or transcend the material universe. God, gods, higher forces, sacred realms, miracles, and telepathy are all supernatural by this specific definition.

In short, we asked respondents to think about “spirituality” in the specifically supernatural sense (though see the limitations section below). Standardization of the term “spirituality” makes it possible to achieve a distribution wherein NRS individuals will more reliably score higher on spirituality than NRNS individuals. We did not, initially, do the same for religiousness (though see the limitations section below).

Importantly, items were generated to accurately capture both the presence *and* absence of R/S, and one-

and-a-half barreled questions were avoided. Between the two authors, a total of 153 items assessing the domains of R/S were generated. Through lengthy discussion, the team discarded or revised redundant or unclear items, narrowing the list to 30 items. These 30 items were independently examined by 8 national experts in the social science of (non)religion (3 psychologists, 3 sociologists, 1 anthropologist, and 1 public health researcher), who judged each item on its face validity, content validity, clarity, concision, grammar, and redundancy. Additionally, the items were piloted with 15 of the authors' acquaintances and colleagues. Upon receiving feedback from these sources, an additional 12 questions were removed, leaving 18 questions. This initial 18-item version of the NRNSS was administered to participants in Study 1. Responses to each item are scored on a five point Likert scale: 1 (*strongly agree*), 2 (*agree*), 3 (*neutral*), 4 (*disagree*), and 5 (*strongly disagree*). Two of the questions are reverse coded (indicated in [Table 1](#)). Scores for each item are added together then divided by the total number of questions, resulting in a minimum total scale score of 1 and maximum of 5. In keeping with the theme of the scale, lower scores on the NRNSS indicate stronger religiousness and spirituality while higher scores on the NRNSS indicate stronger *nonreligiousness* and *nonspirituality*.

The reliability and validity of the NRNSS was tested across three separate studies. Study 1 examined the internal consistency reliability, content validity, known-group validity, and convergent validity of the NRNSS. Study 2 examined the internal consistency reliability, content validity, comprehensibility, and convergent validity of the NRNSS. Study 3 utilized Confirmatory Factor Analysis to further verify the factorial structure of the NRNSS which arose in Study 1 and again in Study 2.

## Study 1

The primary goal of Study 1 was to demonstrate the reliability of the NRNSS, and to develop the case for the scale's validity. [Carmines and Zeller \(1979\)](#) noted that validity tests are not for "[validating] the measuring instrument itself but the measuring instrument in relation to the purpose for which it is being used" (p. 17). Likewise, [Shadish, Cook, and Campbell \(2002\)](#) noted that validity suggests the "approximate truth of an inference" (p. 34). Our goal, then, in Study 1 was to validate our instrument relative to our purpose, which is to capture how religious (vs. nonreligious)

and spiritual (vs. nonspiritual) someone is.

## Method

The initial 18-item version of the NRNSS was first fielded in a survey designed to study the effect of building an on-campus chapel on the student body of a private, non-sectarian Southern U.S. university, The University of Tampa ([Cragun, et al., 2014](#)), in 2009. After IRB approval, a complete list of the students with their emails was obtained from the registrar. Students were randomly assigned a wave number (1, 2, 3, or 4)—the number indicated the order in which they would be invited to participate in the survey about the new chapel. The target sample size was 400 respondents. Email invitations were sent to all of the students in a wave, followed by one reminder email about one week later. If the target sample size was not reached from the first wave, the second wave would be invited to participate, and so on until the target sample size was reached. To motivate students to participate in the online survey, they were told they would be entered into a drawing for a \$50 gift card to a local restaurant.

Approximately 75% of the students (waves 1-3) were emailed: 3,357 students over a seven week period in Spring 2009. Of those, 89 emails bounced back as undeliverable, reducing the number emailed to 3,268. A total of 474 students completed the survey, but one respondent omitted too many responses and was dropped, resulting in 473 responses. Thus, the response rate for Study 1 is 14.5%.

Participants ( $N = 473$ ) had an average age of 21.3 years ( $SD = 2.89$ ), and consisted of 345 (74.7%) white, 26 (5.6%) Black, 11 (2.3%) Asian, 40 (8.7%) Latino, and 40 (8.6%) other-identified participants; 11 participants (2.3%) did not indicate their race/ethnicity. Most of the participants ( $N = 332$ , or 70.6%) identified as female. The sample included 120 (25.4%) Protestants, 150 (31.7%) Catholics, 21 (4.4%) Jews, 144 (30.4%) "nones" (i.e., no affiliation), 25 (5.3%) who identified with another religion and 13 (2.7%) individuals who indicated "don't know." The four grades were almost equally represented; 104 (22.0%) freshmen, 112 (23.7%) sophomores, 135 (28.5%) juniors, and 108 (22.8%) seniors; 14 (3%) did not provide their class standing.

The sample demographics closely matched those of the student population. About 70% of the student body was female; 75% were non-Hispanic whites.

Most of the students were from the U.S., with almost 1/3 from Florida; 10% were international students. In comparison to the larger U.S. population, there was an over-representation of Catholics, Jews, and Nones at The University of Tampa and an under-representation of Protestants. This is likely due to the majority of students hailing from urban Florida and New England, which have large percentages of Catholics, Jews, and Nones (Kosmin and Keysar, 2006). Despite being located in the South, the number of Protestants was below what would be expected if The University of Tampa students were representative of the U.S. adult population generally.

In addition to the 18-item version of the NRNSS, other measures embedded in the survey on which Study 1 was based included questions about religious affiliation, religious service attendance, religious beliefs, religious behavior, and affective warmth (versus prejudice) towards various majority and minority groups.

## Results and Discussion

### Reliability

NRNSS item and scale descriptive statistics are shown in Table 1. Initial tests of internal consistency reliability showed that one item substantially reduced the internal consistency of the scale (and loaded poorly on its intended factor; see below). This item was eliminated. The resulting 17 item scale demonstrated strong internal consistency ( $\alpha = .95$ ). The final 17 items are listed along with descriptive statistics in Table 1 (a version of the scale suitable for distribution and scoring may be obtained from <http://www.atheistresearch.org>).

### Content validity

Content validity refers to the extent to which a measure encompasses the domain of interest. In this case, the domains of interest are (the absence of) religiousness and spirituality. Thus, in order to illustrate that our scale is content valid, we sought to show that the items which compose the scale adequately encompass the domains of religiousness and spirituality. There are two ways by which we illustrated this in Study 1. First, we describe how the dimensions of R/S measured in established scales of R/S have parallels in the NRNSS. Secondly, we conducted an Exploratory Factor Analysis (EFA) to determine whether items designed to assess the religious dimension and spiritual dimension appropriately loaded on their respective factors.

### Dimensions of R/S in the NRNSS

As described above, items were generated to assess multiple dimensions of religiousness, with a specific focus on the five dimensions (e.g., belief, experience, morality, practice, and social consequences) of religiousness delineated by DeJong and colleagues (1976) and one additional dimension, self-identification or R/S identity. The 17-item NRNSS includes items that address all six dimensions, with some items addressing multiple dimensions: Items 4 and 15 tap into the “practice” dimension. Item 2 is about morality, though items 1, 10, and 13 could also be seen as relating to R/S morality. Many of the items tap into a “social consequences” dimension of R/S, which we understand as reflecting how individuals’ lives are influenced by their R/S; items 1, 3, 5, 7, 8, 9, 13, and 17 all reflect this dimension of R/S. Six of the questions tap into a “belief” dimension, including items 5, 10, 11, 12, 14, and 16, three of which are explicitly about someone’s beliefs (11, 12, and 14). Several items also tap into the “experience” dimension as they ask about having religious or spiritual experiences (7, 9, 13, 16, and 17). Additionally, items 6 and 7 can be seen as tapping an “identity” dimension of R/S.

### EFA

Despite the breadth of dimensions tapped by the items included in the NRNSS, our primary focus was to ensure that we captured two broad but overlapping domains: institutional religiousness and individualistic spirituality. To do so, we intended the first 8 items to address institutional religion and the last 9 items to measure individualistic spirituality. We anticipated that while the religiousness items and spirituality items would load on two separate factors (and thus could be treated as subscales), the strong conceptual overlap between religiousness and spirituality would engender a strong correlation between the two factors, suggesting the presence of a second (higher) order factor representing the total NRNSS score.

Best practices in scale development suggest conducting an EFA followed by a CFA (Worthington and Whittaker, 2006). Thus, we allowed the factor analysis to determine the number of factors rather than specifying the factor structure (Tinsley and Tinsley, 1987). Additionally, because it is widely recognized that religiousness and spirituality are strongly associated, this indicated an oblique solution, rather than an orthogonal solution (Kline, 1994). Thus, we used Principal Axis Factoring with Direct Oblimin rotation (in SPSS 16). The extracted communalities and

**Table 1: NonReligious-NonSpiritual Scale Items and Statistics**

		Study 1 (n=383)^		Study 2: T1 (n=104)^		Study 2: T2 (n=84)^	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
<b>Institutional Religion Items</b>							
1	I'm guided by religion when making important decisions in my life.	3.51	1.39	3.51	1.27	3.40	1.33
2	Religion is my most powerful guide of what is right and wrong.	3.35	1.48	3.65	1.22	3.50	1.34
3	When faced with challenges in my life, I look to religion for support.	3.38	1.46	3.37	1.49	3.23	1.40
4	I never engage in religious practices.*	2.65	1.44	2.62	1.26	2.65	1.37
5	Religion helps me answer many of the questions I have about the meaning of life.	3.50	1.37	3.47	1.29	3.24	1.38
6	I would describe myself as a religious person.	3.58	1.31	3.39	1.24	3.38	1.29
7	Religion is not necessary for my personal happiness.*	3.10	1.51	3.31	1.32	3.21	1.29
8	I would be bothered if my child wanted to marry someone who is NOT religious.	4.07	1.26	4.16	1.10	3.75	1.33
Religion Subscale Score		3.35	1.18	3.34	1.12	3.31	1.08
<b>Spirituality Items</b>							
9	Spirituality is important to me.	2.66	1.24	2.46	1.23	2.56	1.13
10	The rightness or wrongness of my actions will affect what happens to me when my body is physically dead.	3.02	1.34	2.96	1.15	2.77	1.24
11	I have a spirit/essence beyond my physical body.	2.56	1.26	2.54	1.24	2.51	1.15
12	The universe has a supernatural origin.	2.98	1.27	2.93	1.23	2.79	1.29
13	All other things being equal, a spiritual person is better off.	3.29	1.22	2.92	1.16	2.94	1.22
14	The supernatural exists.	2.63	1.22	2.50	1.10	2.73	1.18
15	I engage in spiritual activities.	3.26	1.25	3.07	1.25	3.00	1.18
16	I feel a sense of connection to something beyond what we can observe, measure, or test scientifically.	2.87	1.33	2.49	1.13	2.55	1.26
17	I cannot find worthwhile meaning in life without spirituality.	3.43	1.28	3.19	1.24	3.35	1.19
Spirituality Subscale Score		2.96	1.01	2.83	0.96	2.87	1.01
<b>Total Scale Score</b>		<b>3.15</b>	<b>0.95</b>	<b>3.09</b>	<b>0.88</b>	<b>3.03</b>	<b>0.96</b>

\* Reverse coded items; ^Sample sizes are for scales using listwise deletion; participants were not required to answer the scale questions.

**Table 2: Descriptive Statistics for Scale Measures**

Scale	N	Mean	Std. Dev.	Min.	Max.	Cron. Alpha
NRNSS*-Study 1	441	3.15	0.95	1.00	5.00	0.95
NRNSS*-Study 2:T1	104	3.09	0.88	1.29	5.00	0.94
NRNSS*-Study 2:T2	84	3.03	0.96	1.00	5.00	0.95
NRNSS*-Study 3	273	3.11	0.91	1.00	5.00	0.95
Belief in Afterlife	82	3.36	0.71	1.40	4.60	0.84
Religious Doubts	91	2.94	1.21	1.00	5.00	0.94
Rejection of Christianity	75	2.75	1.00	1.00	5.00	0.96
Liberal Christian Belief	75	3.64	0.53	2.00	5.00	0.35
Humanistic Morality	101	4.13	0.75	1.88	5.00	0.82
CCDR^ - Belief	86	29.40	10.15	9.00	46.00	0.92
CCDR^ - Experience	112	12.00	4.73	4.00	20.00	0.90
CCDR^ - Knowledge	63	7.05	1.97	1.00	10.00	0.54
CCDR^ - Morality	124	19.12	4.17	9.00	29.00	0.60
CCDR^ - Practice	103	9.31	4.50	5.00	23.00	0.78
CCDR^ - Social Conseq.	108	19.06	3.53	9.00	25.00	0.81

\* NRNSS = NonReligious-NonSpiritual Scale; ^ CCDR =Cross-Cultural Dimensions of Religiosity Scale



pattern and structure matrices are shown in Table 3. The communalities ranged from 0.29 for item 8 to .89 for item 1. They tended to be stronger for the religiousness items than for the spirituality items, but were adequate, especially in light of the factor loadings which were all above 0.40.

The factor correlation ( $r = .64$ ; shown in Table 3) justified the decision to use an oblique rotation solution

rather than an orthogonal solution. Given the oblique rotation, both a pattern and structure matrix are provided. The cells in the structure matrix present the correlation between a given variable (row) and the factor (column), but those loadings include the indirect influence of the other factor. The pattern matrix removes the influence of the other factor and presents just the influence of the factor of interest. Thus, item 1 correlated .93 with Factor 1 and .58 with Factor 2 in the

**Table 3: Factor Analysis† of NonReligious-NonSpiritual Scale: Study 1 (n=383)**

		Communalities	Pattern Matrix		Structure Matrix	
			Factor 1	Factor 2	Factor 1	Factor 2
Institutional Religiousness Items						
1	I'm guided by religion when making important decisions in my life.	0.87	0.96	-0.04	0.93	0.58
2	Religion is my most powerful guide of what is right and wrong.	0.79	0.92	-0.04	0.89	0.55
3	When faced with challenges in my life, I look to religion for support.	0.86	0.89	0.034	0.92	0.61
4	I never engage in religious practices.*	0.45	0.64	0.032	0.66	0.44
5	Religion helps me answer many of the questions I have about the meaning of life.	0.82	0.83	0.11	0.90	0.65
6	I would describe myself as a religious person.	0.78	0.88	0.01	0.88	0.57
7	Religion is not necessary for my personal happiness.*	0.46	0.69	-0.04	0.68	0.41
8	I would be bothered if my child wanted to marry someone who is NOT religious.	0.39	0.60	0.041	0.63	0.43
<b>Individualistic Spirituality Items</b>						
9	Spirituality is important to me.	0.70	0.03	0.82	0.56	0.83
10	The rightness or wrongness of my actions will affect what happens to me when my body is physically dead.	0.44	0.23	0.49	0.54	0.63
11	I have a spirit/essence beyond my physical body.	0.71	-0.06	0.88	0.51	0.83
12	The universe has a supernatural origin.	0.65	-0.01	0.81	0.52	0.80
13	All other things being equal, a spiritual person is better off.	0.48	0.19	0.55	0.55	0.67
14	The supernatural exists.	0.66	-0.12	0.89	0.45	0.80
15	I engage in spiritual activities.	0.66	0.09	0.76	0.58	0.81
16	I feel a sense of connection to something beyond what we can observe, measure, or test scientifically.	0.67	-0.05	0.85	0.49	0.81
17	I cannot find worthwhile meaning in life without spirituality.	0.51	0.27	0.51	0.60	0.68
KMO Sampling Adequacy test						0.95
Bartlett's Test of Sphericity						5321.79***
Factor Correlation						0.64
			Eigenvalue	% of variance		
		Factor 1	9.46	55.66		
		Factor 2	2.05	12.08		

\* Reverse coded items; ^ Sample sizes are for scales using listwise deletion; participants were not required to answer the scale questions; † Principal Axis Factoring with Direct Oblimin rotation.

structure matrix, but in the pattern matrix, when the indirect influence of Factor 2 was removed, the correlation with Factor 1 was .96, and when the indirect influence of Factor 1 was removed, the correlation with Factor 2 was -.04. In other words, item 1 loaded heavily on Factor 1, but because Factors 1 and 2 are correlated, it appeared to load on both in the structure matrix.

Given the oblique rotation, we show all factor loadings in Table 3. However, careful examination of the loadings, particularly in the pattern matrix, illustrates that all of the religion items (1-8) loaded on Factor 1 (Institutional Religiousness) and all of the spirituality items (9-17) loaded on Factor 2 (Individualistic Spirituality). There was some overlap on items 10 and 17, but both of these loaded more strongly on Factor 2 than on Factor 1. Thus, it appears from the factor analysis that two factors underlie the NRNSS: institutional religiousness and individualistic spirituality. While the NRNSS's two factors were strongly correlated and were combined into a single measure of R/S for our purposes, the empirical distinctness of the two factors would allow for discrimination between religiousness and spirituality when theoretically desired. In other words, the EFA (see also Studies 2 and 3) suggests that the religion items and spirituality items form cohesive subscales which could be administered separately or in unison, depending on the needs of the researcher. Scores for the religiousness and spirituality subscales are shown in Table 1.

### Known-group validity

Known-group validity is demonstrated when two or more groups known to differ on a given characteristic are found to have statistically significantly different scores on a scale designed to measure that characteristic (DeVellis, 2003). To assess the known-group validity of the NRNSS, relevant nominal variables were dichotomized to create two known groups, which we compared using independent sample t-tests. Dichotomization was used when comparing multiple groups due to prohibitively small cell sizes. The first groups derived from each variable contained individuals with NRNS characteristics: those without a religious affiliation, those who never attend religious services, those who do not believe in an afterlife, those who never pray, those who view the Bible as myth, those who donate no money to religions, and those who do not believe in a god. The second groups, which were compared to the respective first groups, contained individuals with RS characteristics: those with a reli-

gious affiliation, those who attend weekly, those who believe in an afterlife, those who pray several times a day, those who view the Bible as literal, those who donate money to religions, and those who "know" god exists. Our assumption is that people falling into the NRNS characteristic groups should score higher (indicating greater nonreligiousness and nonspirituality) on the NRNSS than those falling into the RS characteristic group. Table 4 displays the results of independent-sample t-tests: on each measure, those in the NRNS characteristic group scored significantly higher on the NRNSS than did those individuals in the RS characteristic groups. Thus, the expected difference between these groups provided support for the known-group validity of the NRNSS.

### Convergent validity

In addition to examining the relationships between the NRNSS and other R/S measures, we investigated the existence of relationships between the NRNSS and instruments the NRNSS should relate to, based on extant theory. In this case, it was necessary to identify constructs outside R/S that have been found to correlate with how nonreligious someone is. One well-known relationship is prejudice. It has been widely illustrated that religious "nones" are less prejudiced towards specific minority groups than are religious individuals (Hunsberger and Jackson, 2005), though, of course, there is a great deal of nuance in those relationships (Cragun and Sumerau, forthcoming).

As noted earlier, Study 1 included a measure of affective warmth (versus prejudice) towards various majority and minority groups. Higher values on this scale indicated greater affective warmth toward the group of interest. The question asked was, "On a scale of 1 to 100, where 1 indicates you feel really cold towards people in that group and 100 indicates you feel really warm towards people in that group, indicate how warm or cold you feel toward each of the following groups of people." The list included religious groups, racial/ethnic groups, and sexuality-related groups. In the interest of parsimony, we examined just the relationships between the NRNSS and attitudes toward sexuality-related groups (heterosexuals, homosexuals, bisexuals, transgendered individuals, and polygamists) as the relationships are straightforward and do not require multiple regression to understand them. However, in the interest of removing any confounding effect from self-identification, we limited the analysis to heterosexual participants. A positive correlation

**Table 4:** T-tests for criterion-related validity of nonreligious-nonspiritual scale using single-item measures

	Study 1			Study 2:T1		
	nones	affiliates	t	nones	affiliates	t
<b>religious affiliation</b>	4.01	2.74	-16.08***	3.96	2.82	-6.72***
	never	once a week	t	never	once a week	t
<b>religious attendance</b>	4.01	2.04	17.11***	3.39	2.22	-2.58**
	no	yes	t	stop existing	go to heaven	t
<b>belief in afterlife</b>	4.32	2.69	-19.19***	4.14	2.21	6.48***
	never	several times per day	t			
<b>frequency of prayer</b>	4.17	2.05	21.89***			
	myth	literal	t	myth	literal	t
<b>view of Bible</b>	3.82	2.03	-12.12***	4.09	2.20	8.12***
	\$0/year	\$51-\$100/year	t	never	regularly	t
<b>tithing</b>	3.69	2.52	8.45***	3.47	2.13	4.78***
	atheist	theist	t	atheist	theist	t
<b>god</b>	4.38	2.37	16.15***	4.46	2.21	6.75***

\* p < .05; \*\* p < .01; \*\*\* p < .001

between NRNSS scores and closeness ratings would indicate a greater acceptance of the group by individuals who fall on the NR/NS end of the Scale.

Bivariate correlations between the NRNSS and affective warmth toward the five sexuality-related groups resulted in the following correlations: heterosexuals  $r = -.06$ ; homosexuals  $r = .18$ ,  $p < .001$ ; bisexuals  $r = .18$ ,  $p < .001$ ; transgendered individuals  $r = .09$ ; polygamists  $r = .13$ . In line with previous research on prejudice among the nonreligious, we found that heterosexuals who score higher on the NRNSS generally felt more affective warmth (i.e., less prejudicial) toward sexual minorities, than do individuals who scored lower on the NRNSS.

## Study 2

### Method

The primary goal of Study 2 was to demonstrate the internal consistency reliability, content validity, comprehensibility, and convergent validity of the NRNSS. Study 2 was designed specifically to validate the psychometric properties of the NRNSS. Participants in Study 2 were recruited from the first author's Sociology courses and were given course credit for participating in the study; they were given the option to com-

plete an alternative assignment for the same credit if they chose not to participate. Most of the students in the classes were sent an email in the first or second week of class inviting them to participate in the online survey study (Time 1 or T1). At the end of the semester (week 13 of 14), students were sent an email inviting them to participate in the second part of the online survey study (Time 2 or T2).

There were a total of 177 students in all of the first author's classes who were eligible to participate. Of those, 43 students did not participate in the research project, resulting in 134 T1 responses, and 122 T2 responses (some students dropped the course after completing the T1 data). The T1 response rate was 75.7%. Only 1 student of the 43 did the alternative assignment; 42 chose to lose 5% of their grade rather than participate in the study or do the alternative assignment. This suggests those students who *did* participate may not be representative of students at The University of Tampa as they are likely the better students who are more concerned about their grades. However, in many other respects the participants in Study 2 are very similar to those in Study 1, though they are more likely to be Sociology majors.

Participants ( $N = 138$ ) had an average age of 20.9 years

(SD = 2.03), and consisted of 95 (76.0%) white, 9 (7.2%) Black, 3 (2.4%) Asian, 8 (5.8%) Latino, and 10 (8.0%) other-identified participants; 13 participants (9.4%) did not indicate their race/ethnicity. The sample included 112 (86.2%) participants who identified as female. The sample included 36 (26.1%) Protestants, 41 (29.7%) Catholics, 6 (4.3%) Jews, 34 (24.6%) religious “nones”, 8 (5.7%) who identified with another religion, and 13 (9.4%) who did not provide a religion.

As noted above, Study 2 was designed specifically to test the psychometric properties of the NRNSS. Time 1 of the study included basic demographic variables. Time 1 and Time 2 both included a battery of scale measures, including: the NRNSS, the Belief in Afterlife scale (Osarchuk and Tatz, 1973), the Religious Doubts scale (Altemeyer, 1988), the Rejection of Christianity scale (Greer and Francis, 1992), the Liberal Christian Belief and Humanistic Morality scales (Kaldestad and Stifoss-Hanssen, 1993), the original Religious Orientation scale (Batson, Schoenrade, and Ventis, 1993), and the Cross-Cultural Dimensions of Religiosity (CCDR) scale (DeJong, Faulkner, and Warland, 1976).

## Results and Discussion

### Reliability

The internal consistency of the items in the scale was  $\alpha = .94$  and  $\alpha = .95$ , at T1 and T2, respectively. Internal consistency estimates for the other scales included in Study 2 are shown in Table 2. The 8 to 10 week test-retest reliability of the NRNSS scale was  $r = .92$  ( $p < .001$ ), indicating that participants' scores remained consistent across time.

### Content Validity

While we repeated the same EFA described in Study 1 with both the T1 and T2 datasets from Study 2, the extracted communalities and pattern and structure matrices were similar enough to be redundant. Therefore, while we do not include them here, they are available upon request from the first author.

### Participant comprehension of NRNSS items

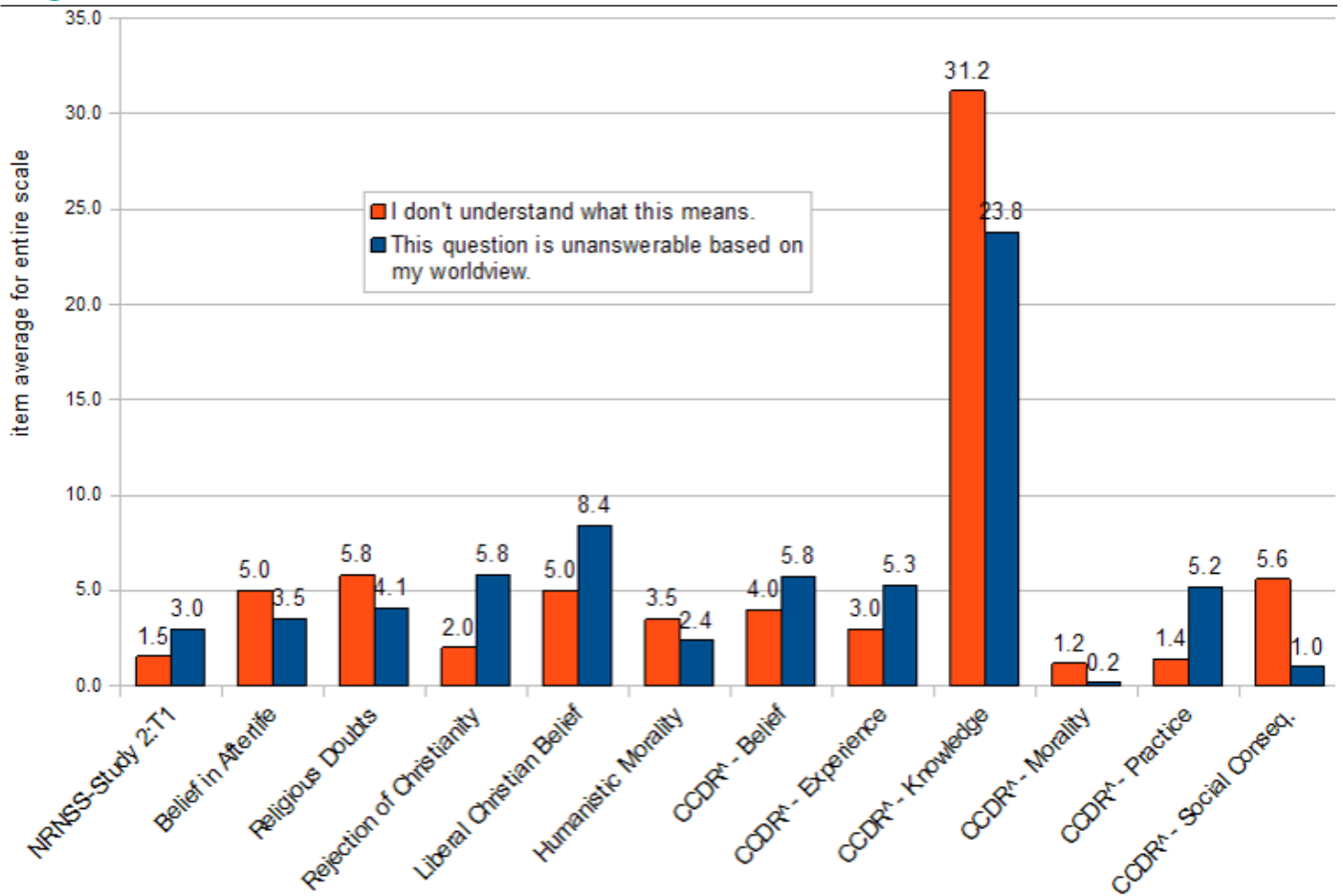
We sought further evidence of content validity for the NRNSS via a technique seldom employed in scale validation studies. As noted in the introduction, many existing R/S scales include questions that are not reliably answerable by people with a given worldview (e.g., one-and-a-half-barreled questions assuming the existence of a higher power cannot reliably or valid-

ly assess an atheist's worldview, as illustrated above). In order to account for this limitation, in addition to the standard Likert response items, we gave Study 2 survey respondents two additional response options for each scale item: (a) “I don't understand what this means” and (b) “This question is unanswerable based on my worldview.” These options were introduced at the beginning of the survey, before the participants answered any questions, with a brief training session that explained why we included these two options in addition to the standard response options. Whenever participants chose one of these options, their response was labeled as missing. While this reduced the total number of responses we could analyze, it facilitated our understanding of the clarity and utility of the scales under consideration. Figure 1 shows the average number of non-responses per question for each type of non-response – “not understanding” and “inability to respond” – for each scale. More precisely, the numbers in Figure 1 indicate the average number of people per question who said they could not respond (though a particular item often accounted for the bulk of non-responses for a given scale). For the NRNSS, on average, 1.5 people per question said they could not respond because they did not understand what was being asked, and 3 people per question said they could not respond because the question was not answerable based on their worldview. These numbers are presented in a graph, as it allows for a quick comparison across the scales and shows that the NRNSS has one of the lowest rates of non-response. In other words, the NRNSS was widely understood among the respondents in this study.

### Convergent validity

To further assess the convergent validity of the NRNSS, we included various, widely used, single-item measures of religiousness (most drawn from the Cross-Cultural Dimensions of Religiosity scale). Additionally, we included six other validated scale measures that tap various dimensions of R/S so we could compare the NRNSS to those existing measures (the scales are noted above).

Table 5 displays correlations between the NRNSS and six measures of religiousness. The theoretical assumption is that people who score high on the NRNSS (indicating stronger *nonreligiousness* and *nonspirituality*) will score low on these R/S measures. Indeed, participants who scored higher on the NRNSS were less likely to believe in an afterlife ( $r = -.74$ ,  $p < .001$ ),



**Figure 1:** Level of understanding of scale measures

more likely to have religious doubts ( $r = .59, p < .001$ ), more likely to reject Christianity ( $r = .78, p < .001$ ), less likely to hold religious beliefs ( $r = -.82, p < .001$ ), less likely to have had religious experiences ( $r = -.77, p < .001$ ), and less likely to engage in religious practices ( $r = -.62, p < .001$ ). All of these correlations were strong (i.e., a large effect size; Cohen, 1988), significant, and in the theoretically expected direction. Thus, these data suggest that the NRNSS appears to measure the absence of R/S—the inverse of what these R/S scales were designed to measure.

To provide further evidence of convergent validity, we ran independent-sample t-tests on nominal variables measured in Study2:T1 (the same nominal variables analyzed in Study 1, as described above). Table 4 displays the results of these independent-sample t-tests, which mirrored those derived from Study 1: those in the NRNS characteristic group scored significantly higher on the NRNSS than did those individuals in the R/S characteristic groups.

Evidence of convergent validity was also demonstrated in the NRNSS's relationship with the "humanistic morality" (a relativistic form of morality; see Kald-

estad and Stifoss-Hanssen, 1993) and "traditional religious morality" (morality rooted in Christianity; see DeJong, Faulkner, and Warland, 1976) scales (see Table 5). Individuals who scored high on the NRNSS would be expected to more strongly endorse a humanistic morality than a traditional, religious-based morality. This was the case: those with higher scores on the NRNSS were significantly more likely to endorse humanistic morality ( $r = .52, p < .001$ ; a large effect size), and less likely to endorse traditional religious morality ( $r = -.24, p < .05$ ; a small to medium effect size).

### Study 3

#### Method

The purpose of Study 3 was to conduct a confirmatory factor analysis (CFA) with a new sample to further verify factor structure of the NRNSS derived from Study 1 (and Study 2). Participants were recruited from the psychology department subject pool at a large Midwestern University, Iowa State University, and received course credit for their participation. After providing informed consent, participants completed the NRNSS and demographic items, and then were debriefed.

**Table 5: Correlations Between NRNSS and Other Scales, Study 2:T1**

	Sec. Scale	Belief in Afterlife	Religious Doubts	Reject. Christ.	L. Christ. Belief	Hum. Moral.	CCDR <sup>^</sup> Belief	CCDR <sup>^</sup> Exp.	CCDR <sup>^</sup> Know.	CCDR <sup>^</sup> Moral-ity	CCDR <sup>^</sup> Pract.
NRNSS	-										
Belief in Afterlife	-0.74***	-									
Religious Doubts	0.58***	-0.50***	-								
Rejection of Christianity	0.78***	-0.73***	0.79***	-							
Liberal Christian Belief	0.01	-0.01	0.22	0.16	-						
Humanistic Morality	0.52***	-0.30*	0.63***	0.71***	0.18	-					
CCDR <sup>^</sup> - Belief	-0.82**	0.73***	-0.78***	-0.91***	-0.11	-0.72***	-				
CCDR <sup>^</sup> - Experience	-0.77***	0.56***	-0.62**	-0.74***	-0.01	-0.56***	0.78***	-			
CCDR <sup>^</sup> - Knowledge	-0.21	0.10	0.06	-0.15	0.13	-0.23	0.09	0.13	-		
CCDR <sup>^</sup> - Morality	-0.25*	0.17	-0.36***	-0.53***	-0.06	-0.57***	0.32**	0.36***	0.13	-	
CCDR <sup>^</sup> - Practice	-0.62***	0.43***	-0.57***	-0.70***	0.01	-0.65***	0.72***	0.59***	0.23	0.45***	-
CCDR <sup>^</sup> - Social Conseq.	-0.04	-0.02	0.15	0.05	0.22	0.16	-0.08	-0.01	0.19	-0.25**	-0.02

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>^</sup>CCDR =Cross-Cultural Dimensions of Religiosity Scale

Participants (*N* = 291) had an average age of 20.6 years (*SD* = 2.323), and consisted of 237 (81.4%) white, 14 (4.8%) Black, 7 (2.4%) Asian, 16 (5.5%) Latino, and 17 (5.8%) other-identified participants. One-hundred and eighteen (40.5%) identified as female. The sample included 115 (39.5%) Christians, 63 (21.6%) Catholics, 32 (11.0%) Agnostics, 23 (7.9%) Protestants, 12 (4.1%) Atheists, 6 Buddhists (2.1%), 2 (0.7%) Jews, 29 (9.9%) who identified with another religion, and 9 (3.1%) who did not provide a religion.

## Results and Discussion

### CFA

Prior to conducting the CFA, the internal consistency of the items was found to be  $\alpha = .95$ . We performed a CFA using Full Information Maximum Likelihood (FIML) estimation in Mplus (Version 6.11) structural equation modeling software. Model fit was evaluated using the chi-square goodness-of-fit test (significant p-value indicates good fit), Root Mean

Square Error of Approximation (RMSEA; < .08 indicates adequate fit and < .05 indicates excellent fit; Browne and Cudeck, 1993; MacCallum, Browne, and Sugawara, 1996), Comparative Fit Index (CFI; > .90 indicates adequate fit to the data and > .95 indicates excellent fit; Hu and Bentler, 1998), and Standard Root Mean Square Residual (SRMR; < .08 indicates good fit; Kline, 2005; Quintana and Maxwell, 1999). As anticipated, results of the CFA revealed that all of the religion items (1-8) significantly loaded ( $p < .001$ ) on Factor 1 (Institutional Religiousness) and all of the spirituality items (9-17) loaded ( $p < .001$ ) on Factor 2 (Individualistic Spirituality). Furthermore, examination of the fit indices suggested that the anticipated two-factor model represented an acceptable fit to the data ( $\chi^2 [104, N = 218] = 311.02, p < .001$ ; RMSEA = .075 [90% CI of .065, .085]; CFI = .95; SRMR = .05).

### General Discussion

While many measures of religion and spirituality exist,

none are capable of reliably and validly assessing individuals who identify as nonreligious and nonspiritual (e.g., some atheists and agnostics), due to these measures' use of one-and-a-half barreled questions and/or religious tradition-specific language. Given that (a) a growing percentage of the world's population is nonreligious and (b) social scientists of (non)religion have predictably shown increasing interest in the study of NRNS individuals and how they compare and contrast to RS individuals, there exists a need for a psychometrically-sound measure which can reliably and validly assess the presence vs. absence of religiousness and spirituality among those who identify as religious and spiritual, nonreligious and spiritual, *and* nonreligious and nonspiritual. This paper reported on the development and initial validation of such a measure: The Nonreligious-Nonspiritual Scale (NRNSS). This investigation consisted of three studies which offer support for the NRNSS's reliability and validity.

Regarding reliability, the NRNSS exhibited high internal consistency ( $\alpha = .94$ ) and high test-retest reliability ( $r = .92$ ). Evidence of the NRNSS's construct validity was also demonstrated. First, the analysis of the 17 items of the NRNSS suggested that it provided adequate coverage of the content domain of religiousness and spirituality, as delineated by DeJong and colleagues (1976). Second, two exploratory and one confirmatory factor analysis of the NRNSS supported the anticipated two-factor solution: (a) institutional religiousness and (b) individualistic spirituality, providing further evidence of content validity. Third, the NRNSS demonstrated known-group validity by successfully differentiating between individuals who endorsed various religious beliefs and behaviors and individuals who endorsed various nonreligious and nonspiritual beliefs and behaviors. Fourth, established measures of religiousness and spirituality correlated with the NRNSS in expected directions, as did measures of the theoretically-related factors of affective warmth (vs. prejudice) and humanistic vs. traditional religious morality, providing evidence of convergent validity. Lastly, a sample of college students indicated that the NRNSS's items were just as, if not more, understandable and answerable as other established measures of religion and spirituality. In summary, the present evidence suggests that the NRNSS is a psychometrically-sound measure of how religious (vs. nonreligious) and spiritual (vs. nonspiritual) individuals consider themselves to be, which can be validly administered to individuals regardless of whether they

self-identify as religious, spiritual, or neither.

## Limitations, Future Directions, and Conclusions

Perhaps the most important limitation to our scale as currently constructed is that we decided it was important to define spirituality in such a way that it refers exclusively to the supernatural (i.e., the sacred). The alternative would allow participants "to identify spirituality with innumerable secular experiences, existential quests, and personal values [which would render] it fuzzy (Spilka, 1993; Spilka and McIntosh, 1996), if not meaningless" (Zinnbauer and Pargament, 2000, p. 27). While we recognize that spirituality is increasingly used in popular culture to refer to phenomena that are not supernatural, Zinnbauer and Pargament (2000) argue that "the concept of the sacred is the substantive core of both religiousness and spirituality" (p. 34). If we did not define spirituality as part of the scale measure, it would not be clear what the scale was measuring. As a result, people with wildly different conceptions of spirituality (e.g., 'communing with nature gods' vs. 'experiencing awe when reading about science') would both score high in spirituality. Defining spirituality ensures that we know what we are measuring. As additional support for our inclusion of a definition, it is worth noting that much of scientific inquiry (though not all; see Charmaz, 2013) begins with definitions in order to have a clear sense of the domain of inquiry (Chafetz, 1978). If scholars consider our operational definition of spirituality to be too limited, we invite them to develop a measure of NRNS that improves upon this measure. Thus, while defining spirituality in our measure is a strength (i.e., it reduces error variance due to variability of respondent interpretation), it is also a limitation as it may not reflect everyone's emic understanding of spirituality.

While defining spirituality may be problematic in some senses, the fact that we did not define "religiousness" could also potentially be problematic. As some reviewers of this article noted, "religion" and "religiousness" are not universally understood concepts but are heavily influenced by Western understandings of these ideas. While it is likely the case that more people understand what is meant by "religiousness" than by "spirituality," the lack of a definition for religiousness is a limitation of our current scale. One possible way to address this limitation would be to include a question in the NRNSS asking respondents how they understand the word "religion". Another possibility,

and the one we think will prove more parsimonious, is to add a definition of religion to the measure. We have developed a working definition of religion that we plan to include in future versions of the scale instrument with the aim of clarifying what is meant by religion, particularly for individuals in non-Western cultures:

*Many people have heard the word “religion” before and probably have some understanding of what that means. For this survey, we want you to think about religion in a specific way. When you think about religion for the following questions, we want you to think of institutionalized religion, or groups of people that share beliefs regarding the supernatural (i.e., gods, angels, demons, spirits) that are members of an organization. In this sense, the Roman Catholic Church would be a religion as it is a group of people with shared beliefs toward the supernatural and who are members of an organization. Members of a soccer club would not be considered a religion because they do not have shared beliefs toward the supernatural, while Hindus or Mormons would as they belong to an organization that emphasizes the membership’s shared beliefs toward the supernatural.*

A related, though more minor concern with our approach is that we understand nonreligiousness and nonspirituality to be the absence of institutional religion and personal spirituality, though this is in line with prior definitions (see Kosmin and Keysar, 2007; Lee, 2012). As Zuckerman (2008) has pointed out, that may not be the end result of secularization. The end result may be more of a casual indifference rather than a purposive abstinence from it. While indifference is different from opposition, the practical consequences of the two are the same – people do not see religion and spirituality as meaningful in their lives, do not engage in the associated behaviors, and do not hold the associated beliefs. Thus, the NRNSS should still apply to people like those Zuckerman interviewed in Denmark who were particularly indifferent to religion and/or were uninterested in spirituality. However, this is an empirical question that warrants future investigation.

Finally, as is the case with most scale measures when initially developed, another limitation of our measure is that it has only been tested with a very limited population – college students in the Southern and Midwestern United States. While the participants in our study came from over a dozen different countries, this

does not qualify as robust cross-cultural analysis. Additional samples are needed in order to demonstrate the scale’s applicability to diverse cultures. Research is underway to validate this measure with non-student populations and with non-English speaking populations (e.g., Turkish and Spanish). If future studies find evidence for the NRNSS’s cross-cultural validity, the Scale could potentially be used to not only compare individuals across worldviews but across cultures.

Future research may want to examine further the theorized presence of an inverse relationship between the NRNSS and other measures of religion and spirituality; the performance of the NRNSS across demographic, national, cultural, and religious groups; how trait personality is related to nonreligiousness or nonspirituality; and the relationship between nonreligiousness and nonspirituality and various indices of physical and mental well-being.

## References

- Altemeyer, B. (1988). *Enemies of freedom: Understanding right-wing authoritarianism*. San Francisco: Jossey-Bass.
- Altemeyer, R. (1996). *The authoritarian specter*. Cambridge, MA: Harvard University Press.
- Armstrong, T. D. (1995, August). Exploring spirituality: The development of the Armstrong Measure of Spirituality. Paper presented at the annual convention of the American Psychological Association, New York, NY.
- Baker, J. O., & Smith, B. G. (2009). The Nones: Social Characteristics of the Religiously Unaffiliated. *Social Forces*, 87(3), 1251–1263. <http://dx.doi.org/10.1353/sof.0.0181>
- Batson, C. D., Schoenrade, P. A., & Ventis, W. L. (1993). *Religion and the individual: A social-psychological perspective*. New York: Oxford University Press, USA.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. Bollen & S. Long (Eds.), *Testing structural equation models* (pp. 136–162). Newbury Park, NJ: Sage.
- Bruce, S. (2002). *God is dead: Secularization in the West*. Oxford: Wiley-Blackwell Publishers.
- Carmines, E. G., & Zeller, R. A. (1979). *Reliability and validity assessment*. Beverly Hills, CA: Sage Publications. <http://dx.doi.org/10.4135/9781412985642>
- Chafetz, J. S. (1978). *A Primer on the Construction*



- and Testing of Theories in Sociology*. F. E. Peacock Publishers.
- Charmaz, K. (2013). *Constructing Grounded Theory*. London: SAGE Publications Ltd.
  - Cohen, A. B., Shariff, A. F., Hill, P. C. (2008). The accessibility of religious beliefs. *Journal of Research in Personality*, 42, 1408-1417. <http://dx.doi.org/10.1016/j.jrp.2008.06.001>
  - Cragun, R. T., & Sumerau, J. E. (forthcoming). The Last Bastion of Sexual and Gender Prejudice? Sexualities, Race, Gender, Religiosity, and Spirituality in the Examination of Prejudice Toward Sexual and Gender Minorities. *Journal of Sex Research*, 0(0), 1-14. <http://dx.doi.org/10.1080/00224499.2014.925534>
  - Cragun, R. T., Henry, P., Mann, M., & Russell Krebs, S. (2014). Chapel Use on College and University Campuses. *Journal of College and Character*, 15(2), 103-118. <http://dx.doi.org/10.1515/jcc-2014-0014>
  - Cragun, R., Kosmin, B., Keysar, A., Hammer, J. H., & Nielsen, M. (2012). On the receiving end: Discrimination toward the non-religious. *Journal of Contemporary Religion*, 27, 104-127. <http://dx.doi.org/10.1080/13537903.2012.642741>
  - Cragun, R. T., & Lawson, R. (2010). The secular transition: The worldwide growth of Mormons, Jehovah's Witnesses, and Seventh-day Adventists. *Sociology of Religion*, 71(3), 349-373. <http://dx.doi.org/10.1093/socrel/srq022>
  - DeJong, G. F., Faulkner, J. S., Warland, R. H. (1976). Dimensions of religiosity reconsidered: Evidence from a cross-cultural study. *Social Forces*, 54(4), 866-889. <http://dx.doi.org/10.1093/sf/54.4.866>
  - DeVellis, R.F. (2003). *Scale development* (2<sup>nd</sup> ed.). Thousand Oaks, CA: Sage Publications.
  - Dobbelaere, K. (2002). *Secularization: An analysis at three levels (gods, humans, and religions)*. New York: Peter Lang Publishing.
  - Fetzer Institute/National Institute of Aging Working Group. (1999, October). *Multidimensional measurement of religiousness/spirituality for use in health research: A report of the Fetzer Institute/National Institute on Aging Working Group*. Kalamazoo, MI: John E. Fetzer Institute.
  - Fowler, F. J. (1995). *Improving survey questions: Design and evaluation*. London: Sage Publications.
  - Glock, C., Stark, R. (1966). *Christian beliefs and anti-Semitism*. New York: Harper & Row.
  - Greer, J., & Francis, L. J. (1992). Measuring "rejection of Christianity" among 14 to 16-year-old adolescents in Catholic and Protestant schools in Northern Ireland. *Personality and Individual Differences*, 13, 1345-1348.
  - Hall, D. E., Koenig, H. G., & Meador, K. G. (2008). Hitting the target: why existing measures of "religiousness" are really reverse-scored measures of "secularism". *Explore*, 4(6), 368-373. <http://dx.doi.org/10.1016/j.explore.2008.08.002>
  - Heppner, P., Wampold, B., & Kivlighan, D. (2007). *Research design in counseling* (3<sup>rd</sup> ed.). Belmont, CA: Brooks Cole.
  - Hill, P. C., & Hood, R. W. J. (Eds.). (1999). *Measures of religiosity*. Birmingham, Alabama: Religious Education Press. [http://dx.doi.org/10.1016/S1350-4487\(99\)00090-6](http://dx.doi.org/10.1016/S1350-4487(99)00090-6)
  - Hill P. C., Pargament, K. J., & Hood, R. W., et al. (2000). Conceptualizing religion and spirituality: Points of commonality, points of departure. *Journal for the Theory of Social Behaviour*, 30, 51-77. <http://dx.doi.org/10.1111/1468-5914.00119>
  - Hogge, J. H., & Friedman, S. T. (1967). The scriptural literalism scale: A preliminary report. *The Journal of Psychology*, 66(2), 275-279. <http://dx.doi.org/10.1080/00223980.1967.10544905>
  - Hu, L., Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods*, 3, 424-453. <http://dx.doi.org/10.1037/1082-989X.3.4.424>
  - Hunsberger, B., Jackson, L. M. (2005). Religion, Meaning, and Prejudice. *Journal of Social Issues*, 61(4), 807-826. <http://dx.doi.org/10.1111/j.1540-4560.2005.00433.x>
  - Kaldestad, E., Stifoss-Hanssen, H. (1993). Standardizing measures of religiosity for Norwegians. *International Journal for the Psychology of Religion*, 3, 111-124. [http://dx.doi.org/10.1207/s15327582ijpr0302\\_5](http://dx.doi.org/10.1207/s15327582ijpr0302_5)
  - Kline, P. (1994). *An easy guide to factor analysis*. London: Routledge.
  - Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York, NY: Guilford Press.
  - Kosmin, B. A., Keysar, A. (2006). *Religion in a free market: Religious and non-religious Americans: Who, what, why, where*. Ithaca, NY: Paramount Market Publishing, Inc.
  - Kosmin, Barry A., and Ariela Keysar, eds. 2007. *Secularism and secularity: Contemporary international perspectives*. Institute for the Study of Sec-

- ularism in Society and Culture. Trinity College, Hartford, CT.
- Kosmin, B. A., Keysar, A., Cragun, R. T., Navarro-Rivera, J. (2009). *American nones: The profile of the no religion population*. A Report Based on the American Religious Identification Survey 2008. Hartford, CT: Institute for the Study of Secularism in Society and Culture.
  - Lee, L. (2012). Talking about a revolution: Terminology for the new field of nonreligion studies. *Journal of Contemporary Religion*, 27(1), 129-139. <http://dx.doi.org/10.1080/13537903.2012.642742>
  - MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, 1, 130-149. <http://dx.doi.org/10.1037/1082-989X.1.2.130>
  - Pew Forum on Religion. 2012. "Nones" on the Rise: One-in-Five Adults Have No Religious Affiliation. Washington, D.C.: The Pew Forum on Religion & Public Life. Retrieved June 3, 2013 (<http://www.pewforum.org/Unaffiliated/nones-on-the-rise.aspx>).
  - Piedmont, R. L. (1999). Does spirituality represent the sixth factor of personality? Spiritual transcendence and the five-factor model. *Journal of Personality*, 67, 985-1013. <http://dx.doi.org/10.1111/1467-6494.00080>
  - Piedmont, R. L. (2007). Cross-cultural generalizability of the spiritual transcendence scale to the Philippines: Spirituality as a human universal. *Mental Health, Religion & Culture*, 10, 89-107. <http://dx.doi.org/10.1080/13694670500275494>
  - Piedmont, R. L., & Leach, M. M. (2002). Cross-cultural generalizability of the Spiritual Transcendence Scale in India: Spirituality as a universal aspect of human experience. *American Behavioral Scientist*, 45, 1888-1901. <http://dx.doi.org/10.1177/0002764202045012011>
  - Osarchuk, M., & Tatz, S. J. (1973). Effect of induced fear of death on belief in afterlife. *Journal of Personality and Social Psychology*, 27(2), 256-260. <http://dx.doi.org/10.1037/h0034769>
  - Quintana, S. M., & Maxwell, S. E. (1999). Implications of recent developments in structural equation modeling for counseling psychology. *Counseling Psychologist*, 27, 485-527. <http://dx.doi.org/10.1177/0011000099274002>
  - Ray, J. J., & Naiman, J. (1974). Death anxiety and death acceptance: A preliminary approach. *Ome-*
  - ga, 5(4), 311-315. <http://dx.doi.org/10.2190/mhel-88yd-uhkf-e98c>
  - Reich, K. H. (2008). Extending the psychology of religion: A call for exploration of psychological universals, more inclusive approaches, and comprehensive models. *Archive for the Psychology of Religion*, 30, 115-134. <http://dx.doi.org/10.1163/157361208X316999>
  - Saroglou, V. (2011). Believing, bonding, behaving, and belonging: The big four religious dimensions and cultural variation. *Journal of Cross-Cultural Psychology*, 42, 1320-1340. <http://dx.doi.org/10.1177/0022022111412267>
  - Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston: Houghton-Mifflin.
  - Spilka, B. (1993, August). Spirituality: Problems and directions in operationalizing a fuzzy concept. Paper presented at The American Psychological Association annual conference, Toronto, Ontario.
  - Spilka, B., & McIntosh, D. N. (1996, August). Religion and spirituality: The known and the unknown. Paper presented at the annual conference of the American Psychological Association, Toronto, Canada.
  - Sudman, S. and Bradburn, N. M. (1982). *Asking questions: A practical guide to questionnaire design*. San Francisco: Jossey-Bass.
  - Tinsley, H. E. A., & Tinsley, D. J. (1987). Uses of factor analysis in counseling psychology research. *Journal of Counseling Psychology*, 34, 414-424. <http://dx.doi.org/10.1037/0022-0167.34.4.414>
  - Vernon, G. M. (1968). "The religious "nones": A neglected category." *Journal for the Scientific Study of Religion*, 7, 219-229. <http://dx.doi.org/10.2307/1384629>
  - Worthington, R. L., & Whittaker, T. A. (2006). Scale development research: A content analysis and recommendations for best practices. *The Counseling Psychologist*, 34(6), 806-838. <http://dx.doi.org/10.1177/0011000006288127>
  - Wulff, D. M. (1997). *Psychology of religion: Classic & contemporary* (2nd ed.). New York: Wiley.
  - Zinnbauer, B. J., Pargament, K. I., Cole, B., Rye, M. S., Butfer, E. M., Belavich, T. G., Hipp, K. M., et al. (1997). Religion and spirituality: Unfuzzifying the fuzzy. *Journal for the Scientific Study of Religion*, 36(4), 549-564. <http://dx.doi.org/10.2307/1387689>
  - Zinnbauer, Brian J. and Kenneth I. Pargament.

2000. "Capturing the Meanings of Religiousness and Spirituality: One Way Down from a Definitional Tower of Babel." *Research in the Social Scientific Study of Religion* 12:23–54.

- Zuckerman, P. (2006). Atheism: Contemporary numbers and patterns. In M. Martin (Ed.), *The Cambridge Companion to Atheism* (1st ed., pp. 47-68). Cambridge: Cambridge University Press. <http://dx.doi.org/10.1017/CCOL0521842700.004>
- Zuckerman, P. (2008). *Society without God: What the least religious nations can tell us about contentment*. New York: NYU Press.