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THE ROLE OF SPIRITUAL BELIEFS IN QUALITY OF LIFE AMONG MEDICAL STUDENTS: A CROSS-SECTIONAL STUDY IN PRIVATE MEDICAL COLLEGE OF LAHORE

Original Research (ID: 1695)

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ABSTRACT

Background: Medical training is academically demanding and may negatively affect students' quality of life, psychological well-being, and coping capacity. Spiritual beliefs and religious practices are often considered potential sources of emotional support, meaning, and resilience. However, the direct relationship between spiritual well-being and quality of life among medical students remains inconsistent, particularly in local academic settings where religious and cultural values may influence student well-being.

Objective: To evaluate the relationship between spiritual well-being and quality of life among undergraduate medical students and to determine whether spiritual well-being independently predicted quality of life after adjustment for relevant demographic and academic factors.

Methods: This cross-sectional analytical study was conducted among undergraduate MBBS students of a private medical college in Lahore, Pakistan. A total of 250 students were included through convenience sampling. Data were collected using an online questionnaire comprising demographic information, frequency of religious practice, academic stress score, the Spiritual Well-Being Scale, and the WHOQOL-BREF. Participants were categorized as active practitioners or occasional practitioners. Data were analyzed using descriptive statistics, Shapiro–Wilk test, Pearson correlation, independent-samples t-test, one-way ANOVA, and multiple linear regression.

Results: Among 250 participants, 143 were active practitioners and 107 were occasional practitioners. Active practitioners had higher quality of life scores than occasional practitioners (76.55 ± 10.32 vs. 65.80 ± 11.50; $p < .001$). Spiritual well-being scores were slightly higher among active practitioners but did not differ significantly between groups (70.42 ± 4.08 vs. 69.67 ± 3.52; $p = .130$). Spiritual well-being was not significantly correlated with quality of life among active practitioners ($r = -0.056$, $p = .506$) or occasional practitioners ($r = 0.128$, $p = .189$). The regression model explained 41.9% of the variance in quality of life. Academic stress was the only significant independent predictor of quality of life ($\beta = -0.634$, $p < .001$), while spiritual well-being was not significant ($\beta = 0.033$, $p = .507$).

Conclusion: Active religious practice was associated with better quality of life among medical students, but spiritual well-being alone did not independently predict quality of life. Academic stress was the strongest factor associated with poorer quality of life, emphasizing the need for institutional stress-reduction strategies and student support services in medical education.

Keywords: Cross-Sectional Studies; Pakistan; Quality of Life; Religion; Spirituality; Stress, Psychological; Students, Medical.

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INTRODUCTION

Spiritual well-being is increasingly recognized as an important dimension of human health, particularly in populations exposed to persistent academic, emotional, and professional stress. It reflects an individual's inner strength, sense of meaning and purpose, connectedness with self and others, and relationship with a transcendent or higher power that may guide personal identity, values, and coping responses (1,2). Although spirituality and religiosity are closely related, they are not identical concepts. Religiosity is generally linked with formal beliefs, rituals, and religious affiliation, whereas spirituality may exist with or without organized religious practice and often relates more broadly to personal meaning, hope, and inner peace (3). This distinction is important when studying young adults, as spiritual beliefs may influence well-being even among individuals who differ in the frequency or form of religious practice. Quality of life is a broad and subjective concept that reflects how individuals perceive their physical health, psychological state, social relationships, level of independence, and interaction with their environment (3). Among medical students, quality of life has become a growing concern because medical education is often accompanied by heavy academic demands, frequent examinations, limited personal time, sleep disturbance, emotional exposure to illness and death, and difficulty maintaining social and family balance. These stressors may contribute to anxiety, burnout, emotional exhaustion, and reduced satisfaction with life. Previous studies have reported that medical students may experience poorer quality of life than age- and gender-matched students from non-medical disciplines, suggesting that the medical training environment itself may place students at particular risk (4,5).

Spiritual beliefs may serve as a protective psychosocial resource in this context. Recent literature suggests that medical students with greater openness toward spirituality often demonstrate higher empathy, lower anxiety, stronger coping ability, and better psychological adjustment (1,6,7). Spiritual well-being may help students interpret stressful experiences more positively, maintain hope during academic challenges, and develop a sense of purpose in their future professional role. It has also been linked with resilience, which is an important factor in maintaining happiness, psychological well-being, and overall life satisfaction among students facing demanding educational environments (5,7,8). In this way, spirituality may influence quality of life not only through emotional comfort, but also by strengthening adaptive coping and helping students remain connected with personal and professional meaning. Evidence further indicates that spirituality may have an independent association with quality of life even after accounting for physical and mental health factors (9,10). This finding suggests that spiritual well-being may contribute to overall well-being beyond conventional health determinants. For medical students, such an association is particularly meaningful because their personal well-being is not only important for academic success, but may also affect their future clinical performance. Poor well-being among physicians and medical trainees has been associated with reduced quality of patient care, lower patient satisfaction, and compromised patient safety (11,12). Therefore, identifying factors that may support quality of life during medical training is relevant for both student welfare and future healthcare delivery.

Despite this growing interest, the relationship between spiritual well-being and psychological outcomes among young adults remains inconsistent. Some studies have reported beneficial associations between spirituality and mental health, while others have found no significant relationship between spirituality and outcomes such as anxiety (10). These mixed findings may be influenced by differences in culture, religious environment, academic setting, measurement tools, and student characteristics. In Pakistan, where religious and spiritual values are deeply embedded in social and family life, spiritual beliefs may play a particularly important role in how students cope with stress and evaluate their quality of life. However, limited local evidence is available regarding this relationship among undergraduate medical students, especially in private medical colleges where academic pressure, financial expectations, and career competition may further influence student well-being. The research question guiding this study is whether spiritual well-being is associated with quality of life among undergraduate MBBS students at a private medical college in Lahore. It is hypothesized that students with higher spiritual well-being will report better quality of life, and that spiritual well-being will remain an independent predictor of quality of life after controlling for relevant demographic and academic factors. The study also seeks to determine whether spiritual well-being and quality of life differ according to the frequency of religious practice and academic year. Therefore, the objective of the present study is to evaluate the relationship between spiritual beliefs and quality of life among undergraduate MBBS students in a private medical college of Lahore. The study further aims to compare spiritual well-being and quality of life among students with different levels of religious practice, assess variations across academic years, identify demographic predictors of quality of life, and determine whether spiritual well-being independently contributes to quality of life after adjustment for relevant student characteristics.

METHODS

This cross-sectional analytical study was conducted among undergraduate MBBS students at Rahbar Medical and Dental College, Lahore, Punjab, Pakistan. The college offers a five-year undergraduate medical curriculum, comprising three years of predominantly

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basic medical sciences followed by two years with greater emphasis on clinical teaching and hospital-based learning. Students from first year to final year MBBS were invited to participate in the study in order to obtain representation across both preclinical and clinical academic levels. The study population included currently enrolled MBBS students of either gender who were willing to participate and provided informed consent through the online data collection form. Students who declined consent, submitted incomplete questionnaires, or had missing responses in key study variables were excluded from the final analysis. Participants were recruited using a non-probability convenience sampling technique. The purpose, nature, and voluntary basis of the study were explained at the beginning of the Google Form before the questionnaire was completed. Participation was anonymous, and no personally identifiable information was collected. Confidentiality of responses was maintained throughout the study, and participants were allowed to withdraw from participation by not submitting the form. Ethical approval was obtained from the Institutional Review Board of the college.

Sample size was calculated using Cochran's formula. The total student population of the institute was approximately 600, and the calculated minimum sample size was 257. To compensate for incomplete responses, dropouts, and missing data, 275 responses were collected. After data screening, 25 responses were excluded due to incomplete questionnaires or missing information, resulting in a final sample of 250 participants for analysis. A pilot assessment of the study questionnaire demonstrated acceptable internal consistency, with a Cronbach's alpha value of 0.725. Quality of life was assessed using the World Health Organization Quality of Life-BREF questionnaire, a generic short form of the WHOQOL instrument that has previously been used and validated among medical students in Pakistan. The WHOQOL-BREF consists of 26 items scored on a 5-point Likert scale. It includes two general items assessing overall quality of life and general health, while the remaining 24 items assess four domains: physical health, psychological health, social relationships, and environment. In the present study, item means were calculated and presented as domain scores. A total quality of life score was also obtained by summing the domain scores to provide an overall estimate of perceived quality of life.

Spiritual well-being was assessed using the Spiritual Well-being Scale (10). This instrument was considered suitable because it addresses a broad range of spiritual, religious, and personal beliefs, including beliefs that may not necessarily be linked to formal religious affiliation. The scale consisted of 32 items scored on a 5-point Likert scale and assessed eight domains: connectedness to a spiritual being or force, meaning in life, awe, wholeness and integration, spiritual strength, inner peace or harmony, hope and optimism, and faith. Higher scores indicated greater spiritual well-being. Frequency of religious practice was also recorded. Based on their reported practice, participants were categorized into active practitioners, defined as those who practiced religion daily or weekly, and occasional practitioners, defined as those who practiced religion occasionally or never. Data were analyzed using IBM SPSS Statistics version 26. Descriptive statistics were used to summarize demographic characteristics and study variables. Categorical variables were presented as frequencies and percentages, whereas continuous variables were expressed as means and standard deviations. The Shapiro–Wilk test was applied to assess the normality of continuous data. Pearson correlation analysis was used to determine the strength and direction of association between spiritual well-being and quality of life when data were normally distributed, whereas Spearman's rank correlation coefficient was applied for non-normally distributed data. Mean quality of life and spiritual well-being scores between two independent groups were compared using the independent-samples t-test when assumptions of normality were met, while appropriate non-parametric alternatives were considered where required. For comparisons across three or more academic years or groups, one-way analysis of variance was used for normally distributed variables, with non-parametric alternatives applied when assumptions were not fulfilled. Multiple linear regression analysis was performed with quality of life score as the dependent variable. Demographic, academic, and spiritual well-being variables that were clinically relevant or statistically significant in preliminary analyses were entered as independent predictors to determine whether spiritual well-being independently predicted quality of life after adjustment for relevant covariates. A p-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 250 undergraduate medical students were included in the final analysis. Of these, 143 students were classified as active religious practitioners and 107 as occasional practitioners. The gender distribution was nearly equal in both groups. Among active practitioners, 72 students were female (50.3%) and 71 were male (49.7%), while among occasional practitioners, 55 were female (51.4%) and 52 were male (48.6%). Students were represented from all five academic years. In the active practitioner group, 29 students were from first year (20.3%), 30 from second year (21.0%), 25 from third year (17.5%), 30 from fourth year (21.0%), and 29 from final year (20.3%). In the occasional practitioner group, 26 students were from first year (24.3%), 22 from second year (20.6%), 19 from third year (17.8%), 20 from fourth year (18.7%), and 20 from final year (18.7%). Religious affiliation differed between the two practice groups. Most active practitioners identified as Muslims, including 141 students (98.6%), while 2 students identified as Christians (1.4%). Among occasional practitioners, 55 students identified as Muslims (51.4%), 40 as Christians (37.4%), 11 as Hindus (10.3%), and 1 as Sikh (0.9%). Overall, the study sample included students from diverse religious backgrounds, although Muslim students formed the largest proportion of the active practitioner group.

The mean age of active practitioners was 23.05 ± 2.67 years, with an age range of 18–28 years. The mean age of occasional practitioners was 22.77 ± 2.82 years, with an age range of 18–29 years. Academic stress scores were lower among active practitioners, with a mean score of 5.84 ± 1.63 on a 1–10 scale, compared with 6.52 ± 1.86 among occasional practitioners. The mean spiritual well-being score

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was 70.42 ± 4.08 among active practitioners and 69.67 ± 3.52 among occasional practitioners. The mean total quality of life score was 76.55 ± 10.32 among active practitioners, compared with 65.80 ± 11.50 among occasional practitioners. Normality of the main continuous variables was assessed using the Shapiro–Wilk test. Among active practitioners, spiritual well-being scores were approximately normally distributed ($p = .101$), as were total quality of life scores ($p = .806$). Among occasional practitioners, spiritual well-being scores ($p = .082$) and total quality of life scores ($p = .065$) also followed an approximately normal distribution. Since all Shapiro–Wilk p-values were greater than .05, parametric tests were used for the main group comparisons and correlation analyses.

Pearson correlation analysis was performed to assess the relationship between spiritual well-being and quality of life within each practice group. Among active practitioners, spiritual well-being showed a very weak negative correlation with quality of life, but this association was not statistically significant ($r = -0.056$, $p = .506$, $n = 143$). Among occasional practitioners, spiritual well-being showed a weak positive correlation with quality of life, which was also not statistically significant ($r = 0.128$, $p = .189$, $n = 107$). These findings showed that spiritual well-being was not significantly correlated with quality of life in either group. An independent-samples t-test was conducted to compare total quality of life scores between active and occasional practitioners. Levene's test for equality of variances was significant ($F = 4.088$, $p = .044$), indicating unequal variances; therefore, Welch's t-test results were used. Active practitioners had significantly higher quality of life scores than occasional practitioners, $t(214.184) = 7.640$, $p < .001$. The mean difference between the groups was 10.75 points, with a 95% confidence interval ranging from 7.98 to 13.52.

Spiritual well-being scores were also compared between active and occasional practitioners using an independent-samples t-test. Levene's test was not significant ($F = 1.459$, $p = .228$), indicating that the assumption of equal variances was met. Although active practitioners had a slightly higher mean spiritual well-being score than occasional practitioners, the difference was not statistically significant, $t(248) = 1.518$, $p = .130$. The mean difference was 0.747 points, with a standard error of 0.492 and a 95% confidence interval ranging from -0.222 to 1.716. Quality of life and spiritual well-being scores were compared across academic years using one-way analysis of variance. No statistically significant difference was observed in total quality of life scores across the five academic years, $F(4,245) = 2.231$, $p = .066$. Similarly, spiritual well-being scores did not differ significantly across academic years, $F(4,245) = 1.383$, $p = .240$. These findings indicated that academic year was not significantly associated with either total quality of life or spiritual well-being scores.

Multiple linear regression analysis was performed to identify predictors of quality of life among medical students. The overall regression model was statistically significant, $F(6,243) = 29.197$, $p < .001$. The model explained 41.9% of the variance in quality of life scores, with an R^2 value of .419 and an adjusted R^2 value of .405. The standard error of the estimate was 9.303, and the overall correlation between the predictors and quality of life was $R = .647$. Among the predictors entered into the regression model, academic stress was the only statistically significant independent predictor of quality of life. Academic stress showed a strong negative association with quality of life ($B = -4.333$, $SE = 0.338$, $\beta = -0.634$, $t = -12.831$, $p < .001$), indicating that higher academic stress was associated with lower quality of life scores. Spiritual well-being was not a significant independent predictor of quality of life ($B = 0.102$, $SE = 0.153$, $\beta = 0.033$, $t = 0.664$, $p = .507$). Age ($B = -0.434$, $SE = 0.406$, $\beta = -0.098$, $t = -1.069$, $p = .286$), gender ($B = 0.445$, $SE = 1.180$, $\beta = 0.019$, $t = 0.377$, $p = .706$), year of study ($B = 0.183$, $SE = 0.774$, $\beta = 0.022$, $t = 0.236$, $p = .814$), and frequency of religious practice ($B = 0.197$, $SE = 0.507$, $\beta = 0.019$, $t = 0.388$, $p = .698$) were also not significant predictors of quality of life. Overall, active practitioners demonstrated significantly higher quality of life scores than occasional practitioners. However, the two groups did not differ significantly in spiritual well-being scores. Spiritual well-being was not significantly correlated with quality of life within either group and did not independently predict quality of life in the regression model after adjustment for age, gender, year of study, religious practice frequency, and academic stress. Academic stress emerged as the strongest and only statistically significant predictor of quality of life among the included medical students.

Table 1. Demographic Characteristics of Participants by Religious Practice Status

Variable	**Category**	**Total (N = 250)**	**Active Practitioners (n = 143)**	**Occasional Practitioners (n = 107)**	**p-value**
Age, years	Mean ± SD	22.93 ± 2.73	23.05 ± 2.67	22.77 ± 2.82	.428
Gender	Female	127 (50.8%)	72 (50.3%)	55 (51.4%)	.869
	Male	123 (49.2%)	71 (49.7%)	52 (48.6%)	
Year of study	1st year	55 (22.0%)	29 (20.3%)	26 (24.3%)	.952
	2nd year	52 (20.8%)	30 (21.0%)	22 (20.6%)	
	3rd year	44 (17.6%)	25 (17.5%)	19 (17.8%)	
	4th year	50 (20.0%)	30 (21.0%)	20 (18.7%)	

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	5th year	49 (19.6%)	29 (20.3%)	20 (18.7%)	
Religious affiliation	Christianity	42 (16.8%)	2 (1.4%)	40 (37.4%)	< .001
	Hinduism	11 (4.4%)	0 (0.0%)	11 (10.3%)	
	Islam	196 (78.4%)	141 (98.6%)	55 (51.4%)	
	Sikhism	1 (0.4%)	0 (0.0%)	1 (0.9%)	

Table 2. Main Outcome Scores, Group Comparisons, Correlations, and Academic-Year Differences

Analysis	**Variable / Comparison**	**Active Practitioners**	**Occasional Practitioners**	**Test Statistic**	**p-value**
Descriptive score	Academic stress	5.84 ± 1.63	6.52 ± 1.86	t ≈ -3.01	.003
Descriptive score	Spiritual well-being score	70.42 ± 4.08	69.67 ± 3.52	t(248) = 1.518	.130
Descriptive score	Quality of life score	76.55 ± 10.32	65.80 ± 11.50	t(214.184) = 7.640	< .001
Mean difference	Spiritual well-being	0.747	—	95% CI: -0.222 to 1.716	.130
Mean difference	Quality of life	10.75	—	95% CI: 7.98 to 13.52	< .001
Correlation	Spiritual well-being and quality of life among active practitioners	r = -0.056	—	Pearson correlation	.506
Correlation	Spiritual well-being and quality of life among occasional practitioners	—	r = 0.128	Pearson correlation	.189
Academic-year comparison	Quality of life across academic years	—	—	F(4,245) = 2.231	.066
Academic-year comparison	Spiritual well-being across academic years	—	—	F(4,245) = 1.383	.240

Table 3. Multiple Linear Regression Analysis Predicting Quality of Life Among Medical Students

Predictor	**B**	**Standard Error**	**β**	**t-value**	**p-value**
Constant	99.587	13.838	—	7.197	< .001
Spiritual well-being score	0.102	0.153	0.033	0.664	.507
Age	-0.434	0.406	-0.098	-1.069	.286
Gender	0.445	1.180	0.019	0.377	.706
Year of study	0.183	0.774	0.022	0.236	.814
Academic stress	-4.333	0.338	-0.634	-12.831	< .001
Practice frequency	0.197	0.507	0.019	0.388	.698

Model summary: $R = .647$; $R^2 = .419$; adjusted $R^2 = .405$; standard error of estimate = 9.303; $F(6,243) = 29.197$; $p < .001$.

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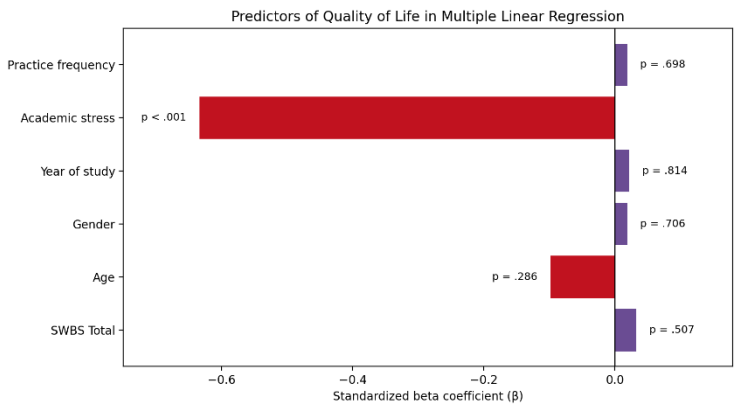

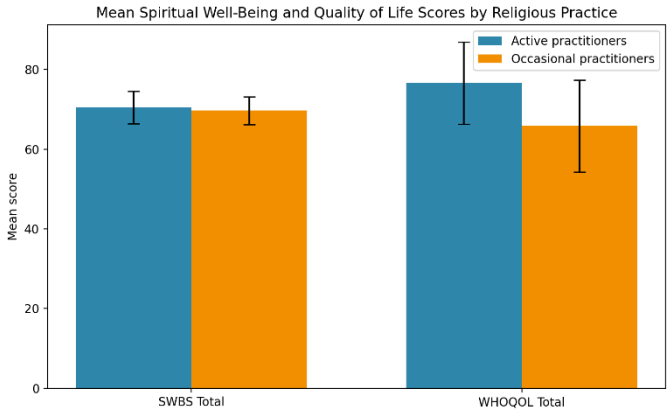

DISCUSSION

The present study examined the relationship between spiritual well-being and quality of life among undergraduate medical students and assessed the influence of religious practice, academic stress, and selected demographic characteristics on quality of life. The main findings showed that students who reported active religious practice had significantly higher quality of life scores than those who practiced religion occasionally. However, spiritual well-being scores did not differ significantly between the two groups. Spiritual well-being also did not show a significant correlation with quality of life and did not independently predict quality of life in the regression model. In contrast, academic stress emerged as the strongest negative predictor of quality of life, indicating that students with higher perceived academic stress reported poorer overall well-being. The higher quality of life observed among active religious practitioners suggested that regular religious practice may be linked with better perceived well-being in medical students. This finding was consistent with previous literature showing that religious involvement and spiritual engagement may support quality of life through physical, psychological, social, and environmental pathways (3). Previous research among medical students has also indicated that spirituality and related coping resources may help students manage the emotional and academic demands of medical education (4). Regular religious practice may provide students with routine, emotional comfort, a sense of purpose, social support, and opportunities for reflection. These factors may be particularly relevant in medical education, where students frequently experience academic pressure, exposure to illness and death, competitive environments, and reduced personal time (13).

However, the finding that spiritual well-being itself was not significantly associated with quality of life added an important layer to the interpretation of results. Although active practitioners had higher quality of life scores, their spiritual well-being scores were not significantly different from occasional practitioners. This suggested that the beneficial association seen with active religious practice may not have been explained by measured spiritual well-being alone. Instead, the behavioral and social components of religious practice may have played a more visible role. Religious practice often includes regular gatherings, structured routines, community belonging, and shared emotional support, which may influence well-being independently of internal spiritual beliefs. This distinction was important because spirituality and religiosity are related but not identical constructs, and their effects on quality of life may operate through different pathways (3,14). The absence of a significant direct association between spiritual well-being and quality of life differed from some previous studies reporting that spiritual well-being was linked with better psychological outcomes, greater resilience, lower anxiety, higher empathy, and improved life satisfaction among students (1,7,8). One possible explanation was that spirituality may influence quality of life indirectly through psychological mediators such as resilience, optimism, coping style, psychological capital, and perceived social support. Previous research among students has suggested that spiritual health may strengthen mental health and happiness through these intermediate psychological resources rather than through a direct pathway (7). Since the present study did not measure resilience, anxiety, depression, coping mechanisms, or psychological capital, the possible mediating role of these variables could not be assessed (15,16).

The findings also aligned with literature suggesting that the relationship between spirituality and psychological outcomes is complex and may vary according to cultural, institutional, and personal factors (10). In the context of Pakistani medical students, spiritual and religious values may be socially embedded and commonly shared, reducing the variability in spiritual well-being scores between groups. This limited variation may have weakened the ability to detect a significant relationship between spiritual well-being and quality of life. In addition, the intense academic environment of medical education may have exerted a stronger and more immediate effect on quality of life than spiritual well-being. For many students, examination pressure, workload, clinical expectations, competition, and concerns about future performance may dominate daily well-being more directly than broader spiritual perceptions (17,18). No significant differences were observed in spiritual well-being or quality of life across academic years. This suggested that students from first year to final year experienced relatively comparable levels of spiritual well-being and overall quality of life. Previous literature has often

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reported deterioration in student well-being during clinical years due to increased patient exposure, professional responsibility, and academic burden (5). The lack of significant variation in the present study may reflect a relatively uniform distribution of stress across all years of medical training. It may also indicate that students develop coping patterns early in medical school and maintain these patterns throughout their training. Spiritual well-being may also be a relatively stable personal attribute shaped by family, culture, and early life experiences, rather than a factor that changes substantially across academic years (19,20).

Academic stress was the most important predictor of quality of life in the present study. The regression analysis showed that higher academic stress was strongly associated with lower quality of life, even after adjustment for spiritual well-being, age, gender, year of study, and frequency of religious practice. This finding was consistent with previous evidence showing that academic burden, psychological strain, and financial or institutional pressures adversely affect the well-being of medical students (5). It also supported research indicating that resilience and adaptive coping may protect students from the negative psychological effects of academic stress (8). The strong effect of academic stress highlighted that interventions to improve quality of life in medical students should not focus only on personal belief systems, but should also address modifiable academic and institutional stressors (21). The finding that frequency of religious practice was not an independent predictor of quality of life after adjustment for academic stress and other variables required careful interpretation. Although active practitioners had higher quality of life in group comparison, the regression model suggested that this relationship weakened when academic stress and other covariates were included. This indicated that religious practice may be associated with quality of life partly through related psychosocial factors, such as lower stress, stronger support networks, more structured routines, or healthier coping behaviors. It also suggested that academic stress may outweigh the contribution of religious practice when multiple predictors are examined together. Therefore, the association between religious practice and quality of life should be interpreted as meaningful but not necessarily causal (22).

The study had several strengths. It focused on an important but underexplored area among medical students in Pakistan, where spiritual and religious values are socially relevant and may influence coping and well-being. The inclusion of students from all five academic years allowed comparison across different stages of medical education. The use of established instruments for assessing quality of life and spiritual well-being improved the methodological quality of the study. The analysis also went beyond simple group comparison by applying correlation and multiple linear regression to examine whether spiritual well-being independently predicted quality of life after adjustment for relevant student characteristics (13,20). Several limitations should also be acknowledged. The cross-sectional design prevented any conclusion regarding causality or direction of association. It could not be determined whether active religious practice improved quality of life, whether students with better quality of life were more likely to practice religion regularly, or whether both were influenced by other unmeasured factors. The use of convenience sampling from a single private medical college limited the generalizability of the findings to students from public-sector institutions, other provinces, or different cultural and educational settings. Data were collected through self-reported questionnaires, which may have introduced recall bias, response bias, and social desirability bias, particularly for questions related to religious practice and spirituality. Some religious affiliation categories had small numbers, which limited meaningful subgroup analysis and may have affected statistical stability. In addition, important psychological variables such as resilience, anxiety, depression, coping style, sleep quality, social support, and academic performance were not assessed, although these factors may strongly influence quality of life (8,19).

The findings carried practical implications for medical education. Although spiritual and religious practice may offer emotional and social support for some students, academic stress appeared to be the most consistent and powerful factor associated with reduced quality of life. Medical colleges should therefore prioritize structured student support systems, stress-management programs, mentorship, counseling services, academic workload review, and early identification of students at risk of poor well-being. A supportive institutional environment that respects students' spiritual and cultural values while directly addressing academic stress may be more effective than focusing on either factor alone (21). Future studies should use longitudinal designs to clarify the temporal relationship between spirituality, religious practice, academic stress, and quality of life. Multi-center studies involving both private and public medical colleges would improve generalizability and allow comparison across institutional settings. Future research should also include potential mediators and moderators such as resilience, coping strategies, psychological capital, anxiety, depression, social support, sleep quality, and academic performance. Such studies would help explain whether spiritual well-being influences quality of life directly or through broader psychological and social pathways. Overall, the present study showed that active religious practitioners reported better quality of life than occasional practitioners, but spiritual well-being alone was not significantly associated with quality of life. Academic stress was the strongest independent predictor of poorer quality of life among medical students. These findings suggested that while religious practice may be linked with better perceived well-being, reducing academic stress and strengthening student support systems may be central to improving quality of life during medical training.

CONCLUSION

This study concluded that active religious practice was associated with better quality of life among undergraduate medical students, while spiritual well-being alone did not show a direct independent relationship with quality of life. Academic stress emerged as the most

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important factor adversely affecting students' well-being, highlighting the need for medical colleges to strengthen student support systems, counseling services, stress-management programs, and healthy academic environments. The findings suggest that although spiritual and religious practices may offer emotional and social support, improving quality of life in medical students requires a broader approach that addresses academic pressure, psychological resilience, and institutional well-being.

AUTHOR CONTRIBUTION

Author	Contribution
Muhammad Shah Gillani	Conceptualization, Methodology, Formal Analysis, Writing - Original Draft, Validation, Supervision
Mariyam Nadeem	Methodology, Investigation, Data Curation, Writing - Review & Editing
Sarum Sohail	Investigation, Data Curation, Formal Analysis, Software
Bilal Asif	Software, Validation, Writing - Original Draft
Hamza Mushtaq	Formal Analysis, Writing - Review & Editing

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