

Measuring Spiritual Fitness: Atheist Military Personnel, Veterans, and Civilians

Key words: meaning, purpose, spiritual fitness, atheists, measurement

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Abstract

This study investigated the impact of transcendent item phrasing (i.e., phrasing which assumes the respondent believes in certain sacred or supernatural concepts) on the validity of the U.S. Army's Comprehensive Soldier Fitness (CSF) program's spiritual fitness scale when administered to atheist military personnel, veterans, and civilians. Results indicated that the inclusion of transcendent phrasing led to: reduced concurrent validity for the spiritual fitness scale when administered to atheist military personnel and veterans, reduced concurrent and predictive validity when administered to atheist civilians, and underestimation of atheists' but not Christians' spiritual fitness. Notably, the removal of transcendent phrasing actually led to increased concurrent validity for Christian respondents. Taken together, these findings suggest the Revised scale, which is composed of items that do not rely on transcendent phrasing, produces better psychometric outcomes for both atheist and Christian respondents. Implications for the CSF program and the measurement of spiritual fitness are addressed.

Measuring Spiritual Fitness: Atheist Military Personnel, Veterans, and Civilians

In 2008, the U.S. Army instituted the Comprehensive Soldier Fitness (CSF) program to proactively address concerns about the high rates of posttraumatic stress symptoms and suicide among soldiers (Cornum, Matthews, & Seligman, 2011). The CSF program draws upon research and theory from positive psychology to help Army soldiers and civilians learn skills that will increase their resilience in five “fitness” domains: physical fitness, emotional fitness, social fitness, family fitness, and spiritual fitness. In a special issue of the *American Psychologist* on the CSF program, military and civilian experts involved in the development of the program described the nature of, and rationale for, the spiritual fitness component. Pargament and Sweeney (2011) broadly defined spiritual fitness as “the capacity to (a) identify one’s core self and what provides a sense of purpose and direction; (b) access resources that facilitate the realization of the core self and strivings, especially in times of struggle; and (c) experience a sense of connectedness with diverse people and the world” (p. 59). They clarified that the spiritual fitness component is purposely not grounded in a particular (non)religious framework and thus frames “spirituality” in a human (i.e., secular) rather than theological sense. This was deemed necessary to ensure that the spiritual fitness component (a) retains relevance and usefulness for, and (b) respects the autonomy and worldview of, all program participants, regardless of whether they hold a religious, spiritual, or completely secular worldview.

Measuring Spiritual Fitness

The CSF program utilizes a 5-item scale—embedded in the 105-item Global Assessment Tool (GAT) self-report survey—to generate a spiritual fitness score for each individual who participates in the CSF program. This spiritual fitness score is designed to represent the degree to which a given participant “has a sense of meaning, purpose, and accomplishment in life that extends beyond the self” (Peterson, Park, & Castro, 2011, p. 11). Given this definition provided by the scale developers, the scale appears akin to a measure of “meaningfulness”—a subjective felt-sense of meaning and purpose in life (Park, 2005). Peterson and colleagues (2011) explained that the scale items were developed to “measure meaning and purpose without reference to their

possible basis in specific religious beliefs and practices” (p. 14). However, a careful examination of the 5 scale items reveals phrasing that could result in less valid measurement of the spiritual fitness of participants who do not endorse transcendent (i.e., sacred, supernatural) beliefs, such as some atheists or individuals with no religion—an estimated 21% of U.S. military personnel (Segal & Segal, 2004).

Given its focus on the valid measurement of spiritual constructs among the nonreligious, the present investigation represents an important empirical addition to a nascent body of literature that is primarily theoretical and conceptual. For example, Hwang, Hammer, & Cragun (2011) suggested that variability in how atheist respondents interpret transcendent terminology (e.g., “spirituality”, “sacred”) in spirituality measures can lead to measurement error. Related to this, La Cour and Hvidt (2010) noted that the items used in the popular Fetzer Multidimensional Measure of Religiousness/Spirituality “cannot be answered meaningfully in a secular society with no culturally fixed image of a god or god-relation that may be taken for granted” (p. 1296) because they use terms like “God” and “spirituality” that may not be meaningful for secular individuals. Reflecting this, one study found that some atheist participants would literally cross out and comment in writing on the inappropriateness of survey items referring to transcendent terms (e.g., “spirituality”, “Higher Power”, “sacredness”; Caldwell-Harris, Wilson, LoTempio, & Beit-Hallahmi, 2011). Importantly, the present study sought to add to this literature by examining the actual empirical impact of such problematic phrasing.

Problematic Item Phrasing

In the following section, we highlight problematic phrasing within each item and discuss the potential implications for the response patterns of atheist participants. First, as Fowler (1995) suggests, items should have consistent meaning and be answerable by all respondents. In item 1 (“I am a spiritual person”), the term “spiritual” is problematic because it does not have consistent meaning across individuals. For example, spirituality is “union with God” for some people, but merely a synonym for “moving” or “worthwhile” for others (Hill et al., 2000). Because of this, spiritually-fit atheists (i.e., atheists who have a sense of meaning, purpose, and accomplishment

in life that extends beyond the self) may perceive that item 1 is asking “to what extent are you united with God?” and therefore answer “not like me at all” because they do not believe that God exists.

Likewise, spiritually-fit atheists may perceive that item 2 (“My life has lasting meaning”) is asking “to what extent do you believe you will live on after your physical death?” and therefore answer “not like me at all” because they do not believe in an afterlife. Said another way, some atheists who experience a strong *felt sense* of meaning in their life may choose “not like me at all” for this item merely because the item appears to be asking about whether they experience *transcendent* forms of meaning. Item 4 (“The job I am doing in the military has lasting meaning”) encounters the same problem, as it invokes the vague and transcendent concept of “*lasting* meaning”. Thus, spiritually-fit atheists who consider their work with the military to be personally meaningful may still respond with “not like me at all” to item 4 because they do not believe that their work with the military has *transcendent* significance.

Regarding item 3 (“I believe that in some ways my life is closely connected to all humanity and all the world”), the phrase “closely connected” is vague and might be interpreted as referring to a connection that goes beyond mere secular feelings of camaraderie with fellow humans and a respect for the biological life and natural resources of this planet to something more akin to a supernatural bond. Thus, spiritually-fit atheists who feel a sense of camaraderie with fellow humans and who care about the planet may still respond “not like me at all” to item 3 because they do not believe in a *supernatural* connection between themselves and others or the planet.

Regarding the fifth and final item, atheists, by definition, do not believe that there exists a Higher Power who assigns a purpose for each human being. However, some atheists undoubtedly live their lives with a clear *felt sense* of purpose. Thus, spiritually-fit atheists may respond “not like me at all” to item 5 (“I believe there is a purpose for my life”) only because they do not believe there is an *externally-determined* or *deity-bestowed* purpose for their life (Hunter, 2010). In summary, if some atheists are potentially liable to respond “not like me at all”

to these five spiritual fitness items *not because they are spiritually unfit* but merely because of the perceived transcendent themes embedded in the phrasing of the items, these atheist participants may receive spiritual fitness scores that do not accurately represent their actual level of spiritual fitness.

Implications of Problematic Item Phrasing

This has two potential implications. First, participants who receive a low spiritual fitness score are provided with the following feedback, and subsequently advised to complete remedial computer-delivered training designed to increase their spiritual fitness:

Spiritual fitness is an area of possible difficulty for you. You may lack a sense of meaning and purpose in your life. At times, it is hard for you to make sense of what is happening to you and others around you. You may not feel connected to something larger than yourself. You may question your beliefs, principles, and values... (Barker & Gaylor, 2010)

In other words, a low spiritual fitness score is thought to signify, among other things, that the participant may (a) lack a sense of meaning and purpose, (b) have difficulty making sense of his or her life, and (c) question his or her beliefs and values. However, if atheist participants' spiritual fitness scores tend to be less accurate for the reasons outlined in the prior section, then the spiritual fitness scale's inclusion of transcendent phrasing may engender poorer prediction of concurrent or future difficulties related to (a) meaning and purpose, (b) making sense of life, (c) clarity of self-beliefs, and (d) other well-being indicators. By extension, a revised version of the scale that successfully avoids the use of problematic transcendent phrasing might offer improved concurrent and predictive validity for atheist participants. Given that the GAT developers have stated that (a) the GAT is intended to measure the assets of *all* Army soldiers and civilians (b) and the continual establishment and improvement of the psychometric validity of the GAT is of utmost importance (Peterson et al., 2011), these possibilities deserve empirical attention.

Second, some atheist participants may receive spiritual fitness scores that under-estimate their actual level of spiritual fitness. This could compromise the ability of the CSF program to

accurately identify which participants could benefit from remedial spiritual fitness training, a stated goal of the program (Cornum et al., 2011). Furthermore, atheists who accurately perceive themselves as experiencing a healthy level of felt purpose and meaning in life may feel stigmatized or insulted when given the inaccurate feedback that they are spiritually unfit, and resent being asked to complete remedial training in an area in which they already excel. Some atheist participants may even perceive such feedback as an implicit indicator that the Army and the CSF program consider their secular worldview to be the problem (Barker & Gaylor, 2010), which could compromise their morale. Given that the CSF program seeks to bolster participants' well-being, communicating such implicit messages could be counterproductive.

Current Study

In summary, there are several important reasons to investigate the potential impact of transcendent item phrasing on the validity of the spiritual fitness scale for atheist military personnel, veterans, and civilians. To carry out this investigation, we first created a revised version ("Revised") of the Army's original spiritual fitness scale ("Original") composed of items that do not incorporate transcendent phrasing, but still assess the core human (i.e., secular) content domain of spiritual fitness. Both versions were then administered to three separate samples (atheist military personnel and veterans, atheist civilians, Christian civilians) alongside the relevant well-being indicators mentioned in the previous section (e.g., purpose in life, sense of coherence, self-concept clarity). To facilitate analysis of predictive validity, participants from the two atheist samples also completed the same measures six months later. By administering one version with transcendent phrasing and one version without it, we were able to examine whether or not the inclusion of transcendent phrasing would lead to (Hypothesis 1) reduced concurrent and predictive validity for the spiritual fitness scale when administered to atheists and (Hypothesis 2) under-estimation of atheists' but not Christians' spiritual fitness.

In addition, because the majority of CSF program participants self-identify with a Christian denomination (Military Leadership Diversity Commission, 2010), we also thought it important to determine whether or not the removal of transcendent phrasing would lead to

(Hypothesis 3) decreased concurrent validity for Christian respondents. If it did, this would represent a significant practical barrier to adopting the Revised version program-wide, even if such a Revised scale was found to produce better psychometric outcomes for atheist respondents. However, if the Revised scale was found to demonstrate stronger psychometric properties than the Original scale for both atheist and Christian respondents, this would provide empirical evidence for the utility of adopting the Revised version service-wide. Because the spiritual fitness scale has been designed to be universally applicable, this investigation will contribute to the larger scientific effort to identify measurement approaches that demonstrate psychometric strength across all soldier populations.

Method

Participants

Sample 1. Participants were 448 (384 men, 43 women, 21 did not indicate gender) U.S. current active military personnel ($n = 148$; 33.0%), Reserve or National Guard ($n = 26$; 5.8%), and veterans ($n = 250$; 55.8%) who self-identified as atheists and who also did not endorse a belief in God. Twenty-four did not indicate their current status. Of these 448 Time 1 (T1) participants, 161 (36%) chose to complete the 6-month follow-up survey (T2; see procedures section). Mean age for the sample was 39.45 ($SD = 12.76$). The majority of the sample was white ($n = 377$; 84.2%), followed by multiracial ($n = 25$; 5.6%), Latino ($n = 6$; 1.3%), other ($n = 6$, 1.3%), Asian/Pacific Islander ($n = 4$; 0.9%), Native American ($n = 1$; 0.2%), and African American ($n = 1$; 0.2%). Twenty-eight did not indicate their race/ethnicity. Participants' educational level consisted of 36 (8.0%) with high school diploma/GED or less, 180 (40.2%) with some college or a two-year college degree, 130 (29.0%) with a four-year college degree, and 75 (16.7%) with a post-graduate degree (e.g., Master's, Ph.D., and Professional degrees). Twenty-seven (6.0%) did not indicate their education level. In terms of relationship status, 112 (25.0%) participants identified themselves as single, 254 (56.7%) as married or in a committed relationship, 36 (8.0%) as divorced, 7 (1.6%) as separated, 6 (1.3%) as widowed, and 7 (1.6%) did not indicate a relationship status.

Two-hundred and two (45.1%) participants identified their branch of service as the Army, 122 (27.3%) as the Air Force, 86 (19.2%) as the Navy, 47 (10.5%) as the Marine Corps, 6 (1.3%) as Coast Guard, and 132 (29.4%) did not indicate a branch of service. Mean number of years in service was 8.7 years ($SD = 6.90$). In terms of pay grades while in the service, the majority of respondents were non-commissioned officers (E5-E9; $n = 189$, 42.2%) followed by junior enlisted (E1-E4; $n = 126$, 28.1%), junior officers (O1-O3; $n = 42$, 9.4%), senior officers (O4-O6; $n = 28$, 6.3%), and warrant officers (W1-W2; $n = 7$; 1.6%); 30 (6.7%) did not indicate a rank. Most participants reported at least one deployment during their military service ($n = 247$, 87.1%). One-hundred twenty five (27.9%) participants served in Operation Iraqi Freedom, 107 (23.9%) in Operation Enduring Freedom, 29 (6.5%) in the Persian Gulf War, 23 (5.1%) in the Vietnam War, 9 (2.0%) in the Korean War, and 46 (10.3%) in other military operations/deployments.

Sample 2. Participants were 789 (604 men, 182 women) self-identified atheist civilians who did not endorse a belief in God. Of these 789 T1 participants, 367 (46.5%) completed the T2 survey. Mean age for the sample was 36.35 ($SD = 13.20$). The majority of the sample was white ($n = 695$; 88.1%), followed by multiracial ($n = 37$; 4.7%), other ($n = 23$; 2.9%), Latino ($n = 12$; 1.5%), Asian/Pacific Islander ($n = 10$; 1.3%), African American ($n = 5$, 0.6%), and Native American ($n = 1$; 0.1%). Six did not indicate their race/ethnicity. Participants' educational level consisted of 94 (11.9%) with high school diploma/GED or less, 217 (27.5%) with some college or a two-year college degree, 271 (34.3%) with a four-year college degree, and 206 (26.1%) with a post-graduate degree (e.g., Master's, Ph.D., and Professional degrees). In terms of relationship status, 346 (43.8%) participants identified themselves as single, 371 (47.0%) as married or in a committed relationship, 44 (5.6%) as divorced, 9 (1.1%) as separated, 4 (0.5%) as widowed, and 15 (1.9%) did not indicate a relationship status.

Sample 3. Participants were 293 (69 men, 220 women, 4 did not indicate gender) Christian civilians attending a large, Midwestern University. One-hundred sixty six (56.7%) identified as Christian (otherwise unspecified), 104 (35.5%) as Catholic, 21 (7.2%) as Protestant,

and 2 (0.7%) as Orthodox-Christian. Mean age for the sample was 18.95 ($SD = 1.88$). The majority of the sample was white ($n = 261$; 89.1%), followed by Asian/Pacific Islander ($n = 14$; 4.8%), African American ($n = 7$, 2.4%), multiracial ($n = 6$; 2.0%), Latino ($n = 4$; 1.4%), and other ($n = 1$, 0.3%), which matched the demographic makeup of the university student body. One-hundred sixty nine (57.7%) were first-year students, 76 (25.9%) were sophomores, 31 (10.6%) were juniors, 11 (3.8%) were seniors, and 5 (1.7%) were beyond their fourth year.

Measures

Descriptions of the Original and Revised spiritual fitness scales are provided first, followed by descriptions of the fourteen well-being indicators assessed in this investigation. Means, standard deviations, and Cronbach alpha scores for all instruments across the three samples are listed in Table 1, whereas intercorrelations among all measures have been made available for download as supplemental material (*copy editor please replace this text with the url assigned to the supplemental material*).

Original Spiritual Fitness Scale. The Original scale is a 5-item scale designed to measure the degree to which an individual has a sense of meaning, purpose, and accomplishment in life that extends beyond the self (Peterson et al., 2011). Items are rated on a 5-point scale from 1 (*not like me at all*) to 5 (*very much like me*), with higher scores indicating greater spiritual fitness. The Original scale items were adapted from the widely-used Brief Multidimensional Measure of Religiousness/Spirituality (Fetzer Institute & National Institute on Aging Working Group, 1999). The Original scale has demonstrated evidence of internal consistency, construct validity, and criterion validity (Peterson et al., 2011; Lester, Harms, Bulling, Herian, & Spain, 2011; Lester, Harms, Bulling, Herian, Spain, & Beal, 2011; Lester, Harms, Herian, Krasikova, & Beal, 2011). To allow civilians who do not work for the military to validly complete the Original scale, the phrase “in the military” was replaced with “at my place of work/school” for Item 4, when administered to civilians (i.e., samples 2 and 3).

Revised Spiritual Fitness Scale. The Revised scale is an item-by-item adaptation of the Original scale that uses the same 5-point scale and scoring procedure. As noted earlier, the

Original scale is akin to measures of “meaningfulness”—a subjective felt-sense of meaning and purpose in life (Park, 2005). Given this, we sought to create an updated scale that measures meaningfulness (the core secular concept at the heart of spiritual fitness) while avoiding the use of transcendent item phrasing that risks engendering inaccurate measurement of atheists’ spiritual fitness. Below we describe our process for translating each of the five items.

Pargament and Sweeney (2011), in describing the domain of the “human spirit,” state that “an individual’s spiritual core forms the foundation of the human spirit and comprises an individual’s most central values and beliefs concerning purpose and meaning in life” (p. 61) and “the human spirit is...a motivating force that is directed at realizing higher order goals, dreams, and aspirations that grow out of the essential self” (p. 58). Given these descriptions and others provided in the published article, we understood a “spiritual person” to mean someone who has an essential core that provides meaning. Therefore, we revised item 1 (“I am a spiritual person”) into “I have a core of beliefs, ethics, and values that give my life a sense of meaning and purpose.” This adaptation thereby avoids the use of the ambiguous and therefore potentially problematic term “spiritual.”

To avoid ambiguities associated with the modifier “lasting” in the context of item 2 (“My life has lasting meaning”) and to avoid assuming respondents believe their life has an inherent meaning bestowed by a Higher Power, we revised the item to more clearly focus on its secular meaning-making core (“I’ve been able to find a sense of meaning in my life”) We chose to use the phrase “sense of” as it makes it more clear to the respondent that it is their felt sense rather than their beliefs around externally-determined meaning. Similarly, we revised item 4 (“The job I am doing in the military has lasting meaning”) to refocus its attention from transcendent significance to secular personal significance (“The work I am doing in the military is meaningful to me”). As done with the Original scale, the phrase “in the military” was replaced with “at my place of work/school” for revised item 4, when administered to civilians (i.e., samples 2 and 3). Similar to item 2, to avoid assuming all respondents believes there is an externally-determined purpose for their life, we revised item 5 (“I believe there is a purpose for my life”) to more

clearly focus on its secular meaning-making core (“I live life with a clear sense of purpose”). To avoid ambiguities associated with the phrase “closely connected” in item 3 (“I believe that in some ways my life is closely connected to all humanity and all the world”), we revised the item to more clearly highlight the secular “sense of connection” at the heart of the item (“I feel a sense of connection to the rest of humanity and the natural world”).

In support of the Revised scale’s content validity, three Principal Axis Factor Analyses without rotation (one per sample) found that the five Revised scale items all significantly loaded on a single factor (first eigenvalue ≥ 2.14 ; second eigenvalue $\leq .86$) that captured $\geq 42\%$ of the total variance, suggesting unidimensionality. Notably, these psychometric properties of the Revised scale were stronger than those of the Original scale (Eigenvalues ≤ 1.91 ; total variance $\leq 38\%$). To confirm that the Revised scale items measure the same latent construct as the Original scale items, we conducted three confirmatory factor analyses (one per sample) within a structural equation modeling framework. Using Full Information Maximum Likelihood (FIML) estimation in MPLUS (Version 6.11), we set the five Original scale items to load on one “Original” factor and the five Revised scale items to load on a second “Revised” factor, and then checked the estimated correlation matrix to determine the strength of the correlation between the Original and Revised factors. Across the three samples, the correlations between Original and Revised factors were above .91, suggesting the two scales measure the same latent construct of spiritual fitness.

Given that the Revised scale’s concurrent and predictive validity, as compared to the Original scale’s, is a primary focus of this paper, this evidence is delineated in the results section. The Cronbach alpha scores for the Revised scale (.77 to .82) were higher than those for the Original scale. In summary, the Revised scale appears to have comparable, if not stronger, psychometric properties to the Original scale.

Purpose in Life. The Life Engagement Test (LET; Scheier et al., 2006) is a 6-item instrument designed to measure purpose in life derived from engaging in activities that are personally valued (e.g., “I value my activities a lot.”). Items are rated on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*), with higher scores representing higher purpose in life.

The LET has demonstrated evidence of internal consistency, construct validity, and criterion validity across eight samples (Scheier et al., 2006).

Sense of Coherence. The Sense of Coherence (SOC; Antonovsky, 1987) short form scale is a 13-item instrument designed to measure the tendency to see the world and one's life as comprehensible, manageable, and meaningful. Items are rated on a 7-point scale, with anchors tailored to each question (e.g., "Do you have very mixed-up feelings and ideas?" rated from 1 [*very seldom or never*] to 7 [*very often*]). Higher scores represent greater sense of coherence. The SOC has demonstrated evidence of internal consistency, construct validity, and criterion validity (Eriksson & Lindstrom, 2005). A total score, rather than subscale scores, was derived in accordance with the recommendations of Antonovsky (1987).

Self-Concept Clarity. The Self-Concept Clarity Scale (SCC; Campbell et al., 1996) is a 12-item instrument designed to measure the extent to which an individual's self-beliefs are clearly and confidently defined, internally consistent, and temporally stable (e.g., "My beliefs about myself often conflict with one another."). Items are rated on a 5-point scale from 1 (*not at all descriptive of me*) to 5 (*very descriptive of me*), with higher scores representing greater self-concept clarity. The SCC has demonstrated evidence of internal consistency, construct validity, and criterion validity (Campbell et al., 1996).

Life Satisfaction. The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) is a 5-item instrument designed to measure cognitive self-evaluation of global life satisfaction (e.g., "I am satisfied with my life"). Items are rated on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher scores representing higher life satisfaction. The SWLS has demonstrated evidence of internal consistency, construct validity, and criterion validity (Diener et al., 1985; Pavot, Diener, Colvin, & Sandvik, 1991).

Depression, Anxiety, Stress. The Depression, Anxiety, and Stress Scale—Short Form (DASS-21; Lovibond & Lovibond, 1995) is a 21-item, 3-subscale (7 items per subscale) instrument designed to measure psychological adjustment in the domains of depression (e.g., "I felt down-hearted and blue"), anxiety (e.g., "I felt I was close to panic"), and stress (e.g., "I

found it hard to wind down”). Items are rated on a 4-point scale from 1 (*did not apply to me at all*) to 4 (*applied to me very much, or most of the time*), with higher scores representing higher depression, anxiety, or stress. Participants were asked how much each item applied to them over the past week. The DASS-21 has evidenced adequate internal consistency, construct validity, and criterion validity (Henry & Crawford, 2005; Lovibond & Lovibond, 1995).

Health. The SF-36 is a 36-item, 8-subscale instrument designed to measure functional health status across eight independent domains of health-related quality of life: Physical Functioning (PF), Role Limitations-Physical (RP), Role Limitations-Emotional (RE), Vitality (VT), Social Functioning (SF), Bodily Pain (BP), General Health (GH), and Mental Health (MH). All subscales were utilized with the exception of MH, as the survey already included a dedicated measure of mental health. The RAND scoring algorithm was utilized to generate the seven subscale scores (Hays, Sherbourne, & Mazel, 1993), which involves recoding scores to a 0 to 100 scale then averaging subscale items together. Higher scores represent greater health-related quality of life. Across a variety of demographic groups, the seven subscales have consistently demonstrated evidence of internal consistency, construct validity, and criterion validity (Ware, Kosinski, & Keller, 1994).

Procedure

Samples 1 and 2. Participants were recruited via a website that focuses on research on the nonreligious (<http://www.atheistresearch.org>). The website attracts regular visitors from online search engines, secular organization websites, and word of mouth among secular individuals. The majority of internet survey participants were informed about the survey in this manner. In addition, the first author contacted the owners of websites focused on the intersection of nonbelief and the U.S. military and encouraged them to post an announcement about the study. Due to the small number of atheists in the U.S. population and the U.S. Armed Forces in particular, internet recruitment was used to achieve necessary sample sizes and facilitate participation from “closeted” atheists who are reticent to divulge their atheism.

Participants were invited to confidentially complete the survey online. U.S. military personnel and veterans were directed to the military version (sample 1) while all other respondents were directed to the civilian version (sample 2). The survey was described as a study investigating the validity of the Army's spiritual fitness tool and the secular/spiritual well-being of U.S. Military Personnel and Veterans (military version) or of those who have not served in the Military (civilian version). After providing informed consent, participants completed the survey measures and demographic items, and then were presented with the debriefing page. For counter-balancing purposes, items from the Original and Revised scales were combined into one instrument and presented in a random, intermixed order. To limit Samples 1 and 2 to atheists, only those respondents who (a) self-identified as atheists (they could select multiple labels) and (b) indicated an absence of belief in God(s) were retained for data screening and analysis. Individuals from Samples 1 and 2 who participated at T1 were invited via email to retake the same survey six months after their initial participation (T2), which allowed us to examine the predictive validity of the Original scale and Revised scale. Procedures for all samples received prior Institutional Review Board approval.

Sample 3. Participants were recruited through the psychology department's subject pool, which consisted of students majoring in various fields of study who were enrolled in an introductory psychology or communication studies course. Participants were invited to confidentially complete the survey online, which was described as a study investigating the validity of a scale designed to measure spiritual well-being, and received course credit for their participation. After providing informed consent, participants completed the survey measures and demographic items, and then were presented with the debriefing page. As in samples 1 and 2, items from the Original and Revised scales were combined into one instrument and presented in a random, intermixed order. To limit the analyzed sample to Christians (who comprised the majority of the sample), only those participants who (a) self-identified with a Christian denomination (they were asked what label best describes how they identify themselves) and (b) endorsed belief in God were retained for data screening and analysis.

Preliminary Data Screening

To clean the data, we first combined T2 data with T1 data for Samples 1 and 2. Then, we removed all cases ($n = 3$ from sample 1, $n = 133$ from sample 2, $n = 2$ from sample 3) from the three samples that were missing substantial data (i.e., more than 20% of all items). To reduce threats to the validity of individuals' responses due to random or inattentive responding (Kurtz & Parish, 2001), we also interspersed throughout the survey three items asking participants to select a certain response (e.g., "Please select 'strongly agree' for this item"). Data from those individuals ($n = 18$, $n = 42$, $n = 6$, respectively) who failed to complete more than one of these items correctly was removed. Across the three samples, missing data ranged from a low of 0.0% for PF to a high of 4.8% for SOC. SPSS (Version 21) was used to impute item-level missing data from expectation maximization parameters prior to computing total scores (Graham et al., 2003). In regards to normality, with the exception of PF in samples 2 and 3, no variables exceeded the cutoffs of 3 and 10 for high skewness and kurtosis values, respectively (Weston & Gore, 2006).

To screen for univariate outliers, we identified all cases with z -scores above 3.29 ($p < .001$) on one or more of the total score variables (Tabachnick & Fidell, 2001). Because the variables did not exceed the skewness and kurtosis cutoffs stated previously and, upon examination, each of these outlier cases was found to be a legitimate case (rather than a product of a coding error or sampling error, for example), winsorization (i.e. truncation—changing outliers to the next most extreme score) rather than removal was chosen as the most appropriate method of addressing these outliers (Weston & Gore, 2006). Winsorization "preserves the information that a case had among the highest (or lowest) values in a distribution but protects against some of the harmful effects of outliers" (Reifman & Keyton, 2010, p. 1637).

Results

Hypotheses 1 and 3: Comparing Concurrent and Predictive Validity

Our first hypothesis was that the inclusion of transcendent item phrasing would lead to reduced concurrent and predictive validity for the spiritual fitness scale when administered to

atheists. To test this, we ran a series of zero-order bivariate correlations between each of the spiritual fitness scale versions and a variety of well-being indicators, measured concurrently (T1) and 6 months later (T2). Both samples 1 and 2 were analyzed in this fashion. We then conducted a series of dependent correlation comparisons (Cohen & Cohen, 1983) to determine whether the Original or Revised scale was a better (or equivalent) predictor of each well-being indicator. Table 1 lists these correlations and the results of these dependent correlation comparisons.

Among atheist military personnel and veterans (sample 1), the Original and Revised scales were statistically equivalent predictors for 6 of the 14 (43%) T1 well-being indicators and the Original scale was a significantly weaker predictor for 8 of the 14 (57%) indicators. In this sample, the Original and Revised scales were statistically equivalent predictors for all of the T2 well-being indicators. Among atheist civilians (sample 2), the Original and Revised scales were statistically equivalent predictors for 8 of the 28 (29%) well-being indicators and the Original scale was a significantly weaker predictor for 20 of the 28 (71%) indicators. In conclusion, the results provide partial support for our first hypothesis: the inclusion of transcendent phrasing reduced concurrent validity (predictive validity was not impacted) for the spiritual fitness scale when administered to atheist military personnel and veterans, and reduced concurrent and predictive validity when administered to atheist civilians.

Our third hypothesis was that the removal of transcendent phrasing would lead to decreased concurrent validity for Christian respondents. To test this, we used the same analytical procedure with the Christian sample (sample 3). Results indicated that the Original and Revised scales were statistically equivalent predictors for 4 of the 13 (31%) well-being indicators administered to this sample, the Original scale was a significantly weaker predictor for 9 of the 13 (69%) indicators, and the Original scale was never a significantly stronger predictor of the indicators. In conclusion, the results did not support our third hypothesis: the removal of transcendent phrasing did not lead to decreased concurrent validity for Christian respondents. To the contrary, it appeared to lead to an increase in concurrent validity.

Hypothesis 2: Under-Estimation of Spiritual Fitness

Our second hypothesis was that the inclusion of transcendent phrasing would engender under-estimation of atheists' but not Christians' spiritual fitness. Support for this hypothesis occurs when two conditions are met: (a) the mean spiritual fitness score of atheist respondents is shown to be significantly lower when measured by the Original scale than when measured by the Revised scale and (b) the mean spiritual fitness score of Christian respondents is statistically equivalent across the Original and Revised scales. To investigate whether these two conditions were met, we conducted paired-samples t-tests to compare spiritual fitness scores, as measured by the Original scale versus the Revised scale, in each of the three samples.

Results indicated that the mean spiritual fitness score of atheist military personnel and veterans (sample 1) was significantly lower when measured by the Original scale ($M = 2.78$) than when measured by the Revised scale ($M = 3.79$), $t(447) = -35.18, p < .001, d = -1.66$. Likewise, the mean spiritual fitness score of atheist civilians (sample 2) was significantly lower when measured by the Original scale ($M = 2.71$) than when measured by the Revised scale ($M = 3.71$), $t(788) = -45.78, p < .001, d = -1.63$. Cohen's (1988) guidelines for interpreting effect sizes suggest that an effect size of ± 1.6 is well above the ± 0.8 taken to indicate a "large" effect. In contrast, the mean spiritual fitness score of Christian respondents was statistically equivalent across the Original scale ($M = 3.86$) and Revised scale ($M = 3.86$), $t(292) = -.09, p = .93, d = -.01$.

Having met the two conditions outlined previously, these results support our second hypothesis: the inclusion of transcendent phrasing led to the under-estimation of atheists' but not Christians' spiritual fitness. Furthermore, given the large effect sizes found with samples 1 and 2, it appears that this under-estimation may be of considerable practical significance. Also, Christians' scores across the two scales were identical, suggesting that the removal of the transcendent phrasing from the items is unlikely to result in a different spiritual fitness score for Christian respondents.

Discussion

The present study sought to determine the potential impact of transcendent item phrasing (i.e., phrasing that assumes the respondent believes in certain sacred or supernatural concepts) on

the validity of the U.S. Army's Comprehensive Soldier Fitness Program's spiritual fitness scale for atheist military personnel, veterans, and civilians. In partial support of our first hypothesis, results indicated that the inclusion of transcendent phrasing reduced concurrent validity (predictive validity was not impacted) for the spiritual fitness scale when administered to atheist military personnel and veterans, and reduced concurrent and predictive validity when administered to atheist civilians.

Contrary to our third hypothesis, the removal of transcendent phrasing actually led to *increased* concurrent validity for Christian respondents. Two possible explanations come to mind. Christian respondents, like their atheist counterparts, may have interpreted the ambiguous terms (e.g., "spiritual") in varying ways, thereby increasing measurement error. Alternatively, Christian respondents' degree of endorsement of the transcendental aspects of spiritual fitness (e.g., "I believe there is a [deity-bestowed] purpose for my life") may be less predictive of their well-being than their degree of endorsement of the secular aspects of spiritual fitness (e.g., "I live life with a clear sense of purpose"), which were more cleanly measured by the Revised version. In support of our second hypothesis, the inclusion of transcendent phrasing led to the under-estimation of atheists' but not Christians' spiritual fitness. Taken together, these findings suggest the Revised scale, which is composed of items that do not rely on transcendent phrasing, produces better psychometric outcomes for both atheist and Christian respondents.

As noted in the introduction, improving the validity and reducing the under-estimation bias of the Army's spiritual fitness scale by implementing these revisions could be important for several reasons. First, the CSF creators designed the spiritual fitness component of the CSF program to (a) retain relevance and usefulness for, and (b) respect the autonomy and worldview of, all soldiers. Implementing these revisions may help improve the relevance and usefulness of the spiritual fitness score for atheist soldiers. By decreasing the chance that spiritually-fit atheist soldiers will be mistakenly told they suffer from low spiritual fitness, the CSF program can demonstrate respect for these soldiers' belief system (i.e., by not sending the message that the Army considers their secular worldview to be a problem) and increase these soldiers' confidence

in the program. Second, the Original scale developers have stated that the continual establishment and improvement of the psychometric validity of the GAT is of utmost importance (Peterson et al., 2011). Implementing these revisions may help improve the psychometric validity of the GAT for not only Army soldiers and civilians, but personnel of other backgrounds, such as Christians. Third, given that one of the stated goals of the CSF program is to accurately identify which soldiers could benefit from the remedial spiritual fitness training, implementing these changes may make it less likely that spiritually-fit atheist soldiers will be misclassified as having “low” spiritual fitness.

Addressing Current Limitations through Future Research

The results of the current study should be considered in light of its limitations. First, while internet recruitment offers distinct advantages for recruiting from populations whose members may be difficult to locate and reticent to disclose their identity due to stigmatization concerns, our atheist subject pool was limited to those who visited the websites where the study was advertised. Likewise, the majority of the atheist participants were educated and white. While this reflects the demographic profile of atheists living in the U.S. (Kosmin & Keysar, 2006), it is possible that atheists of different demographic backgrounds may have responded differently to the spiritual fitness and outcome measures. For these reasons, future research should attempt to sample from demographically-diverse atheists.

Second, like most social science surveys, our survey utilized a self-report format that has the potential to elicit socially desirable responding. However, the ability to anonymously participate over the internet has been found to reduce such responding (Booth-Kewley, Larson, & Miyoshi, 2007). Third, our sample of Christian respondents was drawn from a civilian college student population rather than a military population. Future investigations should sample from Christian military personnel to confirm that the psychometric advantages of the scale revisions hold for this population. In addition, future investigations should sample longitudinally (akin to what was done with samples 1 and 2) from this group to ensure these advantages hold over time. Given the CSF program developers’ access to the primary population of interest (i.e., Christian

Army personnel), resources, and commitment to the improvement of the GAT, this may represent a realistic next step. Fourth, future research is required to understand why the Revised version demonstrated superior predictive validity among civilian but not military atheists. It is possible that this may have been due to idiosyncratic samples or perhaps due to the greater stresses experienced by military personnel. Other potential future directions within this area of research include: developing additional items that avoid the use of transcendent phrasing to further improve the scale's psychometric properties, testing the scale's ability to predict objective well-being outcomes (e.g., blood pressure), and examining the cross-cultural utility of the scale for military personnel from other countries.

Conclusions

In conclusion, results from the present investigation suggest that the validity of the Army's spiritual fitness scale for atheist participants in the CSF program can be improved by utilizing items that do not incorporate transcendent phrasing, such as those developed for the present study's Revised spiritual fitness measure. Importantly, such revisions appear to actually strengthen the concurrent validity of the scale for Christian respondents as well. Given that the CSF program is being customized for dissemination within other branches of the U.S. military (S. Johnston, personal communication, August 4, 2012), there exist growing opportunities to act on these findings to help maximize the relevance and usefulness of spiritual fitness assessment for all participants.

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Table 1.

Means, Standard Deviations, Cronbach Alphas, and Comparative Strength of the Correlations between Well-Being Indicators and the Original vs. Revised Spiritual Fitness Scale

Scale	<i>M</i>	<i>SD</i>	α	<i>r</i>		Dependent <i>r</i> comparison	
				Time 1: Original	Time 1: Revised	<i>t</i>	<i>p</i>
Sample 1: Atheist military personnel and veterans							
Time 1 ^a							
Original Spiritual Fitness	2.77	.91	.71	-	-	-	-
Revised Spiritual Fitness	3.79	.90	.77	.77	-	-	-
Life Engagement Test	4.01	.66	.82	.41	.50	-3.23	.001
Sense of Coherence	5.11	.88	.85	.32	.43	-3.79	<.001
Self-Concept Clarity	4.10	.67	.87	.15	.25	-3.22	.001
Satisfaction with Life Scale	4.88	1.36	.88	.40	.48	-2.84	.005
Depression	.33	.43	.90	-.25	-.32	2.30	.02
Anxiety	.19	.26	.72	-.13	-.20	2.22	.03
Stress	.48	.45	.83	-.16	-.18	.63	.53
Physical Functioning	91.37	13.21	.91	.03	.00	.93	.35
Role Limitations-Physical	86.24	29.43	.88	.00	-.01	.31	.76
Role Limitations-Emotional	86.13	28.65	.78	.10	.08	.63	.53
Vitality	61.23	19.21	.85	.19	.27	-2.53	.01
Social Functioning	88.38	19.57	.86	.09	.11	-.63	.53
Bodily Pain	84.92	18.21	.84	.02	.00	.62	.53
General Health	73.54	19.47	.81	.16	.23	-2.24	.03
Time 2 ^b							
Original Spiritual Fitness	2.66	.91	.76	.70	.56	-	-
Revised Spiritual Fitness	3.70	.87	.77	.60	.64	-	-
Life Engagement Test	3.98	.61	.78	.35	.35	.00	1.00
Sense of Coherence	5.16	.85	.84	.25	.26	-.19	.85
Self-Concept Clarity	4.13	.64	.87	.10	.08	.36	.72
Satisfaction with Life Scale	4.95	1.24	.88	.24	.26	-.38	.71
Depression	.36	.47	.90	-.26	-.24	-.38	.71
Anxiety	.21	.31	.76	-.12	-.06	-1.10	.27
Stress	.54	.52	.86	-.16	-.15	-.18	.85
Physical Functioning	87.05	19.41	.93	.05	.12	-1.28	.20
Role Limitations-Physical	82.63	33.21	.90	.13	.12	.18	.85
Role Limitations-Emotional	86.54	29.67	.84	.07	-.02	1.65	.10
Vitality	58.29	20.85	.86	.12	.15	-.55	.58
Social Functioning	83.77	26.80	.92	.13	.11	.37	.71
Bodily Pain	78.63	22.04	.86	.03	.06	-.55	.59

General Health	70.16	20.85	.82	.10	.14	-.73	.46
Sample 2: Atheist civilians							
Time 1 ^c							
Original Spiritual Fitness	2.71	.92	.73	-	-	-	-
Revised Spiritual Fitness	3.71	.90	.77	.77	-	-	-
Life Engagement Test	3.95	.63	.79	.41	.54	-6.37	<.001
Sense of Coherence	4.94	.85	.83	.32	.43	-5.03	<.001
Self-Concept Clarity	3.93	.73	.87	.16	.28	-5.19	<.001
Satisfaction with Life Scale	4.76	1.37	.87	.32	.46	-6.52	<.001
Depression	.43	.49	.90	-.28	-.40	5.41	<.001
Anxiety	.22	.28	.73	-.12	-.21	3.81	<.001
Stress	.53	.47	.82	-.11	-.21	4.24	<.001
Physical Functioning	91.56	11.35	.89	.05	.12	-2.92	.004
Role Limitations-Physical	86.91	27.56	.84	.02	.08	-2.49	.01
Role Limitations-Emotional	79.17	33.33	.78	.13	.17	-1.68	.09
Vitality	57.01	18.99	.84	.19	.31	-5.23	<.001
Social Functioning	85.38	20.63	.87	.13	.22	-3.82	<.001
Bodily Pain	86.04	17.45	.82	.07	.10	-1.25	.21
General Health	68.75	19.81	.78	.16	.21	-2.11	.03
Time 2 ^d							
Original Spiritual Fitness	2.63	.87	.71	.69	.59	-	-
Revised Spiritual Fitness	3.64	.87	.80	.63	.72	-	-
Life Engagement Test	3.90	.60	.79	.33	.43	-3.05	<.001
Sense of Coherence	4.92	.86	.84	.18	.36	-5.37	<.001
Self-Concept Clarity	3.87	.75	.89	.12	.28	-4.64	<.001
Satisfaction with Life Scale	4.80	1.27	.85	.21	.35	-4.13	<.001
Depression	.46	.53	.89	-.18	-.30	3.47	.001
Anxiety	.23	.28	.72	-.02	-.06	1.10	.27
Stress	.58	.46	.79	-.07	-.12	1.39	.17
Physical Functioning	92.23	10.53	.87	.00	.04	-1.10	.27
Role Limitations-Physical	87.51	27.54	.86	.05	.06	-.28	.78
Role Limitations-Emotional	78.66	34.87	.82	.04	.12	-2.23	.03
Vitality	54.86	18.61	.83	.10	.22	-3.41	.001
Social Functioning	85.25	20.75	.89	.07	.19	-3.39	.001
Bodily Pain	86.81	15.52	.77	-.02	.02	-1.10	.27
General Health	67.82	19.49	.77	.09	.12	-.83	.41
Sample 3: Christian civilians							
Time 1 ^e							
Original Spiritual Fitness	3.86	.70	.73	-	-	-	-
Revised Spiritual Fitness	3.86	.75	.82	.84	-	-	-
Sense of Coherence	4.57	.86	.86	.47	.58	-4.05	<

							.001
Self-Concept Clarity	3.26	.76	.90	.40	.50	-3.46	.001
Satisfaction with Life Scale	5.35	1.03	.85	.46	.53	-2.48	.013
							<
Depression	.46	.57	.90	-.31	-.42	3.65	.001
Anxiety	.39	.46	.81	-.19	-.28	2.82	.005
Stress	.69	.59	.84	-.24	-.33	2.87	.004
Physical Functioning	95.65	8.09	.95	.05	.13	-0.24	.02
Role Limitations-Physical	88.92	22.79	.81	.11	.12	-0.30	.76
Role Limitations-Emotional	71.45	38.21	.81	.16	.25	-2.80	.005
Vitality	54.24	19.35	.86	.35	.41	-1.97	.05
Social Functioning	81.26	20.20	.81	.23	.29	-1.88	.06
Bodily Pain	83.19	17.41	.79	.11	.11	0.00	1.00
General Health	70.95	19.08	.81	.17	.22	-1.54	.13

^an = 448. ^bn = 161. ^cn = 789. ^dn = 367. ^en = 293.