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Adaptation, Development, and Validation of the Spiritual Community and Togetherness Scale (SCoTS)

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Abstract: We adapted the SCoTS from the Collegiate Psychological Sense of Community Scale to measure religious/spiritual (R/S) community and belonging among college students. Emerging research indicates that participation and involvement in R/S groups among college students has been associated with their success, quality of life, and well-being. Development of the SCoTS included item reformatting, scale restructuring, exploratory factor analyses, confirmatory factor analysis, and convergent/discriminant analyses. Results in Study 1 show support for both one- and two-factor solutions in a sample of 357 university students. We named our loaded factors Belonging and Member Involvement. In Study 2, our confirmatory factor analyses with a sample of 399 university students affirmed a two-factor solution. Analyses showed unique aspects of the SCoTS when compared to similar measures. We end with a discussion of the implications and utility of the SCoTS for clinicians, healthcare providers, and educators.

Keywords: spiritual community; togetherness; belonging; mental health; college students; factor analysis

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1. Introduction

Belonging is one of the most fundamental psychological needs, vital for mental health and well-being (Maslow, 1943; Baumeister & Leary, 1995). College students, navigating a pivotal developmental period marked by identity exploration and stress, often seek meaningful connections to address their need for belonging (Schindler & Hope, 2013). For many college students (and people, in general), religious and spiritual (R/S) belief systems and communities provide a powerful avenue for connection; communities that offer both emotional and pragmatic support during times of distress (King, 2003; Krause & Wulff, 2005).

Millennials (born after 1982) and Generation Z (born after 1997) currently represent the majority of university students (Hanson, 2021). These generations face (and have faced) unique stressors, including competition for resources and exposure to significant cultural upheaval and strife, such as social justice movements, domestic and international terrorist attacks, national economic tragedies, and a global pandemic. Millennials are also more culturally diverse than any previous generation, which could lead to acculturation difficulties for many college students, and this cultural diversity is only increasing

(Barnes & Noble College, 2019; Bland et al., 2012). While these factors shape their collegiate experiences, a critical question remains: how do college students meet their need for belonging in the face of these challenges?

One pathway is through reliance on R/S communities. Research suggests that a firm R/S identity can enhance college adjustment and functioning, well-being, and stress management (Dabbs & Winterowd, 2023; Milevsky, 2017). Moreover, R/S group membership may offer a sense of psychological community—a construct defined by feelings of interdependence, shared emotional connection, and stability (Sarason, 1974; McMillan & Chavis, 1986). However, little is known about how college students experience belonging within their R/S communities. Exploring this connection is essential to understanding how R/S systems support mental health and identity formation during the college years.

1.1. Sense of Religious/Spiritual Community in College Students

Researchers have found that college students use religious and spiritual coping to ease the transition into college life (Schindler & Hope, 2013) and that those college students who heavily lean on their R/S communities during stressful times report lower levels of anxiety. In fact, college students in late adolescence may experience an intersection of stress reduction in R/S group identification (King, 2003). First, college students gain communal benefits through group affiliation because of the inherent stress reduction associated with social support (Krause & Wulff, 2005). Second, developmentally, college students in late adolescence are experiencing a significant amount of unconscious identity formation—stalwart affiliation with a stable group (e.g., a religious/spiritual group) can facilitate the ease of identity development (Dabbs & Winterowd, 2023). These protective group dynamics may be inherently related to a construct identified in the literature as a psychological sense of community, which has been defined as the following:

> The perception of similarity with others, an acknowledged interdependence with others, a willingness to maintain this interdependence by giving to or doing for others what one expects from them, the feeling that one is part of a larger dependable and stable structure. (Sarason, 1974, p. 157).

Follow-up research and theorizing has pointed to a five-dimensional theory of psychological sense of community. McMillan and Chavis (1986) developed the first four dimensions of the theory of psychological sense of community which include membership, influence, integration and fulfillment of needs, and a shared emotional connection. Obst et al. (2002) found a fifth dimension that was significant and independent of McMillan's and Chavis' four factors (conscious identification). This factor is related to the awareness and salience of group membership for participants in the study. That is, someone could be a member of a community but not be impacted by their membership in a manner that makes membership salient or important for everyday life.

While there are extant instruments poised to measure spirituality, there seem to be no questionnaires to date that measure college students' R/S group connectedness, a factor that may be unique from general spirituality due to its inherent intersection with group dynamics. For instance, the Spiritual Perspective Scale (SPS; Reed, 1987) purports to measure transcendence, which is self-focused and eschews communal components of belief. Similarly, the Spiritual Well-Being Scale (SWBS; Ellison, 1983), measures individual spiritual well-being. Howden, influenced by these two scales, created the Spirituality Assessment Scale (SAS; Howden, 1992)—a scale to measure general spirituality.

However, these scales fail to account for sense of belonging, member involvement, and/or sense of community. Some, like the SAS, were normed on populations very different from college students and the general demographic frame of college students.

Likewise, sense of community questionnaires have been researched and evaluated, the most prevalent of which is the Sense of Community Index (SCI; Chavis et al., 1986) and its brief iteration (Long & Perkins, 2003). While psychometrically sound, these indices measure neighborhood community, and they were developed and normed using data from a geographic sample of neighbors in New York.

The individualistic focus of these extant measures creates a gap in the measurement of R/S identity, particularly for college students who may rely on religious and spiritual communities for belonging, connection, and stress management (Schindler & Hope, 2013; Krause & Wulff, 2005). The communal dynamics of R/S identity are especially relevant to understanding how college students develop a psychological sense of community, which is defined by interdependence, shared emotional connection, and stable group membership (Sarason, 1974; McMillan & Chavis, 1986).

1.2. Current Study

To address this gap, the current study introduces and validates the Spiritual Community and Togetherness Scale (SCoTS). This tool is uniquely designed to assess the communal aspects of R/S identity in college students, providing both theoretical insight and practical utility in understanding how R/S group affiliation supports mental well-being among college students. By focusing on communal belonging, the SCoTS expands the scope of R/S research and address some limitations in existing measures by capturing the social dimension of spirituality.

Our main purpose for Study 1 was to adapt the Collegiate Psychological Sense of Community Scale (CPSCS; Lounsbury & DeNeui, 1996) to measure college students' sense of connection to their R/S communities. Study 1 consisted of an adaptation of the CPSCS to measure R/S community. Within this process, we explored the underlying factor structure of our adapted measure as a potentially unique non-redundant measure of R/S community for college students. Based on our Study 1 results, we completed a confirmatory factor analysis process to confirm our discovered factor structure. In Study 2, we confirmed our factor structure and engaged in convergent/discriminatory analyses to assess the uniqueness of our adapted measure.

2. Study 1

2.1. Materials and Methods

The Collegiate Psychological Sense of Community Scale (CPSCS; Lounsbury & DeNeui, 1996) is a 14-item instrument that has been used to measure college students' sense of community in terms of belongingness, togetherness, attachment, investment, commitment to college/university environment, positive affect, concern for the welfare of their collegiate community, and overall sense of community to their college/university. We chose the CPSCS as the scale to adapt because (a) it has been studied and used effectively with college students (Lounsbury & DeNeui, 1996; McNally et al., 2021) and (b) it has been shown to have good psychometric properties with college student samples (Kirk & Lewis, 2015; Lounsbury & DeNeui, 1996; McNally et al., 2021; Wilson et al., 2015). We adapted the CPSCS in the three following primary ways: (a) the contextual prompt was changed to prime R/S communities rather than a college/university setting, (b) the wording of the items was changed to reflect R/S communities, and (c) the original 5-point Likert scale was changed to a 7-point Likert-like scale. We received permission to adapt and develop the CPSCS from one of the authors of the original measure (DeNeui, 2024, personal communication).

First, the original CPSCS instructions for college students were to respond to each item with "regarding your college/university". We changed this to reflect participant thoughts and feelings "regarding your religious/spiritual community". Second, we neutralized item

wording and changed from language that primed a collegiate environment to language that primed a R/S community environment. For example, the CPSCS item "there is a sociable atmosphere on campus" was changed to "there is a sociable atmosphere". As another example, the CPSCS item "students feel they can get help if they are in trouble" was changed to "members feel they can get help if they are in trouble". Other items include "I really feel like I belong there" (in my R/S community) and "there is a strong feeling of togetherness" (in my R/S community). Item 14 of the CPSCS ("if I am/were going to college next year, I would go here") had no strong neutral analog and was thus trimmed from the instrument. See Table 2 for a copy of the adapted measure.

Finally, while the original CPSCS included five anchoring points, namely strongly disagree, disagree, undecided, agree, and strongly agree, we adapted the measure to include seven anchoring points, which were strongly agree (1), agree, somewhat agree (3), undecided, somewhat disagree (5), disagree, and strongly disagree (7). Krosnick and Presser (2010), in their review of experimental Likert-like designs, state that "...once the number of scale points increases above seven, point meanings may become considerably less clear" (p. 270) and "...our review suggests that 7-point scales are probably optimal in many instances" (p. 274). Other researchers have demonstrated that seven Likert-like anchoring points may be an optimal number for human attention span and information maximization with little to no information increase in scales with more than seven anchors (Cicchetti et al., 1985; Finn, 1972; Oaster, 1989; Ramsay, 1973). Adjusting to a 7-point scale maximized data saturation.

2.1.1. Participants

The participants in Study 1 were 357 college students who were, on average, 23 years of age (M = 22.9; range = 18–44). Participants were recruited through either an online survey management system (SONA) at a university in the southern United States or via snowball sampling through Facebook, listservs, or direct contact with department heads. They received 0.5 h of research participation credit if they participated via SONA or they received an entry into a raffle for four $25 gift cards if they participated based on recruitment from other formats.

Participants reported their gender as cisgender women (69.9%), cisgender men (29.9%), or non-binary individuals (0.1%). Participant sexual/affectional orientations included heterosexual/straight (91%), bisexual (4.8%), asexual (1.4%), lesbian (1.1%), gay (0.8%), questioning (0.8%), queer (0.3%), and other (1.7%). Their relationship status was largely single (82.1%), with some students identifying as married (9.2%), partnered/common law (6.4%), divorced (1.7%), or separated (0.6%).

Racial identities were reported as White (66.3%), Multiracial (14.7%), Black or African American (6.8%), Hispanic or Latinx (4.8%), Asian or Asian American (4.0%), Indigenous American/Alaskan Native (3.0%), Middle Eastern/North African (0.3%), and Native Hawaiian/Pacific Islander (0.2%). Approximately 87% of the sample identified as undergraduate students, with first year (28.6%), sophomore (25.5%), junior (22.1%), and senior (10%) students. Graduate students comprised approximately 13% of the sample. Approximately 42% of the sample reported an annual family income above USD 100,000, and around 25% of the sample reported an annual family income below USD 50,000.

To measure R/S group identity, participants identified their religious, spiritual, and/or secular affiliation as follows: Protestant Christian (non-denominational, Baptists, Pentecostal, Methodist, non-Catholic Christian, etc.; 63.5%), Catholic (15.9%), Orthodox Christian (5.7%), Agnostic (2.0%), Buddhist (2.0%), Latter-Day Saint (1.7%), Muslim (1.4%), Jewish (0.8%), Pagan (0.8%), Atheist (0.3%), Hindu (0.3%), Native American Church (0.3%), and Other (5.4%). Individuals who selected "Other" largely wrote in their identity as a

Protestant Christian sect already listed as an available choice (e.g., Baptist) or, simply, the word "Christian". Participants were asked via a yes/no question if they viewed themselves as religious or spiritual (separately). Most participants in the study answered in the affirmative to both identifications, and only students who identified as religious and/or spiritual were analyzed (represented by the sample size indicated above). In this way, we included individuals who were nominally irreligious (e.g., atheists) but who identified as spiritual and/or religious. Additionally, most of the college student participants in this study attended R/S services between one and three times per week (73%). Approximately 10% of participants reported not attending services/ceremonies regularly.

2.1.2. Procedures

Participants in Study 1 were invited to engage in an online study regarding R/S identity, mental wellness, and life satisfaction as part of a larger project that comprised the dissertation of the corresponding author. This survey included an informed consent form, a demographic questionnaire, the current adapted instrument of interest, and two other instruments not in the purview of the current scale adaptation and development. The survey posed no risk to participants, who were permitted to leave the study at any time.

2.2. Results

We completed all analyses in Study 1 using RStudio v. 1.4.1717 and SPSS v. 26.0.0. We used exploratory factor analysis to define the factor structure of the adapted measure. We employed both the Kolmogorov–Smirnov and Shapiro–Wilk tests of normality to assess population distribution and revealed that the current sample was not normally distributed. Due to the non-normative sample in Study 1, we used the iterative principal axis factoring extraction method and a promax oblique rotation to subvert the assumption of data normality (Costello & Osborne, 2005). The promax oblique rotation also allows for interfactor correlations, which may be important given the likely relation of the items in the tested instrument.

2.2.1. Item-Level Analysis

We examined item-to-item correlations to rule out the necessity of item deletion due to redundancy effects. No items were found to be redundantly correlated in the current instrument. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was 0.939. Bartlett's Test of Sphericity was significant at a level $p < 0.0001$. Taken together, the KMO and Bartlett's tests indicate that the current sample was adequate to perform factor analytics. Item-level analysis showed that the range of responses was one to seven. Mean scores of items ranged from 1.71 to 5.75. One item was negatively skewed (−1.39), while twelve items were positively skewed (ranging between 1.01 and 2.38). Kurtosis values ranged from 0.48 to 7.74. Complete descriptive statistics are reported in Table 1.

2.2.2. Factor Retention

Visual inspection of the scree plot revealed that at most, two factors appeared to be left scree (real). While reports showed two factors with initial eigenvalues >1.000, one eigenvalue was equal to 1.03—barely meeting the 1.00 threshold. Because of this, both one- and two-factor solutions are presented in the current work.

The one-factor solution explained 58.3% of the variability in the analyzed sample. Twelve of the thirteen items loaded onto the factor at 0.5 or greater, indicating their stability. No items were cross-loaded in the single-factor solution. Every item loaded at a level of |0.39| or better, with loadings ranging between −0.39 and 0.88. The one factor was named Spiritual Community and Togetherness.

Table 1. Summary of item level descriptive statistics for the Spiritual Community and Togetherness Scale.

Item	Range	Mean	SD	Skewness	SE	Kurtosis	SE
1	1 to 7	1.89	1.13	1.84	0.129	4.28	0.257
2	1 to 7	1.83	0.98	1.61	0.129	3.78	0.257
3	1 to 7	5.75	1.43	−1.39	0.129	1.37	0.257
4	1 to 7	1.84	1.02	1.88	0.129	5.28	0.257
5	1 to 7	1.75	1.04	1.98	0.129	5.16	0.257
6	1 to 7	1.71	0.97	2.10	0.129	6.33	0.257
7	1 to 7	1.76	1.00	1.75	0.129	4.18	0.257
8	1 to 7	2.51	1.51	1.00	0.129	0.48	0.257
9	1 to 7	1.99	1.25	1.70	0.129	3.11	0.257
10	1 to 7	1.74	1.05	2.38	0.129	7.74	0.257
11	1 to 7	2.25	1.44	1.48	0.129	1.97	0.257
12	1 to 7	2.12	1.27	1.58	0.129	2.87	0.257
13	1 to 7	1.82	1.10	1.98	0.129	5.11	0.257

The two-factor solution accounted for 66.2% of the variability in the analyzed sample. Twelve of the thirteen items loaded onto the factor at 0.5 or greater, indicating their stability. No items cross-loaded in the two-factor solution. All items loaded at a level of |0.35| or greater. Though item 3 was the only reverse-coded item on the scale and maintained the weakest loading, we retained the factor due to its absolute loading rather than its comparative loading. That is, item 3 loaded onto our one- and two-factor solutions at |0.39| and |0.45|, respectively, and we believed this strength of loading superseded its reversed nature and its comparable magnitude.

Our first factor, named Belonging, included five items (items 1, 8, 9, 11, 12) with factor loadings ranging between 0.80 and 0.90. These items reflected feelings of personal investment in and the value of an R/S community, with such items as "I really feel like I belong here", "I make contributions to it", "I really enjoy going", and "I feel very attached to it". The second factor, named Member Involvement, included eight items (items 2, 3, 4, 5, 6, 7, 10, 13) with factor loadings ranging from −0.45 (the only reverse-coded item on the questionnaire) to 0.86. These items largely reflect individual perceptions of community and meta-perceptions (perceptions of others' perceptions). Select items from factor 2 include "there is a sociable atmosphere", "members feel they can get help if they are in trouble", "members really care about what happens to it", and "there is a strong feeling of togetherness". Complete exploratory factor loadings for both solutions can be found in Table 2.

In summary, our exploratory factor analysis revealed two potential factor structures of the adapted scale. First, a one-factor solution, accounting for 58.3% of the variability in the item scores, which we named "Spiritual Community and Togetherness". Second, we found a two-factor solution, with equally strong item loadings across two factors that we named "Belonging" and "Member Involvement". The two-factor solution accounted for 66.2% of the variability in item scores, an 8% increase over the one-factor solution. Based on these results, we decided to engage in confirmatory analyses of the adapted scale, which we named the Spiritual Community and Togetherness Scale, alongside convergent and discriminant analyses of similar measures.

Table 2. Factor and item loadings for the Spiritual Community and Togetherness Scale.

	One-Factor Solution	Two-Factor Solution	
SCoTS Items	**Factor 1**	**Factor 1 Belonging**	**Factor 2 Member Involvement**
1. I really feel like I belong here.	0.80	**0.81**	0.71
2. There is a sociable atmosphere.	0.72	0.62	**0.75**
3. I wish I had gone to a different one	−0.39	−0.34	**−0.45**
4. Members feel they can get help in they are in trouble	0.58	0.37	**0.76**
5. I would recommend it to other people.	0.84	0.73	**0.84**
6. People I know like it.	0.74	0.58	**0.82**
7. There is a strong feeling of togetherness.	0.81	0.65	**0.86**
8. I make contributions to it.	0.60	**0.80**	0.41
9. I really enjoy going.	0.86	**0.88**	0.73
10. Members really care about what happens to it.	0.66	0.58	**0.70**
11. I feel very attached to it.	0.82	**0.90**	0.66
12. It is very stimulating for me.	0.82	**0.89**	0.67
13. There is a real sense of community here.	0.88	0.78	**0.85**

Note: Bolded items in the two-factor solution indicate factor loading.

3. Study 2

3.1. Materials and Methods

The participants in Study 2 were 399 college students with an average age of 22 years old (M = 22.1; range: 18–54). Approximately 91% of this sample was undergraduate students, including first years (22%), sophomores (19.2%), juniors (26.8%), and seniors (22.7%). Graduate students comprised approximately 9% of Study 2 participants.

Participant gender identities were as follows: cisgender women (64.9%), cisgender men (26%), prefer to self-describe (4.3%), prefer not to say (4.3%), and non-binary/third gender (0.5%). Their sexual/affectional orientations were heterosexual/straight (87.1%), bisexual (5.6%), asexual (0.8%), lesbian (1.5%), gay (1%), questioning (0.8%), pansexual (1.8%), and other (1.5%). In terms of relationship status, the participants were largely single (66.9%), with some students reporting that they were married (7.3%), in a long-term relationship/cohabiting (25.3%), or divorced (0.5%).

Participant racial identities were as follows: White (59.6%), Multiracial (13.9), Black or African American (16.4%), Hispanic or Latinx (4.5%), Asian or Asian American (2.3%), Indigenous American/Alaskan Native (1.8%), Middle Eastern/North African (1%), and Native Hawaiian or Pacific Islander (0.5%). Approximately 23% of the sample reported an annual family income above USD 100,000, and around 52% of the sample reported an annual family income below USD 50,000.

Participants identified their religious, spiritual, and secular identities as Protestant Christian (non-denominational, Baptists, Pentecostal, Methodist, non-Catholic Christian, etc.; 49%), Catholic (22%), Orthodox Christian (5.7%), Agnostic (8.3%), Buddhist (0.8%), Latter-Day Saint (0.5%), Muslim (1.5%), Jewish (1%), Pagan (0.3%), Sikh (0.3%), Atheist (5.3%), Hindu (0.3%), Native American Church (0.3%), and Other (10.6%). Participants were also asked to identify how frequently they attended R/S services/ceremonies. Most participants reported attending services between one and three times per week (70.4%). Approximately 22% of participants reported not attending services/ceremonies regularly.

3.1.1. Procedures

Participants in Study 2 were recruited through either an online survey management system (SONA) at a southern U.S. university, via convenience sampling at a midwestern university(*n* for university samples = 299), or via Prolific, an online research participant pool (*n* = 100). Based on the demographics of Study 1—which did not largely match the

population demographic frame of the U.S.—we utilized Prolific's demographic window match to assist in the generalizability of our results. Prolific's standard representation allocation algorithm cross-stratifies samples across age, ethnicity, and sex. We established our sample size by using the "rule-of-thumb" sample sizes outlined by Wolf et al. (2015). These indicate that for CFAs with loadings of 0.80 (around which the majority of our items loaded), a 2-factor solution with 8 indicators requires a minimum sample size of ~125. Given that some of our factors did not meet the 0.80 loading threshold and the presence of mixed indicators, our conservative approach saw us aim to double the sample size as indicated as the minimum by Wolf et al. (2015).

Participants were invited to engage in an online survey regarding their R/S, life satisfaction, and wellness. Our online survey included an informed consent form, a demographic questionnaire, the SCoTS, and our measures used for convergent/discriminant analyses (BSCS, RSS, SONG). The survey posed no risk to participants who were permitted to leave the study at any time. There were two attention checks included at strategic points throughout the survey. After one failed attention check, participants were given a warning that another would result in termination of the study. At two failed attention checks, participants were closed out of the study. At the end of the survey, participants were guided to a separate webpage that debriefed them about the study and provided resources if they were interested. Study 2 participants received the same benefits as in Study 1, aside from Prolific participants, who were paid the equivalent of USD 9.88/hour.

3.1.2. Comparison Measures

The Brief Sense of Community Scale (BSCS, Peterson et al., 2008) was designed to assess the dimensions of psychological community as defined by McMillan and Chavis (1986). The BSCS items were designed to reference respondents' neighborhoods using a 5-point Likert response option format ranging from strongly agree to strongly disagree. The BSCS contains four subscales that map onto the theoretical dimensions of needs fulfillment, group membership, influence, and emotional connection, which can be interpreted individually or as a total score. The BSCS was found to have strong internal consistency. Cronbach's alpha for the overall BSCS was 0.92 (Peterson et al., 2008). Our own internal consistency calculations showed an alpha of 0.95 for our sample. For our purposes, we transitioned the language of the BSCS from "community" to "religious/spiritual community".

The Religious Support Scale—Individual (RSSI; Fiala et al., 2002) is a 21-item questionnaire regarding sense of R/S community support. Each of the items are rated on a 5-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree). Items 7, 14, and 21 are reverse-coded. Interpretation of the RSS can make use of overall or subscale scores. Higher scores indicate a greater sense of R/S community support. The three subscales of the RSSI are Divine (God) Support, Congregation Support, and Clergy Support. Internal consistency estimates for the RSS subscale scores were 0.91 (Congregation Support), 0.75 (God Support), and 0.90 (Clergy Support) (Fiala et al., 2002). For Study 2 participants, the Cronbach's alpha for the RSS total score was 0.91, with the following subscales scores: Congregational Support (0.77), God Support (0.77), and Clergy Support (0.78).

The Seeking of Noetic Goals scale (SONG; Crumbaugh, 1977) is a 20-item measure of meaning-making. Participants rate each item using a 7-point Likert scale as 1 = Never and 7 = Constantly. All items in the SONG scale are positively phrased, indicating that higher scores indicate more meaning-making; lower scores reflect less meaning-making. In a factor analysis of the SONG, researchers supported that its internal consistency is often above 0.80, indicating reliability of the measure (Schulenberg et al., 2013). Our own internal consistency value was 0.90, reflecting the findings in the literature. We chose the SONG as our primary measure of discriminant validity because, while it purports to measure factors

in the noetic universe, we would expect them to be quite different from the factors found in our adapted measure.

Figure 1 shows a flowchart of our adaptation and development process from our initial review of existing spiritual and religious community measures to the naming of the Spiritual Community and Togetherness Scale after compiling and analyzing the results of Study 2.

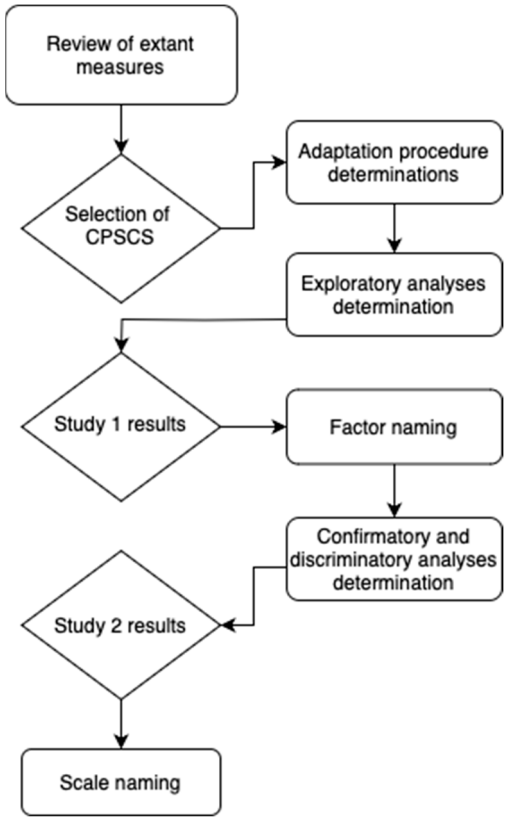

Figure 1. Flowchart of the scale development process.

3.2. Results

We analyzed data using SPSS v.25, Jamovi v. 2.6.2, and R v.4.4.1. We completed secondary exploratory analyses in Jamovi, with finalizations completed in R. Our provisional confirmatory analyses were completed in Jamovi with finalizations, including validation analyses completed in R. Our internal consistency analyses and descriptive statistics were completed in SPSS.

3.2.1. Descriptive Statistics and Item–Total Correlations

Table 3 contains the descriptive statistics and item–total correlations for each item of the SCoTS. We reverse-coded item 3 due to the negative phrasing of the statement. We computed each item–total correlation with the item not included in the total score. All of the item–total correlations were statistically significant at the $p < 0.001$ level.

3.2.2. Confirmatory Factor Analysis

Although item 3 had the lowest factor loading from the EFA in Study 1, the magnitude of its factor loading was still above 0.3. Likewise, the SCoTS item 3 in Study 2 had the lowest item–total correlation, yet the correlation value was still highly significant. Thus, all 13 items of the SCoTS were retained for the CFA in Study 2. The CFA for the one-factor model revealed mixed results for the fit indices. All standardized factor loadings had magnitudes above 0.6. The chi-squared statistic, $\chi^2(65) = 433$, $p < 0.001$, was significant

due to the large sample size. The Comparative Fit Index (CFI) of 0.917 and Tucker–Lewis Index (TLI) of 0.900 indicated acceptable fit. The root mean square error of approximation (RMSEA) of 0.119 was slightly above the typical threshold for acceptable fit. However, the standardized root mean square residual (SRMR) of 0.04 indicated excellent fit. Cronbach's alpha was 0.95, indicating excellent internal consistency within the SCoTS.

Table 3. Descriptive statistics and item–total correlations for items in the SCoTS.

Item	Mean	SD	Item–Total Correlation
1. I really feel like I belong there.	2.6	1.4	0.76
2. There is a sociable atmosphere.	2.5	1.2	0.75
3. I wish I had gone to a different one. (R)	2.9	1.5	0.63
4. Members feel like they can get help if they are in trouble.	2.5	1.2	0.71
5. I would recommend it to other people.	2.4	1.3	0.84
6. People I know like it.	2.4	1.3	0.73
7. There is a strong feeling of togetherness.	2.6	1.3	0.83
8. I make contributions to it.	3.2	1.5	0.70
9. I really enjoy going.	2.7	1.4	0.87
10. Members really care about what happens to it.	2.4	1.3	0.78
11. I feel very attached to it.	2.9	1.5	0.78
12. It is very stimulating for me.	3.0	1.3	0.78
13. There is a real sense of community there.	2.6	1.3	0.86

Note: (R) indicates reverse scoring.

The CFA for the two-factor model also revealed mixed results for the fit indices. All standardized factor loadings had magnitudes above 0.60. The chi-squared statistic, $\chi^2(64) = 344$, $p < 0.001$, was significant due to the large sample size. The CFI of 0.937 and TLI of 0.923 indicated acceptable fit. The RMSEA of 0.105 was slightly above the typical threshold for acceptable fit. However, the SRMR of 0.037 indicated excellent fit. Cronbach's alpha was 0.91 for the "Belonging" factor and 0.93 for the "Member Involvement" factor, indicating excellent internal consistency within each factor of the SCoTS.

While fit indices were generally acceptable, in order to further improve the model fit, we iteratively added correlated errors to both the one-factor and two-factor models based upon which terms had the highest modification indices. For the one-factor model, correlated errors were added, in order, between items 11 and 12, items 1 and 2, items 8 and 9, items 6 and 13, and items 4 and 5. For the two-factor model, correlated errors were added, in order, between items 1 and 2, items 11 and 12, items 6 and 13, and items 4 and 5. Both the modified one-factor model and the modified two-factor model have CFI and TLI values indicating good fits, RMSEA values indicating acceptable fits, and SRMR values indicating excellent fits. Table 4 summarizes the fit statistics for the various CFA models. Overall, the modified two-factor model with correlated errors shows the best fit for the SCoTS.

Table 4. Fit statistics for confirmatory factor analysis models.

Model	χ^2 (df)	CFI	TLI	RMSEA (90% CI)	SRMR	α	CR	AVE
One-Factor	433 (65)	0.917	0.900	0.119 (0.109–0.130)	0.041	0.95	0.94	0.62
Two-Factor	344 (64)	0.937	0.923	0.105 (0.094–0.116)	0.037	0.91, 0.93	0.91, 0.88	0.67, 0.63
One-Factor w/CE	239 (60)	0.959	0.947	0.087 (0.075–0.098)	0.033	0.95	0.93	0.613
Two-Factor w/CE	187 (60)	0.971	0.963	0.073 (0.061–0.085)	0.029	0.91, 0.93	0.89, 0.89	0.65, 0.63

Note: CE = correlated errors; CR = composite reliability; AVE = average variance extracted.

3.3. Convergent and Discriminant Analyses

In order to compare the SCoTS to other existing potentially related scales, we recoded our scales so that higher response values always corresponded to higher values of the underlying construct. We then formed composite scores for each scale by simple unit-weighting of each item within the scale.

Table 5 displays the correlation matrix between the composite scores for the four scales. As expected, there was a fairly strong correlation (r = 0.82) between the SCoTS and the modified BSCS, since both seek to measure R/S community. However, correlations between the individual items in the SCoTS and BSCS ranged from 0.35 to a maximum of 0.72, indicating that the two scales are not completely redundant, reflecting that they measure different aspects of R/S community. The correlation between the SCoTS and the RSSI was moderate, at r = 0.71. The correlation between the SCoTS and SONG scales was inverted and very weak, at r = −0.08. Table 6 displays an additional correlation matrix using the two subscales for the SCoTS, corresponding to the "Belonging" and "Member Involvement" factors, and three subscales for the RSSI, corresponding to the well-established factors of Congregational Support, God Support, and Church Leader Support.

Table 5. Correlation between SCoTS and other existing scales.

	SCoTS	**BSCS**	**RSSI**	**SONG**
SCoTS	1.00	0.82	0.71	−0.08
BSCS	0.82	1.00	0.78	−0.09
RSSI	0.71	0.78	1.00	−0.04
SONG	−0.08	−0.09	−0.04	1.00

Table 6. Correlation between SCoTS subscales and other existing scales.

	SCoTS		**BSCS**	**RSSI**			**SONG**
	Belong.	**Mem. Inv.**		**Cong.**	**God**	**Clergy**	
SCoTS: Belonging	1.00	0.85	0.80	0.69	0.45	0.68	−0.08
SCoTS: Member Involvement	0.85	1.00	0.78	0.72	0.52	0.71	−0.08
BSCS	0.80	0.78	1.00	0.82	0.53	0.81	−0.09
RSSI: Congregation Support	0.69	0.72	0.82	1.00	0.66	0.94	−0.07
RSSI: God Support	0.45	0.52	0.53	0.66	1.00	0.68	0.02
RSSI: Church Leader Support	0.68	0.71	0.81	0.94	0.68	1.00	−0.07
SONG	−0.08	−0.08	−0.09	−0.07	0.02	−0.07	1.00

Table 6 displays the results that indicate that both the "Belonging" and "Member Involvement factors" have a fairly strong correlation with the BSCS and a very weak correlation with the SONG scale. The correlation between the "Belonging" and "Member Involvement" factors was much weaker with the RSSI God Support subscale compared to the RSSI Congregation Support and Church Leader Support subscales, since the RSSI God Support factor focuses more on a person's individual relationship with God. Overall, the SCoTS relates to existing scales in expected ways while not being redundant with these existing R/S community scales, indicating the unique contributions of the SCoTS to measuring R/S "Belonging" and "Member Involvement" in college students.

4. Discussion

The purposes of our studies were to explore and confirm the underlying factor structure of the Spiritual Community and Togetherness Scale (SCoTS) using two large distinct college student samples. The SCoTS was adapted and developed from the Collegiate Psychological Sense of Community scale (Lounsbury & DeNeui, 1996), and our adapted

measure retained 13 of the original 14 scaled items. The focus of Study 1 was the exploratory factor analysis of the adapted measure, and the focus of Study 2 was the confirmatory factor analysis of the SCoTS, as well as the convergent and discriminant validity of the measure. The intent of this series of explorations was to develop a brief questionnaire to quickly assess and understand college students' sense of religious/spiritual (R/S) community and togetherness. This aspect of well-being has not typically been explored or assessed in the literature with regard to the transition to college (and beyond), and it could have implications for mental healthcare professionals, college student development professionals, and those invested in the holistic wellness of college student bodies.

4.1. Factor Solution

While a one-factor solution was upheld via the analyses conducted in Studies 1 and 2, the two-factor solution may offer more insight into the underlying theoretical structure of the SCoTS. "Belonging" is a factor comprising questions that probe for internal intrinsic feelings of R/S community connection. However, "Member Involvement" is a factor comprising questions that probe for the external evaluation and perception of R/S community participation. While similar, we believe that our evidence suggests an underlying factor structure that is measuring both intrinsic and extrinsic perspectives on R/S community, supporting a more holistic approach and departure from similar measures.

For example, our factor of "Belonging" closely aligns with McMillan and Chavis' (1986) factors of shared emotional connection (bonds created through shared experiences) and membership (feelings of emotional safety, belonging, and investment). Our "Belonging" factor mirrors these, with items such as "I really feel like I belong here", "I feel very attached to it", and "I make contributions to it". Our factor of "Member Involvement" aligns with McMillan and Chavis' factors of integration/needs fulfillment (community benefit from participant involvement) and influence (agency over a community), with such items as "members can get help if they are in trouble", "there is a strong feeling of togetherness", and "members really care about what happens to it". While we did not engage in direct comparison to McMillan and Chavis' factors, future researchers may directly compare to further extricate potential relational meaning across the measures.

4.2. Addressing a Measurement Gap

The field of psychometrics and religion are rife with similar measures that purport differences. This study is the first to take an extant measure of a psychological sense of college community and adapt it to explore and measure the R/S sense of community in college students. We explored the nature of the SCoTS and confirmed it to be a valid measure of overall spiritual community togetherness. The SCoTS was significantly and positively related to other scales and subscales in interesting ways that serve to confirm our theoretical lens. For example, while the SCoTS overall score was most highly correlated with the BSCS overall score, subscale score correlations showed novel patterns. The Member Involvement subscale of the SCoTS was correlated with both the Clergy Support (0.71) and Congregation Support (0.72) subscales of the RSSI, indicating some similarity in underlying constructs being measured. We would interpret this as a meta-cognitive support. That is, the SCoTS measures the magnitude of support that individuals believe their R/S community provides to other members of the community.

A sense of spiritual community togetherness is an aspect of intersectional identity that is not commonly assessed when providing healthcare and mental health services to college students and others. Race, culture, gender identity, age, and sexual identity are commonly assessed in institutions of higher learning and clinical environments, but R/S orientation, particularly the magnitude of R/S connection, is not typically assessed.

However, recent scholarship indicates that the stability of R/S identity, which includes community connection, can serve as a proxy variable for understanding college student psychological wellness and quality of life (Dabbs & Winterowd, 2023). It is understood that for many people across cultures, including atheist and agnostic individuals, people can still feel a sense of belonging and togetherness in groups regardless of the theistic or secular nature (Dabbs & Winterowd, 2023). Thus, including the SCoTS in a physical/mental health screening can assist in evaluating community involvement and support.

We utilized a meaning-making measure (the SONG) as our primary measure of discriminant comparison, with the assumption that a meaning-seeking orientation construct would be different from our latent factors. The SONG scores in Study 2 showed that our participants, on average, were purpose-making oriented, and the SCoTS did not strongly correlate with scores on the SONG. This was expected and affirms that our measure of community togetherness is measuring a distinct factor from a general seeker-oriented meaning-making paradigm.

4.3. Implications for Theory and Practice

The results of the current study indicate that the SCoTS has the potential to be a useful self-report instrument for measuring college students' feelings of connectedness to their R/S organizations and groups, which could be viewed as an analog for their psychological and emotional well-being. The need for better measures of religiosity and spirituality has been identified in the literature (Hill & Maltby, 2009). As identified by Hill and Maltby, one of the largest extant issues with the measurement of religiosity and spirituality is a lack of theoretical grounding. Taking this critique into consideration, the Spiritual Community and Togetherness Scale is grounded firmly in the theory of the psychological sense of community. What the current work suggests is that the five dimensions that have been recognized as comprising the psychological sense of community—membership, influence, integration and fulfillment of needs, shared emotional connection, and conscious identification—may be able to be reduced to two substantial sense of community factors in the current population, namely Belonging (intrapsychic; how I feel about my community) and Member Involvement (empathic; how I think others in my community feel about our community). This reduction may inform the ways in which we think about college students belonging in R/S communities.

National surveys of college students have shown that a collegiate sense of belonging has a strong impact on engagement in college and college student mental health (Gopalan & Brady, 2019). Despite opposition to the overarching community-building goals of universities, research also suggests that institutions of higher education provide inconsistent support for the spiritual wellness and development of college students—a reality that could negatively impact college student sense of belonging (Hartley, 2004). Considering the extant literature, the development of the SCoTS could give university student affairs and wellness professionals (counseling and psychological services, health and wellness, student support services, etc.) a brief, valid, and reliable measure for attuning to their students' level of R/S connection and perspective. For example, as part of a comprehensive assessment, SCoTS scores could assist student affairs in tailoring wellness interventions to bolster collegiate spiritual and community connections (e.g., with mindfulness programs, spiritual counseling, or community service opportunities). In addition, the SCoTS could assist clinical and mental health staff in growing in their understanding of students' sources of meaning and belonging, tailoring and improving interventions built on students' existing spiritual and communal resources and addressing loneliness and isolation in college student populations.

In conclusion, the dynamic and stressful nature of college elicits a reliance on available social resources from college students, including leaning on R/S support systems. The adaptation and development of the SCoTS fills a gap in measurement for projections of college student well-being—their sense of connection to their R/S community. The SCoTS brings R/S identity and connection—recognized as core components of wellness—out of the shadows and into play with other important diversity and equity considerations. These considerations inform the ongoing development of a holistic understanding of the complex nature of college student identity.

4.4. Strengths, Limitations, and Future Directions

One of the primary strengths of the current study was the robustness of our sample sizes and the heterogeneity of our samples across Study 1 and Study 2. In collecting data from diverse pools, we attempted to increase the generalizability of our study in the validation of the SCoTS. Our demographics across the studies were quite different, although our populations were college students, and this led to some interesting findings. For example, our Study 1 EFA findings in a population that was relatively homogenous were replicated in Study 2 on a population that more closely matched the demographic window of college students in the U.S. This provides us with psychometric confidence.

Second, we believe that adapting the SCoTS from an extant measure of the collegiate psychological sense of community is an inherent strength of our process. The field of R/S psychometrics has been criticized for a glut of similar measures purporting to measure different constructs (Hill & Maltby, 2009; Hill & Pargament, 2017). In starting with an established measure for our population (college students) and adapting it to reflect a subcomponent of the construct (psychological sense of community → psychological sense of R/S community), we hoped to retain the positives of the original measure while expanding across interdisciplinary lines. Although our measure does correlate with the BSCS, our underlying factor structure is quite different and informs the larger psychological sense of the community literature.

There were two primary limitations to Study 1 that we were purposeful in addressing in Study 2. First, in Study 1, we had a significant lack of sample demographic diversity, with most of the sample reporting heterosexual (91%), White (66%), female (71%), and Christian (85%) identities. Our approach to eliminating this limitation in Study 2 was to increase sample diversity, which we carried out effectively. Second, data for Study 1 were collected between March 2020 and May 2021, during the height of the COVID-19 pandemic. This time period could have introduced confounds into certain demographic or outcome variables (i.e., limited service attendance options due to quarantine and isolation rules, online services, etc.). To rectify this, we collected data for Study 2 between September 2023 and January 2024. In addressing these limitations, the SCoTS is poised to be a valuable self-report scale of R/S group connection.

A primary limitation for Study 2 includes the addition of correlated errors between a few of the measure items in order to better understand the fit. While adding too many correlated errors can lead to a problem with overfitting of the data, extant research suggests it is acceptable to correlate errors if (a) there is a theoretical justification for doing so and (b) the correlated errors are only between a few terms with large modification indices. We iteratively added correlated errors between the aforementioned items with the theoretical justifications that the items utilized the same data collection method and that the wording of some of the items were fairly similar (Saris & Aalberts, 2009). Given these stipulations, we believe we followed best practices in understanding our model fit.

For future research, qualitative and mixed methods approaches can aid in understanding the nuances of the connections present in this study. For example, an exploration of

how participants interpret questions related to their perspectives on other R/S community members could shed some light on our external/internal cognitive findings. Future quantitative work could center mediators, moderators, and convergence. For example, the underlying factor structures of the BSCS and SCoTS purport to be different, although their total scores are strongly correlated—why is this? Perhaps future researchers may look into further comparisons of the subscales of each measure or the underlying factor structure to arrive at a more cogent explanation. Further research can also provide clarity for any existing mediators or moderators of the existing relationships or if any other relevant factors influence an individual's sense of belonging and member involvement. Finally, we believe that some additional validation of the tool is required before it is utilized clinically: we would hasten against hinging important clinical decisions on any instrument in its infancy. However, in its current form, the SCoTS could be used in a battery alongside other validated tools that measure college student wellness—particularly for those agencies and organizations that are not currently measuring spiritual wellness and belonging.

5. Conclusions

The Spiritual Community and Togetherness Scale (SCoTS) is a measure adapted from the Collegiate Psychological Sense of Community Scale (CPSCS; Lounsbury & DeNeui, 1996) to measure college student connection to their religious/spiritual (R/S) communities. Two studies were conducted to explore the construct and psychometric validity of the measure. In Study 1, we found support for both a one-factor and two-factor solution, with stronger support for the latter. We named these factors "Belonging" and "Member Involvement". In Study 2, with a new sample, we confirmed these factors and found support for our underlying structure. In our convergent and discriminant analyses, we found that the SCoTS was related, but not redundantly so, to another measure of R/S community. Further research through mixed methods or qualitative means could provide insight into the relationship between sense of belonging, member involvement, meaning-making, and psychological well-being. We believe that the SCoTS is poised to be applicable in areas in which primary stakeholders are invested in the mental health or community wellness of a population as intersected with religion, involving colleges and universities, religious groups, social wellness programs, and even in secular settings. Assessing sense of belonging and member involvement can be a gateway for providers to connect to the religious and spiritual aspects of an individual's identity.

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