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Five-Factor Structure of the Spiritual Transcendence Scale and Its Relationship with Clinical Psychological Distress in Emerging Adults

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Abstract: This study examined the factor structure of the Spiritual Transcendence Scale (STS) and its relation to clinically significant psychological distress in 644 (445 female) emerging adults from a private, Catholic university. The STS is broadly used in psychological research as a measure of spirituality. However, previous work has identified extensive psychometric problems with the STS, including variable factor structures and poor internal consistencies for its subscales. Results from exploratory factor analyses suggested a five-factor structure that accounted for over 57% of variance. Confirmatory factor analyses suggested this five-factor structure provided significantly better fit than the originally purported three-factor structure. Females reported significantly higher STS scores. Males with low reported spirituality reported significantly greater (and clinically significant) symptoms of psychological distress than lowly and moderately spiritual males. Females reporting low, moderate, and high levels of spirituality did not report significantly different levels of psychological distress. The findings provided contrasting conclusions from previous psychometric work on the STS, encourage continued study of its dimensionality across populations, and suggest a unique relationship between the STS and clinically significant psychological distress in emerging adults.

Keywords: spiritual transcendence scale; factor analysis; emerging adults; psychological distress

1. Introduction

Religion and spirituality have been at the forefront of social scientific research in recent years. Religion is often defined as a "multidimensional construct that includes beliefs, behaviors, rituals, and ceremonies that may be held or practiced in private or public settings" (Koenig 2012, pp. 2–3), while there is little consensus among researchers on the definition of spirituality. Some believe spirituality is "the capacity of individuals to stand outside of their immediate sense of time and place to view life from a larger, more objective perspective" (Piedmont 1999, p. 998), and that captures the "connection to that which is sacred, the transcendent" (Koenig 2012, p. 3). While religion and spirituality are sometimes understood as "overlapping circles" (Underwood 2011, p. 30), and are often conflated in both scientific study and in lay discussion, spirituality remains a unique construct deserving of individual empirical study (Koenig 2012; Zinnbauer et al. 1997).

An instrument often utilized in the measurement of spirituality is the Spiritual Transcendence Scale (STS) (Piedmont 1999). The STS assesses the "transcendent perspective in which a person sees a fundamental unity underlying the diverse strivings of nature" (Piedmont 1999, p. 998), while tapping "a more social emphasis on encountering the divine" (Piedmont 1999, p. 989). The STS is purported to measure a purer form of spirituality as it "provides a nonreligious conceptualization" (Kapuscinski and Masters 2010, p. 202). It contains 24 items that assess three core constructs related to spiritual transcendence, including *Universality*, *Prayer Fulfillment*, and *Connectedness*. *Universality* is the belief

in the unity and purpose of life; *Prayer Fulfillment* is a feeling of joy and contentment resulting from prayer or meditation; and *Connectedness* is a sense of personal responsibility and connection to others. Items are answered on a 5-point Likert scale ranging from (1) Strongly Disagree to (5) Strongly Agree. Increased scores represent greater levels of spiritual transcendence.

1.1. Psychometric Problems with the Spiritual Transcendence Scale

The STS has been investigated broadly in regard to its psychometric properties in diverse samples (de Jager Meezenbroek et al. 2012). Research has revealed possible problems with the proportion of variance accounted for, factor structure, and the internal consistency of proposed dimensions.

Despite proportion of variance accounted for often serving as a de facto goodness-of-fit test in exploratory factor analysis (Lorenzo-Seva 2013), Piedmont (1999) proposed STS factor structure accounted for less than half of the variance (45%) among STS items. Although its developer argued for a "very clear three-factor solution" (Piedmont 1999, p. 998) consisting of *Connectedness*, *Universality*, and *Prayer Fulfillment*, variability regarding the STS' factor structure is pervasive in the literature. Recent work marginally supported the three-factor solution over a single overall factor (Piedmont 2007). Other literature suggested alternative models of two (Akyalcin et al. 2008; Piedmont and Leach 2002) or four factors (Lau et al. 2015) with variable sets of selected items fitting the measure best. In short, the three-factor structure purported by Piedmont (1999) appears to be "conceptually unconvincing" (de Jager Meezenbroek et al. 2012, p. 347).

Regarding internal consistency, the internal consistency of *Connectedness* ($\alpha = 0.64$) in the original validation study (Piedmont 1999) fell below a common criterion for acceptable reliability of $\alpha = 0.70$ (Bernstein and Nunnally 1994). Other research has revealed similar problems with low internal consistencies for all three STS scales (αs ranged from 0.23 to 0.67) (Piedmont and Leach 2002). Recent work has reported low internal consistencies for *Prayer Fulfillment* ($\alpha = 0.59$) (Piedmont 2007), *Universality* ($\alpha = 0.67$) (Lau et al. 2015), and *Connectedness* (αs ranged from 0.42 to 0.64) (Lau et al. 2015; Piedmont 2007; Rican et al. 2010). Such values representing limited internal consistency indicate a possible problem regarding the possible heterogeneity of the constructs purported to be measured (Schmitt 1996; Tavakol and Dennick 2011), and that they may capture additional dimensions of spirituality. The present study sought to expand on the understanding and breadth of content assessed by the STS.

1.2. Spirituality and Psychological Distress

The literature supports a link between spirituality and psychological adjustment (Bergin 1983; Koenig 2012; Koenig et al. 2012; Hill and Pargament 2003). Generally, higher endorsement of spirituality has been shown to relate positively to psychological adjustment and overall mental health (Blumenthal et al. 2007; Ciarrocchi and Deneke 2005a, 2005b; Mayoral-Sanchez et al. 2010; Fitchett et al. 1996). Furthermore, those who identify as low in spirituality tend to endorse a significant amount of psychological distress, as evidenced by clinically elevated cutoff scores on the Langner Symptom Survey (Crawford et al. 1989; Mosher and Handal 1997). Researchers propose the relationship between spirituality and psychological adjustment may be attributed to the increased sense of social support these individuals experience (Seybold and Hill 2001), as well as the personal growth and self-help practices learned through religious practices (e.g., meditation, reflection).

Recent work has extended this investigation to spirituality in emerging adulthood, a period in which spirituality is often explored (Creech et al. 2013; Handal and Lace 2017; Piedmont et al. 2009). Additionally, emerging adults, those between the ages of 18 to 25 (Arnett 2000), may be at an increased risk for first onset of mental health problems (Kessler et al. 2005; Zivin et al. 2009). A study by Lace and Handal (2017) investigated differences in psychological distress among emerging adult males and females of high, moderate, and low spirituality per the Daily Spiritual Experiences Scale (Underwood and Teresi 2002). They found females tended to report a significant degree of psychological distress and need for treatment when they also endorsed lower levels of spirituality.

More thorough research investigating this pattern of low, moderate, and high spirituality (as measured by the STS) and mental health is needed in emerging adult populations.

1.3. The Present Study

The present study had two primary purposes. First, the present study sought to investigate the psychometric properties of the STS in a sample of American emerging adults through confirmatory and exploratory factor analysis, and comparison of two possible models. Secondly, the study examined the relationship between the STS and psychological distress by borrowing the methodology of previous research examining differences among those who report low, moderate, and high levels of religiosity(Crawford et al. 1989; Mosher and Handal 1997) and spirituality (Lace and Handal 2017) on a psychometrically robust measure of distress that possesses a clinically validated cutoff score in the population of interest.

2. Materials and Methods

2.1. Participants

Participants were recruited from undergraduate courses at a private, Catholic university in the Midwestern United States and participated as part of a larger study. Of the original 670 participants, the final sample for the present study consisted of 644 individuals (*M* age = 19.37, *SD* = 1.31), with 199 males (*M* age = 19.51, *SD* = 1.39) and 445 females (*M* age = 19.31, *SD* = 1.26) that had complete data for the measures of interest. Thus, 26 participants were excluded due to missing data. Ages ranged from 18 to 25 with no significant difference in age between males and females. Most participants identified as freshman (54%), with 22% sophomores, 16% juniors, 7% seniors, and 1% fifth year undergraduates or beyond.

Participants were predominantly Caucasian (75%), with others identifying as African American or Black (3%), Asian or Asian American (10%), South Asian or Indian American (4%), Multi-racial or Multi-ethnic (4%), Hispanic or Latino (3%), and Middle Eastern or Arab American (1%). One student each identified as "White", "Greek", "Native American", and "Hawaiian." Most participants identified as Catholic (56.2%). Others identified as Christian (Protestant, 10%; Non-demoninational, 8.9%), Agnostic (6.3%), Hindu (3.9%), Muslim (3.2%), Buddhist (0.5%) and Jewish (0.2%). The remaining participants (7.2%) identified as "Other". Reported approximate family income ranged from below $40,000 to above $160,000, with the median family income between $100,000 and $120,000.

2.2. Measures

2.2.1. Spirituality

The Spiritual Transcendence Scale (STS) (Piedmont 1999) is a 24-item scale measuring spiritual transcendence with item responses ranging from (1) Strongly Disagree to (5) Strongly Agree. Greater scores represent higher levels of spirituality. Psychometric properties for the STS and problems related to them are discussed at length above (see Akyalcin et al. 2008; de Jager Meezenbroek et al. 2012; Lau et al. 2015; Piedmont 1999, 2007; Piedmont and Leach 2002).

2.2.2. Psychological Distress

The Langner Symptom Survey (LSS) (Langner 1962) is a 22-item measure that assesses psychological distress and need for treatment, and is frequently used in research with religion (Mosher and Handal 1997) and spirituality (Lace and Handal 2017). It measures physiological symptoms, anxiousness, low mood and depression, and cognitive dysfunction. Items are scored as either 0 or 1, where 0 reflects the absence of the symptom and 1 suggests endorsement of the symptom. Examples of LSS items include feeling "hot all over" and difficulty "getting or staying

asleep" (see Langner 1962). Scores may range from 0 to 22, and higher scores indicate more distress in the individual.

The LSS has robust psychometric properties (Cochrane 1980), and it is able to accurately differentiate adults in need of treatment from healthy controls at least 84% of the time (Langner 1962). The LSS also has clinically validated cutoff scores, which are indicative of those with greater distress and need for treatment. Research reported a cutoff score denoting psychological distress and need for treatment of 4 or more for adults and adolescents (Handal et al. 1993; Langner 1962), while supporting a score of 5 or more for the emerging adult population (Handal et al. 2015).

2.2.3. Demographic Questionnaire

A 22-item demographic questionnaire was included that asked participants' age, sex, race/ethnicity, religious or faith identify, year in school, grade point average, parent's marital status, approximate familial income, current living arrangement, employment history, and psychological service utilization history.

2.3. Procedure

Approval from the university's Institutional Review Board was obtained before data collection began. Participants were part of a larger study and were recruited from undergraduate psychology classes. Some classes (approximately 66%) offered class credit for participation, while the other classes did not offer incentives for participation. Data regarding participants' receipt of additional course credit for participation was not collected as part of this study, and, as such, was unfortunately unavailable for analysis. Participants accessed the study via SONA, a university-approved research recruitment program, or through a link provided to them by professors who helped with recruitment. After accessing the study, they were directed to a link to the Qualtrics site hosting the survey. Participants first answered the demographic questionnaire, then they completed the STS and LSS in order. Only participants with complete data were included for analysis.

2.4. Statistical Analyses

All analyses were performed with SPSS 24.0 or AMOS 24.0 for Microsoft Windows. First, a confirmatory factor analysis (CFA) using maximum likelihood estimation was performed to examine the three-factor STS model proposed by Piedmont (1999). Next, exploratory factor analyses (EFAs) using principal axis factoring were performed to determine an alternative latent factor structure. EFAs utilized promax (oblique) rotation, as has been suggested for use in studies of this measure (Slater et al. 2001), to allow for correlation among any extracted factors. Principal axis factoring was preferred to principal components analysis because the purpose of these analyses was to understand the underlying, latent factors as opposed to data reduction. Item loadings equal to or greater than 0.35 were considered statistically meaningful and contributory to a factor to maintain consistency with Piedmont (1999) original methods. A second CFA was conducted to test the structure emerging from the EFAs and several fit indices were compared between models to determine which model demonstrated relatively better fit in the present study.

Next, methodology used to examine the relationship between the STS and psychological distress were directly inspired by recently published work by Lace and Handal (2017). As total STS scores were significantly higher for females (M = 84.96, SD = 12.30) than males (M = 81.77, SD = 13.23), $t(644) = -2.97$ $p = 0.003$, males and females were separated for analysis. Participants were placed into groups of high, moderate, or low spirituality per their STS scores. Those who reported total STS scores at or above one standard deviation above their sex's (i.e., males or females) mean were placed in the "high" spiritual group. Those who reported total STS scores at or below one standard deviation below their sex's mean were placed in the "low" spiritual group. All other participants whose total STS scores fell between one standard deviation above and one standard deviation below their sex's mean were placed in the "moderate" spiritual group. Two analyses of variance (ANOVAs)

were performed (one in each sample of males and females) with spirituality group as the independent variables and LSS as the dependent variable. Tukey's post-hoc follow-up tests with homogenous subsets were conducted. Mean LSS scores for each group were compared to a clinically validated cutoff score denoting psychological distress and need for treatment in this population (Handal et al. 2015).

3. Results

3.1. Confirmatory Factor Analysis of Three-Factor Structure

A confirmatory factor analysis was performed on all STS items to determine the fit for the three-factor model proposed by Piedmont (1999). This model's chi-square value was 1594.587, $p < 0.001$. Goodness of fit index (GFI) values above 0.90 (Byrne 1994), root mean square error of approximation (RMSEA) values below 0.06 (Hu and Bentler 1999), standardized root mean square residual (SRMR) values below 0.08 (Hu and Bentler 1999), and comparative fit index (CFI) and Tucker-Lewis Index (TLI) values closer to 0.95 (Hu and Bentler 1999) represent acceptable fit. Its GFI fell at 0.805, its RMSEA fell at 0.092, its CFI and TLI both fell below 0.95, each of which did not represent acceptable fit. Its SRMR fell at 0.080, and this value fell exactly at the cutoff denoting acceptable fit. Other indices to be used for model comparison (Akaike information criteria [AIC] and Bayesian information criteria [BIC]) are provided below. Overall, the three-factor model did not demonstrate good fit.

3.2. Exploratory Factor Analyses

To explore alternative factor structures for the STS, an EFA was conducted on all 24 STS items utilizing the Kaiser stopping criterion (i.e., retain eigenvalues ≥ 1) to allow as many factors to be extracted as meaningfully accounting for variance. This EFA resulted in 6 extracted factors, explaining a total of 61.08% of the variance. Three items (Items 4, 14, and 17) cross-loaded onto more than one factor at 0.35 or greater. A second EFA was performed with these cross-loading items excluded.

The second EFA demonstrated meritorious sampling adequacy (Kaiser-Meyer-Olkin KMO = 0.88) (Dziuban and Shirkey 1974; Kaiser 1974) and Bartlett's test of sphericity ($\chi^2 = 4508.65$, $p < 0.001$) suggested the items may be efficiently analyzed. Item loadings are displayed in Table 1. This EFA resulted in 5 extracted factors that explained a total of 57.63% of the variance. No items cross-loaded onto more than one factor at 0.35 or greater. Each factor demonstrated notable correlation with each other, with correlation magnitudes ranging from 0.21 to 0.62, suggesting that these extracted dimensions of spirituality are related to one another.

Factor 1 (*Prayer/Meditation Enjoyment*; Items 2, 3, 18, 19, 20, and 21) appeared to measure one's prayer or meditation habits and quality. Factor 2 (*Universal Connectedness*; Items 5, 6, 7, 8, 9, and 10) seemed to measure temporal transcendence, an understanding of one's place in his or her lineage, and interconnectedness among generations. Nomenclature was borrowed from Piedmont (1999) in deciding this factor's name. Factor 3 (*Greater Purpose*) was comprised of three items (13, 15, and 16) that appeared to assess the belief in a fundamental meaning of existence beyond that which is observable. Factor 4 (*Wholeness of Humanity*) was comprised of four items (11, 22, 23, and 24), which assess the respondent's relationship to humankind. Factor 5 (*Closeness to the Deceased*; Items 1 and 12) appeared to assess one's emotional connection to someone who has passed away. It should be noted that some experts suggest that factors with fewer than three items not be retained (e.g., Costello and Osborne 2005; Gorsuch 1997). However, instruments that contain "more than one factor may be identified with as little as two items per factor" (Raubenheimer 2004, p. 60). Thus, after considering the STS' inherent multidimensionality, factor 5's clearly unique and specific content, and the good internal consistency for its two items ($\alpha = 0.74$), *Closeness to the Deceased* was retained as a distinct factor. These results suggest that more than three dimensions of spirituality may underline STS items.

Table 1. Five-Factor Model from Exploratory Factor Analysis.

Item # and Abbreviated Content	PME	UC	GP	WH	CD
19. Deep fulfillment from P/M	0.84	-	-	-	-
20. Engrossed by spiritual experience	0.76	-	-	-	-
18. When P/M, oblivious to world	0.73	-	-	-	-
2. P/M to reach higher consciousness	0.64	-	-	-	-
3. "Peak" experience(s)	0.51	-	-	-	-
21. Bodily desires do not interfere	0.40	-	-	-	-
8. Link/chain in family heritage	-	0.66	-	-	-
5. Life interconnected	-	0.58	-	-	-
7. Give back to community	-	0.56	-	-	-
9. Concerned about lineage	-	0.54	-	-	-
6. Higher plane consciousness	-	0.46	-	-	-
10. Larger sense of fulfillment	-	0.39	-	-	-
16. Larger plan	-	-	0.95	-	-
13. Larger meaning	-	-	0.65	-	-
15. Death doorway to other existence	-	-	0.63	-	-
24. Tied to all of humankind	-	-	-	0.75	-
22. Humanity is basically good	-	-	-	0.65	-
11. Emotional bond with all humanity	-	-	-	0.61	-
23. Universal order of thinking	-	-	-	0.41	-
1. Images of dead relatives influence my life	-	-	-	-	0.90
12. Emotional ties to dead	-	-	-	-	0.64
Cronbach's alpha	0.81	0.71	0.82	0.74	0.74
Correlation with PME	-	0.36	0.59	0.46	0.33
Correlation with UC	-	-	0.54	0.58	0.29
Correlation with GP	-	-	-	0.62	0.27
Correlation with WH	-	-	-	-	0.21

Note: Coefficients not meaningfully loading onto a factor (i.e., < |0.35|) are suppressed. See Piedmont (1999) for full item content and wording. PME = Prayer/Meditation Enjoyment; UC = Universal Connectedness; GP = Greater Purpose; WH = Wholeness of Humanity; CD = Closeness to the Deceased.

3.3. Confirmatory Factor Analysis of Five-Factor Model

A second CFA was conducted to examine the fit of the five-factor model as described above and displayed in Table 1. Fit indices for this model and comparison indices for both models are displayed in Table 2. The five-factor model's χ^2 value was 633.429, $p < 0.001$. Although statistically significant, statistically significant χ^2 values in confirmatory factor analysis may be artifacts of sample size (Bergh 2015; Van Voorhis and Morgan 2007). The five-factor model's GFI (0.912), RMSEA (0.063), and SRMR (0.058) each demonstrated acceptable fit. Its CFI and TLI, while not meeting common cutoff criteria for good fit, both fell close to 0.90, and were relatively improved compared to the three-factor model's CFI (0.763) and TLI (0.737) values. Importantly, in research comparing two possible CFA models, "differences in model fit would be the only [emphasis added] criteria to decide which model to prefer" (Werner and Schermelleh-Engel 2010, p. 1). Two fit indices (Akaike information criterion, and Bayesian information criterion) available for this purpose were compared between the three-factor model and the five-factor model to determine which demonstrated relatively better fit in the present sample.

It should be noted that chi-square difference tests are often utilized to determine whether one model demonstrated statistically significant better fit than another model. However, this method could not be used in the present study as the three- and five-factor models used different sets of items from the STS and were not nested models. Regardless, two indices designed for choosing between competing models of were compared.

Smaller values of the Akaike information criterion (AIC) represent better fit (Ho 2014). As AIC comparisons are "meaningful only when two different models are estimated" (Kenny 2015, para. 40), researchers are recommended to "[choose] the model with the small[er] value" (Ho 2014, p. 286).

The five-factor model had notably smaller AIC value (737.429) than the three-factor model (1696.587). Finally, smaller values of the Bayesian information criteria (BIC) also indicate better fit (Kass and Raftery 1995). Within social scientific research, "BIC has become quite popular for model selection" (Raftery 1995, p. 112), as it balances practical and statistical significance of the model's performance using a Bayesian approach. If a model's BIC is smaller than another model's BIC by 10 or more, evidence supporting the selection of the model with the smaller BIC is "very strong" (Raftery 1995, p. 139). The five-factor model had notably smaller BIC value (969.749) than the three-factor model (1924.440). Overall, the five-factor model demonstrated *better* fit relative to the three-factor model in the present study as supported by decreased AIC and BIC values.

Table 2. Fit Indices from Confirmatory Factor Analyses.

	χ2	GFI	RMSEA	SRMR	CFI	TLI	AIC	BIC
Three-Factor Model (Piedmont 1999)	1594.587 *	0.805	0.092	0.080	0.763	0.737	1696.587	1924.440
Five-Factor Model (Table 1)	633.429 *	0.912	0.063	0.058	0.896	0.878	737.429	969.749

Note: * $p < 0.001$. GFI = Goodness of Fit Index. RMSEA = Root mean square error of approximation. SRMR = Standardized root mean square residual. CFI = Comparative Fit Index. TLI = Tucker-Lewis Index. AIC = Akaike information criterion. BIC = Bayesian information criterion.

3.4. STS and Psychological Distress

In order to examine the relationship among low, moderate, and high STS groups, two analyses of variance were conducted. Among low, moderate, and high STS groups of females, no significant differences emerged, indicating that the mean LSS scores did not significantly differ among female STS groups, $F(2, 442) = 0.67$, $p = 0.515$, partial $\eta^2 = 0.003$. Alternatively, significant differences were found on the LSS among low, moderate, and high STS groups of males, $F(2, 196) = 4.95$, $p = 0.008$, partial $\eta^2 = 0.048$, and this represented a small effect size (Watson 2017). Tukey's post-hoc tests with homogeneous subsets were conducted to account for notable discrepancies in participants included per group. These results revealed that males in the low spirituality group had significantly higher LSS scores than males in the moderate and high spirituality groups (ps < 0.05). The moderate and high spirituality groups of males did not demonstrate significantly different LSS scores ($p = 0.884$). Notably, the mean LSS scores for males within in the low spirituality group ($M = 5.30$, $SD = 4.46$) fell *above* a clinically validated cutoff score of 5 (Handal et al. 2015), thus denoting that males in the low spiritual group tended to report clinically significant psychological distress and need for treatment. These results are displayed in Table 3.

Table 3. Differences among Differentially Spiritual Groups of Females and Males.

	Females		Males	
Spirituality Group	**n**	**LSS Mean (SD)**	**n**	**LSS Mean (SD)**
Low	68	4.38 (3.79)	30	5.30 [a] (4.72)
Moderate	314	3.94 (3.13)	139	3.32 (3.07)
High	63	4.24 (2.75)	30	2.97 (2.75)
Group Significance		None		L > M, H *

Note: * $p < 0.05$. LSS = Langner Symptom Survey. [a] Clinically Significant Distress (Handal et al. 2015).

4. Discussion

The present study sought to investigate the factor structure of the STS in university students and understand its relationship with clinical psychological distress. The results of the present study support several conclusions and offer many points of discussion. First, while the STS appears to assess multiple dimensions of spirituality in emerging adults, its factor structure and content appear to be broader from what was originally purported (Piedmont 1999). The overall results seemed to depart starkly from original findings in terms of scale content, specific item loadings, and variance accounted.

Findings such as these support the "conceptually unconvincing" (de Jager Meezenbroek et al. 2012, p. 347) distribution of items onto Piedmont (1999) proposed three subscales, particularly in relation to emerging adults.

While Piedmont argued for a "very clear three-factor structure" (Piedmont 1999, p. 988) comprised of *Prayer Fulfillment*, *Connectedness*, and *Universality*, this three-factor structure did not demonstrate good fit through confirmatory factor analyses in the present study. Exploratory factor analysis suggested that a five-factor model of the STS resulted in no cross-loadings and provided clusters of items each assessing unique content. Furthermore, confirmatory factor analysis on the five-factor model suggested overall relatively better fit than Piedmont (1999) three-factor model, and arithmetic comparison of two key indices (AIC and BIC) suggested that the five-factor model described above (Table 1) fit the data relatively better. Thus, between the two plausible models, the five-factor model emerged as more preferred through comparison analyses in the present study in emerging adults.

This study purports that the STS measures five dimensions of spirituality in emerging adults, including: the degree to which one enjoys and benefits from prayer/meditation (*Prayer/Meditation Enjoyment*); the level of commonality and temporal relatedness one feels with family and others (*Universal Connectedness*); the extent to which one understands life to have a larger meaning beyond that which can be observed (*Greater Purpose*); one's belief in the intertwined nature and goodness of all humankind (*Wholeness of Humanity*); and the degree of closeness one feels to those who have passed away (*Closeness to the Deceased*).

The five dimensions outlined above were found to have internal consistencies above common criterion of $\alpha = 0.70$ (Bernstein and Nunnally 1994) representing acceptable internal consistency, despite some containing only two (*Closeness to the Deceased*) or three (*Greater Purpose*) items. The observed acceptable levels of internal consistency across these dimensions (αs range from 0.71 to 0.82) represent marked improvements from internal consistencies reported in other research on the STS' dimensions (Piedmont 2007; Piedmont and Leach 2002), thus suggesting that each identified here may assess a relatively unidimensional, yet interrelated, aspect of spiritual transcendence.

Furthermore, the relation of the identified dimensions to each other, as exemplified by the range of correlations among factors, suggests the interrelatedness of such facets of spirituality. For example, *Prayer/Meditation Enjoyment* correlated the strongest with *Greater Purpose* ($r = 0.58$) and *Wholeness of Humanity* at $r = 0.42$. Additionally, *Greater Purpose* and *Wholeness of Humanity* correlated at $r = 0.58$. That is, the subdomains of spirituality appear to covary within individuals, such that no facet exists solely in isolation of the others.

Additionally, the proportion of variance accounted for by the five-factor model of spirituality as described in the exploratory analysis was notably higher than the variance accounted for by Piedmont (1999) original three factors (45%). In the present study, the STS' five factors accounted for over 57% of the variance, thus explaining 12% greater variance than Piedmont (1999) three-factor solution. Expanding the dimensionality of the scale (i.e., to five factors instead of three) allows for more variance to be explained by the fundamental constructs or dimensions measured than by measurement or statistical error, and more clearly accounts for the multidimensionality of spirituality and spiritual transcendence.

In all, the five dimensions identified above may better reflect the multidimensionality of the construct of spirituality as measured by the STS. It may be that Piedmont (1999) original classification of items into three dimensions of spiritual transcendence is overly simplistic, in that it does not characterize the detailed nuances of the latent factors represented in the measure. This conclusion is not to discount the importance of the STS' original development; rather, it supports the conclusion that "there are other facets [of spirituality] that need to be explored" (Piedmont 1999, p. 989). Simply, these findings regarding item loadings, internal consistencies, apparently assessed constructs, amount of variance accounted for, and comparison of confirmatory fit indices suggest that the STS may assess notably more multidimensionality and represent a broader conception of spirituality and spiritual transcendence within emerging adults. Since this is often a time of exploration and

self-growth, emerging adults may look at spirituality through a variety of lenses, thus leading to a larger number of factors. Perhaps as they mature spiritually and religiously, these identified facets will consolidate as the integration of spirituality into one's daily life and increase throughout university years (Bryant et al. 2003; Dalton et al. 2006). These results may serve as a primary foundation for continued investigation of the STS in samples of various ages, and the continuing development of psychometrically sound instruments measuring spirituality.

A second significant finding in the present study involves the significant difference between males and females on the STS scores, as females reported significantly higher levels of spiritual transcendence than males. This finding is similar to other research suggesting that females tend to report greater levels of spirituality, particularly in samples of Americans (Lace and Handal 2017; Underwood 2011). Perhaps more importantly, the results suggest that the STS relates to psychological distress uniquely for males and females. Males who reported relatively low levels of spirituality had significantly greater psychological distress than males with relatively moderate or high spirituality. Females in similarly categorized spirituality groups did not show this pattern, as no significant differences on psychological distress emerged.

Of arguably greater importance and clinical significance is the finding that males of low spirituality tended to report symptoms at or above a clinically validated cutoff score denoting psychological distress and need for treatment (Handal et al. 2015). Other research has suggested that a similar pattern between religion/spirituality and mental health exists, however the results have found that either no sex differences appear (Mosher and Handal 1997) or females, and not males, surpass the clinical cutoff score (Crawford et al. 1989; Handal et al. 1989). That is, females who reported low levels of religiosity spirituality also reported significantly higher psychological distress than females high in religiosity or spirituality (Crawford et al. 1989; Lace and Handal 2017). Crawford et al. (1989) also stated that the psychological distress of females with low and moderate religiosity is clinically significant (i.e., above a clinically validated cutoff score) and indicative of need for treatment.

The present study finds a similar pattern, except only males with low spirituality (i.e., not moderately spiritual males) reported clinically significant distress. Perhaps males who experience psychological distress distance themselves from spiritual expressions (i.e., prayer/meditation), become less aware of their connectedness to others, or lose faith in the wholeness of humanity. Thus, they may subsequently become more prone to develop psychological distress. Additionally, males might be more reluctant than females to report their level of distress. Some research notes a link between self-reported religiosity (and possibly spirituality) and greater social desirability and impression management (Gillings and Joseph 1996; Leak and Fish 1989), which may in turn relate to reluctance to report psychologically distressing symptomatology given its possibly stigmatizing conception for males (Corrigan 2004; National Institute of Mental Health 2016).

Alternatively, in the same way that religion may serve as a protective factor in its provision of social support and collaborative coping mechanisms in light of negative events (Idler 1987), spiritual experiences and spirituality may function in a similar capacity. It may be that the possible protective effect of spirituality on psychological distress is more salient for males than females. Males who feel more spiritually transcendent may be able to better self-regulate their emotions in the same way that those who are highly religious are (Watterson and Giesler 2012), and thus monitor and downregulate psychopathological symptoms. Additionally, males who report higher levels of spirituality or spiritual transcendence may perceive symptoms of psychological distress (e.g., low mood, increased anxiety) within a spiritual context, thus leading to the normalization of or otherwise personal explanation for the distress. Conversely, more "secular" or simply less spiritual males may view experienced symptoms as more upsetting, unjustifiable, and intolerable.

Additionally, this finding carries more practical weight for mental health practitioners, members of the clergy or other religious leaders, and anyone who may work in a setting wherein mental health and spirituality are relevant concerns. Clinicians should continue to be sensitive to clients' or patients' spirituality in the context of presentations of mental health, and be mindful of its use in

a therapeutic context. Clinicians should approach spirituality in a holistic context and refrain from judgment of a client's or patient's individual beliefs or ideas as they relate to spirituality or mental health. Further research is needed to replicate this finding and investigate the reasons why this unique pattern is observed among males but not females. Importantly, continued research on mental health outcomes and their relationships to spirituality in emerging adulthood is warranted.

5. Limitations and Future Directions

There are several limitations for the present study. Firstly, these results were reported in the context of emerging adult university students. The results of the present study are not meant to serve as one-size-fits-all validation study for the STS. The present sample did not include adolescents, adults, or older adults, and it may be that the measure demonstrates unique psychometric properties in each population. Rather, the findings of the present study are meant to serve as a starting point for future study in each of these populations. Further, the results were reported from a sample of emerging adults from a private, religiously affiliated, Midwestern university. Previous research has suggested that students from private and public universities may differ in their reports of religiosity (Low and Handal 1995), and this pattern may be consistent with spirituality, as well. Further, participants mostly identified as White with relatively fewer students of reported African or Latino descent, and the sample appeared relatively affluent as compared to the general American population, with the median annual family income reported by participants in this sample was greater than $100,000. As such, future research is needed to determine if the STS holds similar factor structure in various samples of emerging adults in public and private, non-religiously affiliated universities with a variety of ethnic, racial, and socioeconomic backgrounds across diverse geographic locations.

Secondly, this was a monomethod investigation that entailed only self-report of spirituality and psychological distress. Perhaps obtaining informant-reports (when ethically and feasibly available) would provide additional context surrounding the constructs of interest in this study in a similar fashion to previous research on the STS (Piedmont 2007). Thirdly, the present study did not include measures of physical or general overall health. Previous literature has suggested a link between spirituality and physical health outcomes (Bartlett et al. 2003) in addition to psychological outcomes (Piedmont and Leach 2002) in adult populations. Extending such research to an emerging adult population could be of merit.

Finally, the present study was limited by the use of the same sample for both exploratory and confirmatory analyses, although recently published exploratory and confirmatory factor analyses were performed in the same sample (Lace and Handal 2017). Future investigations should seek to recruit very large (i.e., 1000+ participants) samples to ensure the presence of enough data to perform split-sample analyses.

6. Conclusions

The present study supports a five-factor solution of the STS comprised of *Prayer/Meditation Enjoyment*, *Universal Connectedness*, *Greater Purpose*, *Wholeness of Humanity*, and *Closeness to the Deceased* over its commonly referenced three-factor solution through exploratory and confirmatory factor analyses and direct, statistical comparisons of two models in a sample of emerging adults. Furthermore, the present study demonstrates a unique link between spirituality and psychological distress in only emerging adult males, as males low in spirituality tended to report psychological distress at or above a clinically validated cutoff score denoting distress and need for treatment. These findings open directions for continued scholarship and provide meaningful conclusions for social scientists, mental health practitioners, and university students (i.e., emerging adults) alike.

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