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Spiritual monachopsis and depressive symptoms among university students in Türkiye: a cross-sectional study

Süheyb Okur^{1*} 

Abstract

Background Spiritual life can serve as a psychological resource, but it may also involve disconnection, incongruence, and non-belonging. This cross-sectional study examined whether spiritual monachopsis—a sense of displacement within one's relationship with the divine, belief system, and religious social environment—was associated with depressive symptoms beyond spiritual orientation and spiritual psychological robustness.

Methods Participants were 550 undergraduate students at Bayburt University in Türkiye (58.0% women). They completed the Spiritual Monachopsis Scale, Spiritual Orientation Scale, Spiritual Psychological Robustness Scale, and Beck Depression Inventory-II. Scale structure and reliability were evaluated. Primary association analyses used correlations with Holm-adjusted p values and hierarchical regression with robust standard errors, bootstrap confidence intervals, and repeated cross-validation. Parcel-based structural equation modeling served as a supplementary robustness analysis.

Results Spiritual monachopsis showed a small positive cross-sectional correlation with depressive symptoms ($r = .223, p < .001$). After adjustment for demographic characteristics, spiritual orientation, and spiritual psychological robustness, its conditional association remained positive ($\beta = 0.217, p < .001$); adding spiritual monachopsis increased model R^2 by 0.046. Spiritual orientation and spiritual psychological robustness had no significant adjusted associations with depressive symptoms. In exploratory analyses, all three subdimensions correlated with depressive symptoms, but only Religious Social Alienation retained an adjusted association ($\beta = 0.148$, Holm-adjusted $p = .043$); coefficient differences were nonsignificant, and the subdimension model did not outperform the total-score model.

Conclusions The findings provide preliminary evidence of an incremental cross-sectional association relative to the demographic variables and two positive spirituality measures included in this study. The exploratory subdimension findings do not establish Religious Social Alienation as the principal component or an explanatory mechanism. The findings do not establish causality or clinical utility.

Keywords Spiritual monachopsis, Depressive symptoms, Spiritual orientation, Spiritual psychological robustness, Religious and spiritual struggles, University students

*Correspondence:

Süheyb Okur
suheybokur@bayburt.edu.tr

¹Department of Philosophy and Religious Sciences, Division of Psychology of Religion, Faculty of Theology, Bayburt University, 69000 Bayburt, Türkiye



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Background

University students face academic demands alongside changes in identity, belonging, and their sense of purpose. Depressive symptoms can affect their daily functioning and well-being. A meta-analysis of 64 studies involving 100,187 university students reported a pooled prevalence of depressive symptoms of 33.6%; the marked heterogeneity across studies underscored the importance of sampling and measurement context [1].

This estimate should not be interpreted as the prevalence of clinical diagnoses. Research is therefore needed on the factors associated with depressive symptoms among students in different cultural settings.

Resource-oriented and challenging dimensions of spirituality

For many people, religion and spirituality provide frameworks for interpreting life events, developing purpose and meaning, sustaining hope, and forming social bonds [2]. Their associations with depressive symptoms depend on the religious experiences and measures being studied. In a meta-analysis of 147 studies, Smith et al. [3] found a small negative association between religiousness and depressive symptoms and showed that the association varied according to how religiousness was measured.

A more recent systematic review and meta-analysis focused on young people similarly found that religion and spirituality were generally associated with fewer depressive symptoms, while emphasizing that heterogeneity in measurement and limited longitudinal evidence require context-sensitive interpretation [4]. Thus, the specific dimension of spirituality being assessed may be more consequential than a global level of spirituality.

The present study examined two aspects of positive spiritual functioning. Spiritual orientation represents a person's general inclination toward transcendence, meaning in life, and spiritual experience [5]. Spiritual psychological robustness refers to the capacity to draw on spiritual resources in the face of adversity through spiritual commitment, spiritual beliefs, and spiritual coping [6]. Studies conducted in Türkiye have shown that religion and spirituality may be associated with psychological well-being, resilience, life satisfaction, and hopelessness [7–9].

Nevertheless, having a general spiritual orientation is not equivalent to using spiritual resources effectively in a challenging situation. The associations of these two positive constructs with depressive symptoms therefore warrant separate evaluation.

Spiritual life does not consist solely of resource-oriented dimensions; individuals may also experience conflict and strain involving God, belief, morality, ultimate meaning, or a religious community. The distinction between positive and negative religious coping shows

that religious experiences may accompany better adjustment but may also be linked to psychological distress [2]. Research assessing religious and spiritual struggles across multiple domains has further demonstrated that such difficulties cannot be reduced to low religiousness or the absence of positive spirituality [10].

A meta-analysis of longitudinal studies found a small but significant association between religious and spiritual struggles and subsequent psychological maladjustment [11]. These findings support treating positive spiritual resources and spiritual struggles as related but nonidentical dimensions that may coexist within the same person.

Spiritual monachopsis and depressive symptoms

Spiritual monachopsis was developed to describe the experience of feeling displaced, incongruent, or out of place within one's own spiritual and religious world. The construct comprises three dimensions: Divine Disconnection, Alienation from the Belief System, and Religious Social Alienation [12]. Divine Disconnection reflects distance and weakened attachment in one's relationship with God; Alienation from the Belief System reflects cognitive and emotional incongruence with one's adopted framework of belief; and Religious Social Alienation captures experiences of feeling misunderstood, judged, or unable to belong within one's religious community. Its proposed focus is the felt lack of fit and belonging within a person's spiritual and religious world, including experiences in which formal belief persists [12].

These experiences overlap with domains assessed by the Religious and Spiritual Struggles Scale. Divine Disconnection is conceptually close to divine struggle, Alienation from the Belief System to doubt and potentially ultimate-meaning struggle, and Religious Social Alienation to interpersonal struggle [10]. These conceptual correspondences have not been tested directly. Spiritual monachopsis is positioned here as an experiential framework centered on displacement across these domains. Its proposed contribution lies in examining how a person experiences their place within a religious world; a separate content domain or psychometrically distinct construct remains to be established.

The distinction concerns the focus of the experience. Religious doubt involves questions about beliefs, and negative religious coping involves religious responses to stress [2, 10]. For example, a person might question a doctrine while retaining a sense of belonging, or continue to endorse a belief while feeling estranged from its religious environment. These examples illustrate the intended emphasis on felt displacement [12]. Religious struggle can itself involve alienation or conflict, so such examples clarify a conceptual focus without demonstrating empirical separation.

Research with Muslim populations makes this overlap particularly relevant. Abu-Raiya et al. [13] identified divine/doubt, punitive-entity, interpersonal, moral, and ultimate-meaning struggles in an Israeli-Palestinian Muslim sample. After adjustment for religious variables, punitive-entity and ultimate-meaning struggles were associated with depressive symptoms and generalized anxiety, whereas interpersonal struggle was associated with life satisfaction. A comparative study including Muslim university students in Türkiye, Israel/Palestine, and Malaysia also found that associations between religious struggles and well-being varied across samples [14]. This literature provides an existing framework for interpreting spiritual monachopsis in Muslim contexts. Whether displacement reflects a culturally meaningful expression of established struggles or adds distinguishable information requires direct comparative investigation.

Türkiye provides a predominantly Muslim cultural setting, but religious identification does not imply uniform observance or attachment to religious institutions. A national survey conducted in 2022 documented widespread Muslim self-identification and prayer to Allah in times of difficulty, alongside variation in self-rated religiosity, ritual practice, and trust in religious institutions; family was a major source of religious learning [15]. These findings situate relationships with God, belief, and community within both personal and socially learned religious life, while cautioning against treating Turkish university students as religiously homogeneous.

The Turkish Spiritual Monachopsis Scale explicitly refers to Allah, worship, religious holidays, and religious social settings [12]. In this context, Religious Social Alienation may concern a perceived mismatch with expectations or practices within a shared religious tradition. The relative salience of such experiences and exclusion across religious groups may differ in a more religiously pluralistic setting. For someone actively embedded in religious life, displacement may accompany continuing belief and participation; for someone minimally religious or disengaged, endorsement may instead reflect distance from an inherited religious environment. These are interpretive possibilities, not religious profiles established for this sample. Abu-Raiya and colleagues' findings of distinct struggle domains and differing associations across Muslim samples [13, 14] reinforce the need for contextual interpretation rather than unqualified transfer from predominantly Western Christian research.

Spiritual coping, meaning integration, belonging, and social support are plausible constructs for future longitudinal research on why spiritual monachopsis and depressive symptoms may co-occur. Prior work links religious coping with adjustment [2] and meaning integration with responses to adversity [16]. Religious Social Alienation is also conceptually relevant to feeling judged,

misunderstood, rejected, or unable to belong within a religious community.

Belonging has long been recognized as a basic psychological need [17], and a recent meta-analysis of university students found that stronger university belonging was associated with better mental health outcomes [18]. In Türkiye, negative religious coping has also been associated with greater loneliness [19]. The proposed interpersonal and coping processes require longitudinal investigation [20, 21].

The development study of the Spiritual Monachopsis Scale confirmed its three-dimensional structure and demonstrated a positive association between the total score and negative religious coping [12]. However, the construct's association with depressive symptoms, and whether that association persists after positive spiritual constructs are taken into account, have not yet been examined. Incremental validity refers to the extent to which a measure provides additional and unique information about an outcome after existing variables have been considered [22]. The interpretation of this increment depends on the comparison measures and intended use [22].

A bivariate association alone therefore does not show whether spiritual monachopsis adds statistical information beyond spiritual orientation, spiritual psychological robustness, and the demographic composition of the sample. This study examined the change in R^2 after adding spiritual monachopsis and the consistency of its adjusted association across alternative model specifications. Because no established struggles measure was administered, the present analysis cannot determine whether spiritual monachopsis adds information beyond religious and spiritual struggles or represents a distinguishable construct within that literature.

Spiritual alienation may co-occur with reduced meaning, coping resources, and belonging; conversely, depressive affect may accompany more negative appraisals of one's relationship with God, one's belief system, and one's religious community. Longitudinal evidence of reciprocal associations between religious and spiritual struggles and psychological functioning supports treating both temporal directions as plausible [23]. Stressful life events, social support, or personality characteristics may also be related to both constructs.

The present study

This study examined spiritual monachopsis, spiritual orientation, and spiritual psychological robustness in relation to depressive symptoms among university students in Türkiye. The primary focus was whether spiritual monachopsis provided incremental statistical information about BDI-II scores after adjustment for sociodemographic characteristics and positive spiritual constructs.

Measurement structures were evaluated separately. Bivariate correlations and hierarchical regression were the primary association analyses, with a parcel-based SEM used only to assess robustness to an alternative representation of the spiritual constructs. Differences in scale scores by sex and age were also examined to characterize the sociodemographic context of the sample.

Three associational hypotheses specified the expected signs of the concurrent relationships. H1: Spiritual monachopsis is positively associated with depressive symptoms. H2: Spiritual orientation is negatively associated with depressive symptoms. H3: Spiritual psychological robustness is negatively associated with depressive symptoms.

Prior evidence was insufficient to specify directional hypotheses for the adjusted association of spiritual monachopsis or the relative associations of its subdimensions. Two research questions addressed these issues. RQ1: Does spiritual monachopsis provide incremental statistical information about depressive symptoms, reflected in change in R^2 and an adjusted concurrent association after sex, age, year of study, grade point average, spiritual orientation, and spiritual psychological robustness are considered? RQ2: How are Divine Disconnection, Alienation from the Belief System, and Religious Social Alienation related to depressive symptoms at the bivariate level, and which dimensions retain adjusted associations when modeled simultaneously? RQ2 was exploratory, as were comparisons by sex and age, for which no consistent directional pattern was expected.

Methods

Research design

This cross-sectional correlational study evaluated the incremental association of spiritual monachopsis with depressive symptoms after adjustment for spiritual orientation, spiritual psychological robustness, and sociodemographic variables. Analyses estimated concurrent associations; no mediation or indirect effects were tested.

Participants

The sample comprised 550 undergraduate students: 319 women (58.0%) and 231 men (42.0%). By age group, 98 participants were aged 18–19 years (17.8%), 367 were aged 20–25 years (66.7%), 44 were aged 26–30 years (8.0%), 23 were aged 31–35 years (4.2%), and 18 were aged 36 years or older (3.3%). Regarding year of study, 399 participants were in their first year (72.5%), 10 in their second year (1.8%), 41 in their third year (7.5%), and 100 in their fourth year (18.2%). Grade point averages were 1.00–1.99 for 143 participants (26.0%), 2.00–2.99 for 326 participants (59.3%), and 3.00–4.00 for 81 participants (14.7%).

Each of the 550 records in the analytic dataset represented a unique participant, and there were no missing data for demographic variables or scale items. This sample was entirely independent of the participants in Okur's [12] scale-development study.

Participants were recruited from undergraduate students enrolled at Bayburt University through an online research form using nonprobability, voluntary-response sampling. Eligibility criteria were current undergraduate enrollment at Bayburt University, provision of online informed consent, and completion of the study measures.

Measures

All four scales were administered in Turkish using their existing Turkish forms. No additional translation or adaptation was required or undertaken for this study.

Personal information form

A personal information form was used to collect data on sex, age, year of study, and grade point average. Sex was self-reported in response to the Turkish question "Cinsiyetiniz nedir?" ("What is your sex?"), with responses coded as 1 = woman and 2 = man. The wording did not distinguish sex assigned at birth from gender identity. Age was coded as 1 = 18–19, 2 = 20–25, 3 = 26–30, 4 = 31–35, and 5 = 36 years or older; year of study as 1 through 4 for the first through fourth years; and grade point average as 1 = 1.00–1.99, 2 = 2.00–2.99, and 3 = 3.00–4.00. The form did not include separate questions on religious affiliation or denomination, self-identified religiosity, or the frequency of specific religious practices. Spiritual commitment and aspects of spiritual practice were assessed within the spiritual scales described below. Descriptive statistics for the assessed spiritual constructs are reported in Table 2.

Spiritual monachopsis scale

The Spiritual Monachopsis Scale, developed by Okur [12], is an 18-item, five-point Likert-type measure of spiritual incongruence and alienation involving the divine, one's belief system, and one's religious social environment. Items are rated from 1 (strongly disagree) to 5 (strongly agree); no items are reverse-scored. The scale comprises three subdimensions: Religious Social Alienation (original item codes M1–M5), Alienation from the Belief System (M6–M11), and Divine Disconnection (M12–M18). These identifiers refer to the development study's item codes, which differ from the items' presentation order in its appendix. Total scores range from 18 to 90, with higher scores indicating greater spiritual monachopsis. In the original study, Cronbach's alpha was 0.913 and McDonald's omega was 0.909 for the total scale. In the present sample, the internal consistency coefficients for the total score were $\alpha = 0.901$ and $\omega = 0.919$.

Spiritual psychological robustness scale

The 16-item, five-point Likert-type Spiritual Psychological Robustness Scale developed by Okan and Ekşi [6] assesses the extent to which individuals draw on spiritual beliefs and resources when confronting difficult life events. Items are rated from 1 (strongly disagree) to 5 (strongly agree), with no reverse-scored items. The scale comprises Spiritual Commitment (original item codes m1-m5), Spiritual Beliefs (m6-m10), and Spiritual Coping (m11-m16). The original codes identify item content rather than presentation position in the published appendix. Total scores range from 16 to 80, with higher scores indicating stronger spiritual psychological robustness. The Spiritual Commitment domain includes endorsement of living in accordance with one's beliefs and maintaining daily spiritual practice [6]. These agreement ratings do not quantify the frequency of specific ritual behaviors. The original study reported an alpha coefficient of 0.854 for the total scale. In the present sample, alpha was 0.955 and omega was 0.956 for the total score.

Spiritual orientation scale

The Spiritual Orientation Scale developed by Kasapoğlu [5] is a 16-item, unidimensional measure of attitudes and orientations toward spirituality. Items are rated from 1 (strongly disagree) to 7 (strongly agree). Total scores range from 16 to 112, with higher scores indicating greater spiritual orientation. Its content includes the personal significance of belief and prayer/meditation [5]. The development study reported a Cronbach's alpha of 0.87 and a three-week test-retest reliability coefficient of 0.84. In the present sample, both alpha and omega were 0.954.

Beck depression inventory-II

The Beck Depression Inventory-II (BDI-II) is a 21-item self-report inventory developed by Beck et al. [24] to assess the severity of depressive symptoms during the preceding two weeks. Each item includes four response options scored from 0 to 3; total scores range from 0 to 63, with higher scores indicating more severe depressive symptoms. The psychometric properties of the Turkish version were examined by Dikmen [25]. Although total scores may be interpreted as minimal (0–13), mild (14–19), moderate (20–28), or severe (29–63), these categories indicate symptom severity rather than a clinical diagnosis. Dikmen [25] reported an alpha coefficient of 0.78. In the present sample, alpha was 0.722 and omega was 0.738.

Scale content and contamination review

Following current recommendations, the item content of all four measures was reviewed before interpretation [26–29]. The instruments were developed by different research teams and were intended to assess different

constructs using nonidentical items and factor structures: spiritual alienation, spiritually grounded psychological robustness, spiritual orientation, and depressive symptom severity. No item in the three spiritual measures duplicates a BDI-II symptom item verbatim.

Complete freedom from conceptual contamination was not assumed because some Spiritual Psychological Robustness and Spiritual Orientation items refer to coping, inner peace, emotional support, psychological strength, or mental health, whereas the Religious Social Alienation dimension contains socially evaluative content. The validated scores were retained, and shared covariate variance was partitioned through hierarchical regression; the Spiritual Monachopsis subdimensions were also analyzed separately [29]. These procedures do not establish that overlapping item content has been removed.

Procedure and ethics

The data-collection procedures were approved as ethically appropriate by the Bayburt University Rectorate Ethics Committee (decision date: May 16, 2025; decision no. 271; session no. 6; document date and no.: May 23, 2025-280536). The study was conducted in accordance with the ethical principles for research involving human participants set out in the 2024 revision of the World Medical Association Declaration of Helsinki [30]. The analytic dataset contained no directly identifying participant information.

Following ethics approval, data were collected online from February 16 to May 8, 2026. An online informed-consent form appeared in the first section of the survey; participants who provided consent proceeded to the study measures. Participation was voluntary, and individuals who did not consent were not included. After completing the survey, participants were not provided with information about counseling or mental-health resources.

Data analysis

Before analysis, data ranges, scoring rules, missing values, duplicate records, and univariate and multivariate outliers were examined. Because no missing values were found for item-level or total-score variables, no missing-data imputation was performed. Scale total and subdimension scores were calculated in accordance with the item groupings and scoring instructions reported in the respective development studies.

Means, standard deviations, observed ranges, skewness, and kurtosis were calculated for the scale scores, and distributions were examined using the Shapiro-Wilk test. Because normality tests can be sensitive to small deviations in large samples, skewness and kurtosis were also considered when evaluating normality [31]. Internal

consistency was assessed using Cronbach's alpha and McDonald's total omega.

Scale scores were compared by sex using Welch independent-samples *t* tests, which do not assume equal variances. Effect sizes were reported as Hedges' *g* with percentile bootstrap 95% confidence intervals based on 5,000 resamples. Because age-group sizes differed substantially, age comparisons used Welch one-way analysis of variance, Games-Howell pairwise comparisons after a significant omnibus test, and descriptive eta squared. For analyses by sex and age, probability values for the four scales were adjusted using the Holm method. Age and year-of-study comparisons were treated as descriptive and exploratory.

Pearson's correlation coefficient was the primary measure of bivariate associations, and rank-based Spearman coefficients were examined as a robustness check. Percentile bootstrap 95% confidence intervals based on 5,000 resamples were generated for Pearson coefficients, and probability values for the six bivariate correlations were Holm-adjusted.

Because the scale items were ordinal categorical variables, measurement models were tested with diagonally weighted least squares (DWLS) estimation based on polychoric correlation matrices [32]. The original three-factor structures of the Spiritual Monachopsis Scale and Spiritual Psychological Robustness Scale were compared with unidimensional alternatives [6, 12]. The unmodified one-factor model of the Spiritual Orientation Scale was compared with the published model containing four correlated residuals [5], and the one-factor model of the BDI-II was compared with the seven-factor structure reported for the Turkish form [25]. Model fit was evaluated jointly using χ^2/df , CFI, TLI, RMSEA, and SRMR; standardized factor loadings, composite reliability, and average variance extracted were also examined [33, 34].

A three-step hierarchical linear regression was constructed to estimate the incremental adjusted association of spiritual monachopsis with the BDI-II total score. In Step 1, sex, age, year of study, and grade point average were entered as dummy-coded covariates. Standardized total scores for spiritual orientation and spiritual psychological robustness were entered in Step 2, and the standardized spiritual monachopsis total score was entered in Step 3. The reference categories were women, age 18–19 years, first-year students, and a grade point average of 1.00–1.99.

Heteroskedasticity-consistent HC3 standard errors were used for coefficient inference [35]. Multicollinearity was evaluated using variance inflation factors, and influential observations using Cook's distance. Percentile bootstrap 95% confidence intervals based on 5,000 participant resamples (seed = 20260917) were calculated for the spiritual monachopsis coefficient and incremental

ΔR^2 , refitting both models and restandardizing the coefficient within each resample. The stability of out-of-sample ΔR^2 was assessed using 10-fold cross-validation repeated 20 times, with identical folds across models (seed = 20260917) and training-fold standardization. R^2 was calculated from pooled held-out predictions within each repetition and then averaged across repetitions.

A supplementary parcel-based SEM examined whether the association with depressive symptoms remained similar in direction and magnitude when the spiritual constructs were modeled as latent variables. Spiritual monachopsis was represented by the arithmetic means of its three original subdimensions (M1–M5, M6–M11, and M12–M18), and spiritual psychological robustness by the means of its three original subdimensions (m1–m5, m6–m10, and m11–m16). The item-code conventions are described in the Measures section.

Spiritual orientation was represented by four equally weighted item-mean parcels, using the MY1–MY16 item codes in the dataset. Items were allocated cyclically in their numerical order: P1 comprised MY1, MY5, MY9, and MY13; P2 comprised MY2, MY6, MY10, and MY14; P3 comprised MY3, MY7, MY11, and MY15; and P4 comprised MY4, MY8, MY12, and MY16. Each item appeared once, and each parcel was the arithmetic mean of four responses. This fixed allocation used no outcome-based item weighting or selection.

Aggregation reduces the number of indicators but can conceal local dependence, cross-loadings, or multidimensionality; acceptable parcel-level fit therefore cannot replace evaluation of the item-level models [36]. Because the BDI-II item-level models did not fit adequately, depressive symptoms were represented by the observed total score, without a separate latent depression measurement model.

Each of the ten indicators and the BDI-II total score was regressed separately on sex and age-group indicators before modeling. Sex was coded relative to women, and the four age-group indicators used ages 18–19 as the reference category. The residuals were analyzed by maximum likelihood, with correlations among the three latent spiritual variables freely estimated and their associations with the residualized BDI-II score estimated simultaneously. Bootstrap inference used 2,000 participant resamples (seed = 20260917), with covariate residualization and model estimation repeated in each resample. Standard errors were the sample standard deviations of the standardized coefficients; 95% confidence intervals used the 2.5th and 97.5th percentiles of the bootstrap estimates. SRMR summarizes the distinct off-diagonal standardized covariance residuals.

Two focused specification checks were also conducted. The first replaced the cyclic Spiritual Orientation parcels with four contiguous item-mean parcels (MY1–MY4,

Table 1 Participant demographic characteristics (N = 550)

Variable	Category	n	%
Sex	Women	319	58.0
	Men	231	42.0
Age	18–19	98	17.8
	20–25	367	66.7
	26–30	44	8.0
	31–35	23	4.2
	36 or older	18	3.3
Year of study	First	399	72.5
	Second	10	1.8
	Third	41	7.5
	Fourth	100	18.2
Grade point average	1.00–1.99	143	26.0
	2.00–2.99	326	59.3
	3.00–4.00	81	14.7

Note. N = 550. Percentages were calculated using the total sample as the denominator. There were no missing data for the sociodemographic variables

MY5–MY8, MY9–MY12, and MY13–MY16). The second retained the cyclic parcels and added year of study and grade point average to the residualization covariates, using the same dummy coding as the primary regression. These checks evaluated sensitivity of the point estimates to aggregation and covariate adjustment.

To address exploratory RQ2, Religious Social Alienation, Alienation from the Belief System, and Divine Disconnection were entered simultaneously into the same adjusted regression model. Holm correction was applied to the p values for the subdimension coefficients. Coefficient differences were assessed using a joint HC3 Wald F test and pairwise HC3 t contrasts, with a separate Holm correction across the three contrasts. The total-score and subdimension models were compared in terms of incremental R^2 and paired repeated cross-validation performance; this performance comparison was descriptive. All tests were two-tailed, with statistical significance set at 0.05.

Data management, basic descriptive analyses, conventional reliability estimates, group comparisons, correlations, and hierarchical regression were conducted in IBM SPSS Statistics 27 [37]. The supplementary SEM used maximum likelihood estimation [38]. Ordinal DWLS based on polychoric correlations, CFA-based total omega estimates preserving multidimensional structure, HC3

analyses, and resampling/cross-validation robustness checks were conducted with analysis scripts in Python 3.12.13 (NumPy 2.3.5, pandas 2.2.3, SciPy 1.17.0, and scikit-learn 1.8.0). The supplementary SEM, its bootstrap inference, and the two specification checks were computed in Python 3.12.14 using NumPy 2.3.5 and SciPy 1.17.0. The regression reporting checks added during revision also used Python 3.12.14.

Language and analytical assistance

OpenAI's ChatGPT was used to translate the author-prepared Turkish manuscript into English and to assist with language and journal-format editing. It was not used to generate participant responses. The author reviewed the complete manuscript and assumes responsibility for its accuracy and integrity.

Results

Sociodemographic characteristics of participants

Table 1 presents the distribution of participants by sex, age, year of study, and grade point average.

A total of 550 students participated: 319 women (58.0%) and 231 men (42.0%). Most were aged 20–25 years (66.7%) and were in their first year (72.5%). Complete demographic characteristics are reported in Table 1; no demographic or scale variable had missing data.

Descriptive statistics, normality, and reliability

Descriptive statistics, distributional characteristics, and internal consistency coefficients for the scale total scores are presented in Table 2.

Mean scores were 42.35 (SD = 13.38) for spiritual monachopsis, 61.76 (SD = 13.25) for spiritual psychological robustness, 86.19 (SD = 20.62) for spiritual orientation, and 16.16 (SD = 7.02) for the BDI-II. The group mean was within the mild BDI-II range, but a group mean cannot indicate individual diagnoses or prevalence. Shapiro-Wilk tests were significant for all total scores, whereas skewness (−1.07 to 0.72) and kurtosis (−0.16 to 0.76) did not indicate severe univariate nonnormality. Internal consistency was high for the three spiritual measures ($\alpha = 0.901$ – 0.955 ; $\omega = 0.919$ – 0.956) and lower for the BDI-II ($\alpha = 0.722$; $\omega = 0.738$).

Table 2 Descriptive statistics, normality, and reliability of the study measures

Measure	Observed range	M	SD	Skewness	Kurtosis	W	α	ω
Spiritual Monachopsis	20–87	42.35	13.38	0.72	0.15	0.960	0.901	0.919
Spiritual Psychological Robustness	20–79	61.76	13.25	−1.07	0.76	0.911	0.955	0.956
Spiritual Orientation	20–111	86.19	20.62	−0.88	0.04	0.917	0.954	0.954
Beck Depression Inventory-II	2–40	16.16	7.02	0.49	−0.16	0.977	0.722	0.738

Note. N = 550. The theoretical score ranges were 18–90 for spiritual monachopsis, 16–80 for spiritual psychological robustness, 16–112 for spiritual orientation, and 0–63 for the BDI-II. W = Shapiro-Wilk statistic; $p < .001$ for all tests. α = Cronbach's alpha; ω = McDonald's total omega

Table 3 Comparison of total scale scores by sex

Measure	Women M (SD)	Men M (SD)	t (df)	p	p (Holm)	Hedges' g [95% CI]
Spiritual Monachopsis	42.40 (13.79)	42.27 (12.81)	0.11 (515.39)	0.911	1.000	0.01 [-0.16, 0.18]
Spiritual Psychological Robustness	61.31 (13.26)	62.38 (13.24)	-0.93 (496.29)	0.351	1.000	-0.08 [-0.25, 0.09]
Spiritual Orientation	85.45 (20.98)	87.21 (20.12)	-0.99 (507.33)	0.321	1.000	-0.09 [-0.26, 0.08]
BDI-II	15.99 (7.12)	16.40 (6.89)	-0.67 (504.93)	0.503	1.000	-0.06 [-0.23, 0.11]

Note. Women, $n = 319$; men, $n = 231$. Positive Hedges' g values indicate higher scores among women, and negative values indicate higher scores among men. Confidence intervals were calculated using 5000 within-group bootstrap resamples. p (Holm) = Holm-adjusted p value across the four scales; CI = confidence interval

Table 4 Comparison of total scale scores by age group

Measure	18-19 M (SD)	20-25 M (SD)	26-30 M (SD)	31-35 M (SD)	36 or older M (SD)	Welch F (df1, df2)	p (Holm)	η^2
Spiritual Monachopsis	44.56 (12.91)	42.01 (13.74)	41.98 (12.10)	39.70 (12.20)	41.44 (12.69)	1.05 (4, 65.68)	0.461	0.007
Spiritual Psychological Robustness	57.79 (15.12)	61.77 (13.23)	65.23 (9.92)	65.78 (8.48)	69.72 (6.64)	9.24 (4, 72.04)	< 0.001	0.037
Spiritual Orientation	87.04 (18.20)	86.54 (20.63)	80.61 (23.80)	92.61 (19.21)	79.67 (24.07)	1.59 (4, 64.22)	0.461	0.014
BDI-II	17.99 (7.62)	15.80 (6.78)	15.61 (7.12)	15.48 (6.99)	15.78 (7.42)	1.73 (4, 64.12)	0.461	0.015

Note. The age-group sample sizes were 98, 367, 44, 23, and 18, respectively. Welch F denotes the Welch test statistic; p (Holm) = Holm-adjusted p value across the four scales; η^2 = descriptive effect size

Table 5 Pearson correlations among total scale scores

Measure	1	2	3	4
1. Spiritual Monachopsis	-			
2. Spiritual Psychological Robustness	-0.02 [-0.10, 0.06]	-		
3. Spiritual Orientation	0.01 [-0.07, 0.09]	0.01 [-0.07, 0.09]	-	
4. BDI-II	0.22*** [0.14, 0.31]	-0.01 [-0.09, 0.08]	-0.06 [-0.14, 0.02]	-

Note. $N = 550$. Cells contain Pearson's r and percentile bootstrap 95% confidence intervals based on 5000 resamples in brackets. Holm correction was applied to p values for the six correlations. BDI-II = Beck Depression Inventory-II. *** Holm-adjusted $p < .001$

Scale scores by sociodemographic characteristics

Welch procedures and Holm-adjusted probability values were used for comparisons by sex and age.

Comparisons by sex

Sex-based comparisons are reported in Table 3.

None of the comparisons by sex was statistically significant (all adjusted $p = 1.000$); Hedges' g ranged from -0.09 to 0.01, and all confidence intervals included zero.

Comparisons by age group

Age-group comparisons are reported in Table 4.

Only spiritual psychological robustness differed by age, Welch $F(4, 72.04) = 9.24$, adjusted $p < .001$, $\eta^2 = 0.037$. Games-Howell tests showed lower scores for ages 18–19 than for ages 26–30, 31–35, and 36 or older, and lower scores for ages 20–25 than for ages 36 or older. No other pairwise comparison was significant. Age-group differences in spiritual monachopsis, spiritual orientation, and BDI-II scores were not statistically significant (all adjusted $p = .461$; $\eta^2 = 0.007$ –0.015).

Correlations among the study measures

P values for Pearson correlations were adjusted using the Holm method; Spearman correlations served as a robustness check. The correlation matrix is presented in Table 5.

Spiritual monachopsis correlated positively with the BDI-II, $r = .223$, adjusted $p < .001$, 95% CI [0.143, 0.306]; the Spearman result was similar ($\rho = 0.257$, $p < .001$), supporting H1. Spiritual orientation and spiritual psychological robustness showed no statistically significant correlations with the BDI-II, so H2 and H3 were not supported. The remaining correlations were also nonsignificant after Holm adjustment of their p values. The three spirituality scores were also nearly uncorrelated: spiritual monachopsis with spiritual psychological robustness, $r = -.02$, 95% CI [-0.10, 0.06]; spiritual monachopsis with spiritual orientation, $r = .01$, 95% CI [-0.07, 0.09]; and spiritual psychological robustness with spiritual orientation, $r = .01$, 95% CI [-0.07, 0.09] (Table 5).

Confirmatory factor analysis

Table 6 summarizes the DWLS measurement-model results based on polychoric correlations. The original three-factor structures of the Spiritual Monachopsis Scale and the Spiritual Psychological Robustness Scale were compared with unidimensional alternatives; the unmodified Spiritual Orientation model was compared with the published model containing four correlated residuals; and the unidimensional BDI-II model was compared with the seven-factor structure reported in the Turkish adaptation.

The original three-factor Spiritual Monachopsis model fit acceptably, $\chi^2(132) = 412.80$, CFI = 0.987, TLI = 0.985, RMSEA = 0.062, and SRMR = 0.061, and outperformed the unidimensional model. Loadings were 0.513–0.856;

Table 6 Ordinal confirmatory factor analysis results for the measurement models

Measure and model	χ^2	df	χ^2/df	CFI	TLI	RMSEA	SRMR	Loading range
SMS - one factor	1483.26	135	10.99	0.936	0.928	0.135	0.116	0.426-0.805
SMS - original three factors	412.80	132	3.13	0.987	0.985	0.062	0.061	0.513-0.856
SPRS - one factor	381.22	104	3.67	0.996	0.996	0.070	0.051	0.629-0.909
SPRS - original three factors	350.39	101	3.47	0.997	0.996	0.067	0.048	0.650-0.928
SOS - one factor, unmodified	665.72	104	6.40	0.993	0.992	0.099	0.064	0.726-0.894
SOS - published model, four correlated residuals	612.16	100	6.12	0.994	0.992	0.097	0.061	0.731-0.901
BDI-II - one factor	1121.68	189	5.93	0.765	0.738	0.095	0.118	0.030-0.638
BDI-II - seven factors in Turkish adaptation	1095.36	168	6.52	0.766	0.707	0.100	0.117	0.030-0.985

Note. $N=550$. All χ^2 tests were significant at $p < .001$. CFI=comparative fit index; TLI=Tucker-Lewis index; RMSEA=root mean square error of approximation; SRMR=standardized root mean square residual; λ =standardized factor loading. Models were estimated by DWLS using polychoric correlations. Fit indices were evaluated jointly

Table 7 Hierarchical regression models for the BDI-II total score

Variable	Model 1 b (SE)	Model 2 b (SE)	Model 3 b (SE)
Sex: Men	0.037 (0.086)	0.042 (0.086)	0.047 (0.083)
Age: 20–25	−0.333 (0.123)**	−0.333 (0.125)**	−0.289 (0.123)*
Age: 26–30	−0.333 (0.203)	−0.348 (0.204)	−0.294 (0.199)
Age: 31–35	−0.336 (0.257)	−0.312 (0.262)	−0.218 (0.278)
Age: 36 or older	−0.285 (0.282)	−0.304 (0.280)	−0.245 (0.250)
Year: Second	0.860 (0.345)*	0.822 (0.352)*	0.845 (0.357)*
Year: Third	−0.011 (0.162)	−0.024 (0.163)	−0.066 (0.164)
Year: Fourth	−0.063 (0.130)	−0.082 (0.131)	−0.096 (0.127)
GPA: 2.00–2.99	0.001 (0.103)	0.001 (0.103)	−0.006 (0.100)
GPA: 3.00–4.00	−0.192 (0.149)	−0.198 (0.149)	−0.180 (0.147)
Spiritual Orientation	-	−0.065 (0.043)	−0.068 (0.043)
Spiritual Psychological Robustness	-	0.008 (0.047)	0.010 (0.046)
Spiritual Monachopsis	-	-	0.217 (0.044)***
R^2	0.035	0.039	0.085
Adjusted R^2	0.017	0.018	0.063
ΔR^2	0.035	0.004	0.046***
ΔF (df1, df2)	1.95* (10, 539)	1.17 (2, 537)	27.20*** (1, 536)

Note. $N=550$. The BDI-II score and continuous covariates were standardized. Cells contain b coefficients with HC3 robust standard errors in parentheses. Reference categories were women, age 18–19 years, first-year students, and grade point average 1.00–1.99. Model 1 included demographic covariates; Model 2 additionally included spiritual orientation and spiritual psychological robustness; Model 3 additionally included spiritual monachopsis. For Model 1, ΔF is the omnibus F test relative to the intercept-only model. * $p < .05$. ** $p < .01$. *** $p < .001$

composite reliability was 0.749–0.927 and AVE was 0.377–0.643. The AVE of 0.377 for Religious Social Alienation was below the conventional 0.50 benchmark, indicating limited evidence of convergent validity in this sample [33]. Both Spiritual Psychological Robustness models fit adequately; the original three-factor model had CFI = 0.997, TLI = 0.996, RMSEA = 0.067, and SRMR = 0.048. High factor correlations (0.916–0.948) indicated limited discriminant validity and supported a general

representation in the structural model. The published Spiritual Orientation model showed strong incremental fit (CFI = 0.994; TLI = 0.992) and acceptable SRMR (0.061), but elevated RMSEA (0.097), providing only partial absolute-fit support. Neither the unidimensional nor the Turkish seven-factor BDI-II model fit adequately. The observed BDI-II total score was therefore used in structural analyses.

Hierarchical regression analysis

A three-step hierarchical regression entered demographic covariates, the two positive spirituality scores, and spiritual monachopsis sequentially, using standardized continuous variables and HC3 standard errors. The sequence assessed the incremental contribution of each predictor block. The complete regression estimates are reported in Table 7.

The demographic-covariate model yielded $R^2 = 0.035$. Adding spiritual orientation and spiritual psychological robustness changed R^2 by 0.004 ($p = .312$), and neither adjusted coefficient was significant. Adding spiritual monachopsis increased R^2 from 0.039 to 0.085 ($\Delta R^2 = 0.046$, $p < .001$), and its adjusted association was positive, $\beta = 0.217$, HC3 95% CI [0.129, 0.304], $p < .001$. The percentile bootstrap 95% confidence intervals were [0.137, 0.300] for β and [0.018, 0.087] for ΔR^2 . Repeated cross-validation yielded a mean out-of-sample ΔR^2 of 0.044. Secondary estimates, interpreted descriptively, indicated lower BDI-II scores for ages 20–25 than 18–19 and higher scores for second- than first-year students; the latter estimate is unstable because the second-year group contained only 10 students. Diagnostics showed no problematic multicollinearity or influential case.

Supplementary SEM robustness analysis

The supplementary SEM assessed sensitivity to modeling the spiritual constructs as latent variables while retaining the BDI-II as an observed score. Results are reported in Table 8.

The supplementary SEM yielded $\chi^2(39) = 51.72$, $p = .084$, $\chi^2/df = 1.33$, CFI = 0.997, TLI = 0.996, RMSEA =

Table 8 Supplementary SEM robustness analysis

Construct or model indicator	Value / β	Boot-strap SE	95% CI	p
Panel A. Model fit and observed variance summary				
$\chi^2(df)$, p	51.72 (39), p = .084			
χ^2/df	1.33			
CFI / TLI	0.997 / 0.996			
RMSEA / SRMR	0.024 / 0.020			
R^2 for residualized BDI-II	0.058		[0.025, 0.115]	
Panel B. Adjusted standardized associations with BDI-II total score				
Spiritual Monachopsis and BDI-II	0.231	0.048	[0.136, 0.326]	< 0.001
Spiritual Psychological Robustness and BDI-II	0.026	0.044	[-0.062, 0.110]	0.548
Spiritual Orientation and BDI-II	-0.066	0.043	[-0.150, 0.017]	0.121

Note. $N=550$. Maximum likelihood estimation used indicators and the BDI-II score residualized for sex and age groups. The three spiritual constructs were latent variables; the BDI-II remained an observed score. R^2 refers to the residual BDI-II variance after this adjustment. Bootstrap inference used 1,995 admissible solutions from 2,000 participant resamples; five solutions at a residual-variance boundary were excluded. SE=standard error; CI=confidence interval. Two-sided association p values used the normal approximation with unrounded standardized coefficients and bootstrap standard errors; primary inference was based on 95% percentile confidence intervals. Indicator construction and the specification checks are detailed in Data Analysis

0.024, and SRMR = 0.020. Only spiritual monachopsis retained an adjusted association with the BDI-II, $\beta=0.231$, 95% CI [0.136, 0.326], $p < .001$; spiritual psychological robustness and spiritual orientation were non-significant. The model yielded $R^2 = 0.058$ for the sex- and age-adjusted BDI-II score.

The regression R^2 of 0.085 and SEM R^2 of 0.058 refer to different quantities. The regression accounts for variance in the original BDI-II total score using demographic covariates and observed spiritual scale totals. The SEM accounts for variance remaining in the BDI-II score after sex and age adjustment, using latent spiritual variables. Year of study and grade point average were included in the primary regression but not in the base SEM. Differences in covariates, predictor representation, and the outcome variance being explained therefore prevent direct comparison of the two R^2 values as evidence of model superiority or additional validation.

In the specification checks, contiguous Spiritual Orientation parcels yielded a spiritual monachopsis coefficient of $\beta=0.232$, and additional demographic adjustment yielded $\beta=0.236$. However, model fit depended on parcel allocation: the contiguous-parcel model yielded $\chi^2(39)=154.80$, CFI = 0.970, and RMSEA = 0.074. Similar coefficients across these specifications support limited robustness of the association, while the fit differences reinforce that parcel-level results do not settle measurement adequacy. Fig. 1 provides a visual summary of the

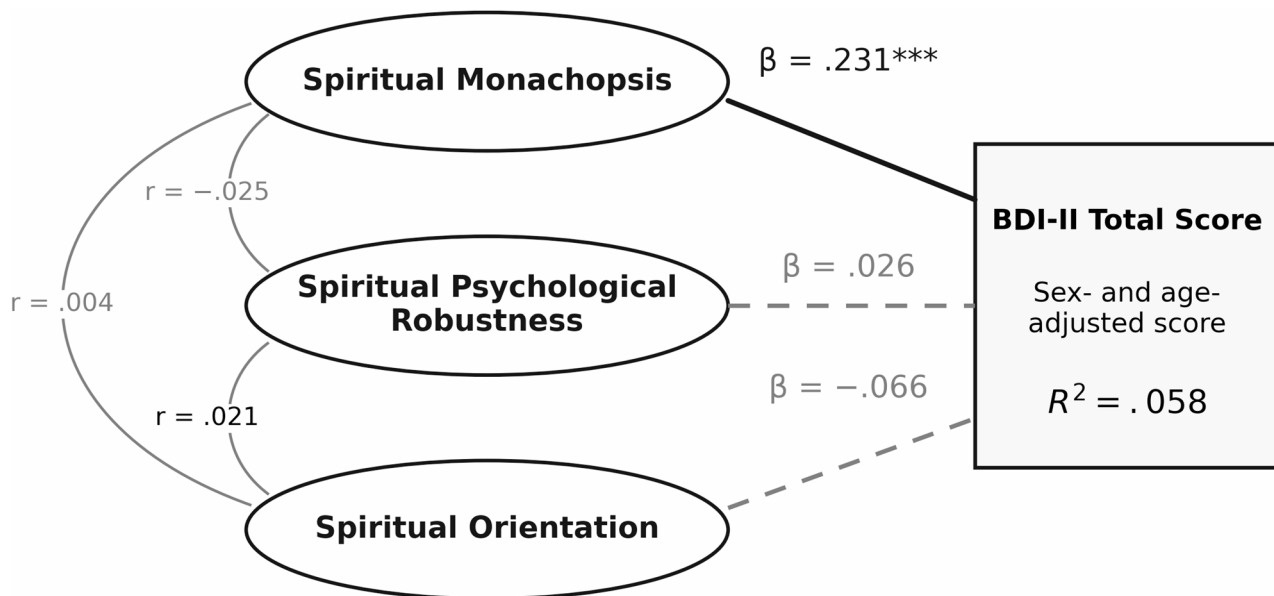


Fig. 1 Visual summary of the supplementary SEM robustness analysis. Note. Ellipses represent latent spiritual variables; the rectangle represents the observed BDI-II total score. Measurement indicators are omitted for readability; their construction is specified in Data Analysis. All indicators and the BDI-II score were residualized for sex and dummy-coded age groups. β denotes a standardized adjusted association, and r a correlation between latent variables. Solid and dashed lines to the BDI-II indicate significant and nonsignificant adjusted associations, respectively; *** $p < .001$. Lines have no arrowheads and imply no temporal direction, mediation, or causality. $R^2 = 0.058$ concerns BDI-II variance remaining after sex and age adjustment. Table 8 reports model fit and confidence intervals. Acceptable aggregate-level fit does not resolve item-level measurement limitations

Table 9 Zero-order and adjusted associations of Spiritual Monachopsis subdimensions with the BDI-II

Subdimension	M (SD)	<i>r</i> [95% CI]	β (HC3 SE)	Boot-strap 95% CI	<i>p</i> (Holm; β)
Religious Social Alienation	13.04 (4.21)	0.218 [0.132, 0.303]	0.148 (0.060)	[0.035, 0.264]	0.043
Alienation from the Belief System	15.49 (5.58)	0.198 [0.114, 0.282]	0.067 (0.066)	[-0.061, 0.195]	0.628
Divine Disconnection	13.82 (6.33)	0.152 [0.076, 0.227]	0.050 (0.051)	[-0.048, 0.148]	0.628

Note. *N*=550. *r*=zero-order Pearson correlation; β =standardized regression coefficient when all subdimensions and control variables were entered simultaneously. Confidence intervals for correlations and regression coefficients were based on 5000 percentile bootstrap resamples. *p* (Holm) = Holm-adjusted *p* value for the three subdimension coefficients. The model controlled for sex, age, year of study, grade point average, spiritual orientation, and spiritual psychological robustness. SE=standard error; CI=confidence interval

supplementary SEM associations, including the distinction between latent spiritual variables and the observed BDI-II score.

Supplementary analysis of spiritual monachopsis subdimensions

A supplementary HC3 regression entered the three Spiritual Monachopsis subdimensions together after the same demographic and positive-spirituality controls. Zero-order and adjusted subdimension associations are reported in Table 9.

All three subdimensions correlated positively with the BDI-II: *r* = .218 for Religious Social Alienation, *r* = .198 for Alienation from the Belief System, and *r* = .152 for Divine Disconnection (all adjusted *p* < .001). Adding the three subdimensions increased model *R*² by 0.051. Only Religious Social Alienation retained a modest adjusted association, β =0.148, bootstrap 95% CI [0.035, 0.264], Holm-adjusted *p* = .043. The other coefficients were nonsignificant. Mean out-of-sample *R*² was 0.030 for the subdimension model and 0.033 for the total-score model (mean paired difference = −0.003). The joint HC3 Wald test did not indicate coefficient differences, *F*(2, 534) = 0.755, *p* = .471; the three pairwise Holm-adjusted *p* values were 0.664–0.938. These exploratory findings do not establish a stronger association for Religious Social Alienation; the total-score association remains the primary finding.

Discussion

This study tested whether spiritual monachopsis retained an adjusted association with depressive symptoms beyond positive spiritual resources and demographic characteristics. The primary correlation and hierarchical regression analyses showed a positive association with

BDI-II scores, with spiritual monachopsis adding 0.046 to model *R*². Bootstrap confidence intervals and repeated cross-validation supported the stability of this increment within the dataset. The supplementary SEM retained a positive association under an alternative measurement specification. H1 was supported, whereas H2 and H3 were not. For RQ1, spiritual monachopsis accounted for additional variance after adjustment for the measured covariates.

Spiritual monachopsis and depressive symptoms

Spiritual monachopsis describes displacement within one's relationship with God, belief system, and religious social environment [12]. Its adjusted association with depressive symptoms in an independent sample extends the original validation against negative religious coping. The finding provides preliminary evidence of an incremental cross-sectional association relative to the two positive spiritual constructs and demographic covariates included here. Incremental value beyond established religious and spiritual struggles measures remains untested.

The increase in *R*² from 0.039 to 0.085 corresponds to 4.6 additional percentage points of observed BDI-II variance accounted for, bringing the total to 8.5%. Bootstrap support and a mean cross-validated ΔR^2 of 0.044 strengthen confidence in the reported increment within this dataset, but repeated cross-validation is internal validation and does not establish performance in an independent population. The practical meaning of an increment depends on the comparison measures and the assessment decision [22]. The models did not include established measures of religious and spiritual struggles, belonging, loneliness, social support, personality, or stressful life events. Accordingly, this result supports a limited comparison with the measured covariates; broader psychometric value and benefit for screening or clinical decisions remain to be evaluated.

The result accords with evidence that religious and spiritual struggles are distinguishable from general religiousness and are associated with psychological maladjustment [10, 11, 39, 40]. Meta-analytic and longitudinal findings similarly link negative religious coping or spiritual struggles with psychological symptoms, sometimes reciprocally [23, 41].

Contemporary struggle measures support both shared and domain-specific components [42, 43]. Spiritual monachopsis partly overlaps these frameworks but centers specifically on displacement and non-belonging. The association with depressive symptoms supports examining this experiential focus, but does not establish its distinctiveness from existing struggle constructs. A direct comparison in an independent sample should administer the Spiritual Monachopsis Scale alongside an established multidimensional struggles measure [10]. Item-level

and latent-variable analyses could assess convergence between adjacent domains and whether displacement is empirically distinguishable from them. Testing whether the Spiritual Monachopsis Scale contributes additional information about depressive symptoms after the established struggles measure is included would then address incremental validity within this literature.

Positive spiritual resources and depressive symptoms

The nonsignificant coefficients for spiritual orientation and spiritual psychological robustness do not imply that spirituality is generally unrelated to mental health. Meta-analyses show small and measurement-dependent associations, and recent studies vary across religious, cultural, and social contexts [3, 4, 44–46]. Longitudinal evidence also suggests that general religious indicators may have weak or inconsistent prospective associations with later depression [47].

Spiritual psychological robustness concerns spiritually grounded coping and strength, whereas spiritual orientation concerns transcendence, meaning, and spiritual practice. Longitudinal research could examine whether their associations vary under adversity. The near-zero relations among all three spirituality scores warrant separate consideration. Although spiritual alienation need not be the inverse of positive spirituality, the virtually absent correlation between the two positive measures is particularly unexpected because both include belief, meaning, and spiritual practice [5, 6].

The near-zero correlations persisted after the total scores and numerical response ranges were rechecked. Possible explanations include differences in item content and theoretical origins, variation in how respondents interpret spiritual language, response styles, and other measurement issues. These alternatives were not distinguished by the present analyses. The observed correlations therefore cannot by themselves establish discriminant validity or independence of the underlying constructs. High alpha and omega estimates describe consistency within each scale; they do not establish that the intended constructs have been measured adequately or explain the relations between scales [48].

Future validation should assess convergence and discrimination using a multitrait-multimethod design, such as questionnaires combined with structured interviews, and include established measures of spiritual struggles and positive spirituality [48]. Joint item-level analyses could examine overlapping content and cross-loadings. Cognitive interviews could clarify how participants interpret the items, and measurement-invariance analyses across religious-involvement and cultural groups could assess whether the measures function comparably.

Exploratory subdimension findings

All three subdimensions correlated positively with depressive symptoms. In the simultaneous model, Religious Social Alienation retained a modest adjusted association ($\beta = 0.148$, Holm-adjusted $p = .043$), whereas the other coefficients were nonsignificant. However, differences between the coefficients were not statistically significant, and the subdimension model did not outperform the total-score model. A significant coefficient for one dimension and nonsignificant coefficients for others do not establish a difference in their associations. The findings therefore do not identify Religious Social Alienation as the principal component of spiritual monachopsis. Primary inference remains at the total-score level; the subdimension result generates a hypothesis for further study.

Religious Social Alienation had an AVE of 0.377, below the conventional 0.50 benchmark [33], indicating limited evidence of convergent validity. This does not by itself invalidate the subscale, but it calls for caution in interpreting the exploratory adjusted association. Both its measurement properties and its association with depressive symptoms require replication in an independent sample.

Research on student belonging and religious social relationships provides a rationale for examining interpersonal hypotheses [17–19, 49]. Findings on religious support and negative congregational interactions in African American and church-based samples also link these experiences with depressive symptoms [50, 51]. Alongside the present exploratory finding, this literature motivates the hypothesis that difficulties with belonging, perceived judgment or rejection, and interpersonal disconnection may accompany spiritual monachopsis and depressive symptoms. The church-based findings inform questions for research with Turkish university students, while variation across Muslim samples cautions against assuming identical associations across religious settings [14]. These interpersonal hypotheses require independent replication and longitudinal testing with direct measures of the proposed experiences.

Findings by sex and age

The comparisons by sex were nonsignificant, and measurement invariance was not tested. Only spiritual psychological robustness differed by age, with a small effect and markedly unequal group sizes. The regression differences for ages 20–25 and second-year students were secondary, descriptive findings, and the latter estimate is particularly unstable because only 10 second-year students participated.

Theoretical, social, and practical implications

The study extends research on spiritual monachopsis by examining its concurrent association with depressive symptoms alongside positive spiritual resources. Future studies should compare all three domains and measure candidate interpersonal experiences directly before assigning any subdimension greater theoretical or practical importance.

In university counseling and spiritual care, the scale's content may inform discussion of experiences involving the divine, one's beliefs, and religious relationships. Such discussion should respect autonomy and religious diversity [52]. The present findings do not establish the scale's clinical utility or justify prioritizing its social subdimension; scores require interpretation within a comprehensive assessment and should not guide clinical decisions alone.

Strengths

Strengths include the sample size, ordinal confirmatory factor analysis, alpha and omega estimates, and the use of HC3 inference, bootstrap confidence intervals, repeated cross-validation, and multiple-comparison control for the primary analyses. These procedures support the stability of the reported estimates within the available data.

Limitations

All measures were obtained at one time point, so neither regression entry order nor SEM specification establishes temporal precedence, causality, or mediation [20, 21]. Self-report measures are also vulnerable to social-desirability and common-method effects [53]. Relevant contextual variables, including religious socialization, minority status, social anxiety, perceived religious-community pressure, acceptance or rejection, stressful life events, treatment history, belonging, loneliness, personality, and perceived social support, were not measured separately. The Religious Social Alienation subscale does not substitute for their direct assessment.

The voluntary sample was recruited from a single university, and first-year students constituted 72.5% ($n = 399$). Self-selection may have favored students more willing to disclose spiritual experiences, while the concentration in the first year limits coverage of religious and developmental experiences across university study. Although spiritual orientation and commitment were assessed, religious affiliation or denomination, self-identified religiosity, and the frequency of specific rituals were not recorded separately. The sample's religious composition and the proportions of actively practicing, minimally religious, or disengaged participants therefore cannot be established. National cultural patterns cannot be attributed to individual participants, and the sample cannot represent Bayburt residents or Turkish university

students generally. Future studies should collect these indicators and compare the interpretation of alienation across levels of religious involvement and majority/minority positions.

No spiritual-scale item duplicated a BDI-II symptom item verbatim, and the measures were independently developed for different constructs. However, some positive-spirituality items refer to coping, inner peace, emotional support, psychological strength, or mental health, and Religious Social Alienation contains social-health content. Validated scoring, covariate adjustment, and alternative statistical representations do not establish freedom from content-contamination bias [26, 28, 29].

The BDI-II showed lower internal consistency ($\alpha = 0.722$; $\omega = 0.738$) than the spiritual measures, and neither item-level measurement model fit adequately. These limitations affect interpretation of association magnitudes in both the primary analyses and the supplementary SEM. The reported correlations and regression coefficients concern the observed symptom score and should not be interpreted as error-free estimates of relationships between the underlying constructs. In the SEM, the spiritual variables had modeled indicator residuals, whereas the observed BDI-II score had no separate measurement-error correction. Its residual therefore combined unexplained symptom-score variance with measurement error. The SEM does not resolve these BDI-II measurement limitations.

Parceling may conceal item-level misspecification [36]. In this sample, the published Spiritual Orientation item model had elevated RMSEA (0.097), despite favorable incremental fit indices. Aggregate-level fit does not resolve these item-level measurement limitations. The supplementary SEM checks the association under the specified measurement and covariate adjustments; the primary regression provides the main evidence for the increment in explained variance.

The study did not include an established religious-struggles measure to assess convergent validity, discriminant validity, or incremental associations relative to the established struggles literature. Future research should use preregistered longitudinal designs with appropriate temporal spacing, independent samples, item-level models, religious measures without mental-health content, and direct comparisons with established struggle scales. Future studies should directly assess the contextual variables identified above when evaluating proposed interpersonal processes. The near-zero relations among the spirituality measures leave their expected convergence and distinction unresolved in this sample despite high internal consistency.

Conclusions

Spiritual monachopsis showed a modest positive cross-sectional association with depressive symptoms beyond demographic characteristics and the two positive spirituality measures ($\Delta R^2 = 0.046$). The exploratory subdimension findings did not establish a stronger association for Religious Social Alienation. Direct comparisons with established religious-struggles measures, independent replication, and longitudinal research are needed to clarify the construct's distinctiveness and practical usefulness.

Abbreviations

AVE	average variance extracted
BDI-II	Beck Depression Inventory-II
CFA	confirmatory factor analysis
CFI	comparative fit index
CI	confidence interval
DWLS	diagonally weighted least squares
GPA	grade point average
HC3	heteroskedasticity-consistent standard errors
RMSEA	root mean square error of approximation
SEM	structural equation modeling
SMS	Spiritual Monachopsis Scale
SOS	Spiritual Orientation Scale
SPRS	Spiritual Psychological Robustness Scale
SRMR	standardized root mean square residual
TLI	Tucker-Lewis index

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Author contributions

SO conceptualized the study, developed the methodology, conducted the investigation, curated and analyzed the data, prepared the visualization, and drafted and revised the manuscript. The author read and approved the final manuscript.

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Data availability

The de-identified dataset and analytic code used and/or analyzed during the current study are available from the corresponding author on reasonable request, subject to ethical and confidentiality considerations.

Declarations

Ethics approval and consent to participate

The study was performed in accordance with the Declaration of Helsinki. The Bayburt University Rectorate Ethics Committee approved the study (decision date: 16 May 2025; decision no. 271; session no. 6; document dated 23 May 2025, no. 280536). Online informed consent was obtained from all participants before they accessed the study measures.

Consent for publication

Not applicable. The manuscript contains no identifiable individual participant information.

Competing interests

The author declare no competing interests.

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