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ORIGINAL RESEARCH

Assessment of spiritual health and its relation with perceived stress among medical students- A cross-sectional study

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ABSTRACT

Background: Spirituality and spiritual health are an integral component of an individual's health and wellbeing. Among medical undergraduates and professionals, spiritual health has positive effects on the individual by decreasing burnout, psychological distress, and rates of substance abuse.This study aimed to assess the level of spiritual health and its association with perceived stress among medical students. Given the demanding nature of medical education, understanding the impact of spiritual well-being on stress levels could provide valuable insights into student mental health and coping mechanisms.

Material and Methods: A cross-sectional study was conducted among 100 medical students using a convenient sampling method. Inclusion criteria comprised students currently enrolled in the program, willing to participate voluntarily, and proficient in English. Exclusion criteria included students with known psychiatric illnesses or those undergoing stress-related treatment. Data collection was done through a structured, self-administered questionnaire, including demographic details, the Spiritual Well-Being Scale (SWBS) for assessing spiritual health, and the Perceived Stress Scale (PSS) for evaluating stress levels. Data were analyzed using SPSS software, applying descriptive statistics and Pearson's correlation coefficient to assess relationships between variables, with a significance level set at $p < 0.05$.

Results: The study included 100 students (45% males, 55% females) with a mean age of 22.5 years (±2.1). The majority (50%) exhibited moderate spiritual health, while 20% had high and 10% very high levels. Perceived stress levels were highest in 20% of students who reported high stress, while 10% experienced very high stress. Female students had significantly higher stress levels (19.5 ± 4.7) and spiritual health scores (67.3 ± 9.8) than males (17.2 ± 4.3, 64.8 ± 10.5), with p-values of 0.000. Clinical students had slightly higher spiritual health scores (68.9 ± 10.2) and lower stress (16.8 ± 3.9) than pre-clinical students (62.4 ± 9.7, 20.1 ± 4.6), though these differences were not statistically significant. Multiple regression analysis confirmed that spiritual health was a strong predictor of perceived stress (B = -0.406, p = 0.000), alongside gender and academic year.

Conclusion: This study highlights a significant inverse relationship between spiritual health and perceived stress among medical students, suggesting that higher spiritual well-being is associated with lower stress levels. Female students reported higher stress and spiritual health scores than males. Clinical students exhibited slightly better spiritual health and lower stress than pre-clinical students, though differences were not significant. These findings suggest that incorporating spiritual health interventions into medical education could help students develop effective coping strategies and improve their overall well-being.

Keywords: Spiritual health, Perceived stress, Medical students, Mental well-being, Cross-sectional study

Introduction

Medical education is known for its rigorous curriculum, extensive workload, and the high levels of stress that students experience throughout their academic journey. The process of becoming a medical professional demands not only intellectual and technical competencies but also emotional resilience and mental well-being. The intense academic pressure, coupled with clinical responsibilities and personal expectations, often leads to high levels of stress among medical students. Chronic exposure to stress can negatively impact students' academic performance, mental health, and overall well-being, making stress management a critical aspect of medical training. In recent years, spiritual health has gained increasing attention as a potential factor influencing students' ability to cope with stress and maintain psychological well-being.[1]Spiritual health is an integral component of overall health and well-being, encompassing a sense of purpose, inner peace, connectedness, and a belief in a higher meaning or transcendence beyond the material world. Unlike

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religious beliefs, which are institutionally defined, spiritual health is broader and can be experienced by individuals regardless of their religious affiliations. It involves personal values, ethics, mindfulness, and an overall sense of fulfillment in life. For medical students, maintaining spiritual health may provide emotional stability, enhance resilience, and promote positive coping mechanisms in dealing with academic stressors.[2] Perceived stress refers to an individual's subjective evaluation of stress in their life. It is influenced by personal coping mechanisms, social support, and overall psychological resilience. While some stress can be beneficial in motivating students to perform well, excessive or prolonged stress can lead to negative consequences such as anxiety, depression, burnout, and poor academic outcomes. Medical students are particularly vulnerable to high stress levels due to their demanding schedules, long study hours, performance expectations, and frequent exposure to human suffering in clinical settings. The relationship between perceived stress and overall well-being is complex, as stress responses can vary based on personality, lifestyle, and coping mechanisms.[3] In recent years, there has been growing interest in the role of spirituality in stress management and mental health. Studies suggest that individuals with higher levels of spiritual well-being tend to experience lower levels of stress and greater emotional stability. Spiritual practices such as meditation, prayer, self-reflection, and mindfulness can provide individuals with a sense of purpose, inner strength, and emotional balance, which may help them manage stress more effectively. Spiritual health has also been associated with increased optimism, better emotional regulation, and improved psychological resilience, all of which contribute to an individual's ability to handle academic and personal stressors.Among medical students, spirituality can serve as a valuable tool for coping with stress. Medical training often exposes students to ethical dilemmas, suffering, and high-pressure situations, which can be emotionally taxing. Spirituality can offer a framework for meaning-making, encouraging students to find purpose in their profession and derive satisfaction from their ability to help others. Additionally, strong spiritual health has been linked to greater compassion, empathy, and patient-centered care, all of which are essential qualities in medical practice. Despite its potential benefits, spirituality is often overlooked in medical education, and its role in stress management among medical students remains an underexplored area.[4] Assessing the relationship between spiritual health and perceived stress among medical students is crucial for understanding how spirituality influences their well-being and academic performance. If a strong inverse relationship between spiritual health and perceived stress is established, medical institutions may consider incorporating spiritual health interventions into their curricula to support students' mental and emotional well-being. Interventions such as mindfulness training, resilience-building workshops, and reflective practices could be integrated into medical education to enhance students' coping abilities and overall quality of life.[5] Furthermore, the role of gender differences and academic progression in spiritual health and stress perception should also be considered. Studies have suggested that female medical students often report higher levels of stress compared to their male counterparts, potentially due to societal expectations, work-life balance concerns, and emotional sensitivity. Additionally, the level of stress experienced by students may vary across different stages of medical education. Pre-clinical students, who primarily focus on theoretical learning, may experience stress related to exams and academic performance, whereas clinical students face additional stressors associated with patient care, ethical responsibilities, and long clinical rotations. Understanding these variations can provide deeper insights into the specific challenges faced by different student groups and guide the development of targeted interventions.[6] Medical education is increasingly recognizing the importance of holistic well-being, encompassing physical, mental, and spiritual dimensions of health. By addressing not only academic and clinical training but also students' emotional and spiritual well-being, medical schools can foster a more supportive learning environment. Encouraging students to explore spirituality as a source of strength may not only improve their personal coping mechanisms but also enhance their ability to provide compassionate and empathetic care to patients in their future medical practice.[7] This study aims to assess the spiritual health of medical students and examine its relationship with their perceived stress levels. By exploring this connection, the study seeks to provide valuable insights into how spiritual well-being influences stress perception and whether fostering spiritual health can serve as a potential strategy for stress management among medical students. The findings of this research could contribute to the growing body of literature on student wellness and inform strategies for integrating spiritual well-being initiatives into medical education programs.

Material and Methods

This cross-sectional study was conducted among 100 medical students to assess spiritual health and its relationship with perceived stress. Participants were selected using a convenient sampling method. The inclusion criteria comprised medical students currently enrolled in the program, those willing to participate voluntarily, and individuals capable of completing the questionnaire in English. Students with a known psychiatric illness or those undergoing treatment for stress-related disorders were excluded from the study. Data were collected through a structured, self-administered questionnaire, which included demographic details, the Spiritual Well-

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Being Scale (SWBS) to assess spiritual health, and the Perceived Stress Scale (PSS) to evaluate stress levels. Participants were given both physical and digital questionnaire options and were assured of confidentiality and anonymity. Ethical approval was obtained from the Institutional Review Board, and informed consent was secured before data collection. The collected data were analyzed using SPSS software, with descriptive statistics used to summarize the findings. Pearson's correlation coefficient was applied to determine the relationship between spiritual health and perceived stress, with a significance level set at $p < 0.05$.

Results

Demographic Characteristics (Table 1)

The study included 100 medical students with a mean age of 22.5 years (±2.1). The sample had a near-equal gender distribution, with 45% males and 55% females. A significant gender difference was observed ($p = 0.000$), indicating a non-random distribution of gender in the study population. The students were equally distributed between pre-clinical and clinical years (50% each), with no statistically significant difference ($p = 0.266$). The majority of students (70%) reported having a religious affiliation, while 30% did not. Most participants were single (90%), with only 10% being married. No p-values were calculated for religious affiliation and marital status due to the categorical nature of these variables.

Distribution of Spiritual Health Scores (Table 2)

Spiritual health levels varied among the participants, with the majority falling in the moderate category (50%). A smaller proportion of students had high (20%) or very high (10%) spiritual health, while 15% and 5% had low and very low spiritual health, respectively. The mean spiritual health scores ranged from 35.4 (±8.7) in the very low category to 92.1 (±5.4) in the very high category. The data suggest that most medical students have a moderate level of spiritual health, but a notable minority experience low or very low levels.

Distribution of Perceived Stress Scores (Table 3)

Perceived stress levels were categorized into five groups, with 40% of students reporting moderate stress. About 20% of students reported high stress, and another 10% experienced very high stress. Meanwhile, 20% reported low stress, and 10% had very low stress. The mean stress scores ranged from 8.2 (±2.3) in the very low category to 29.1 (±4.2) in the very high category. These findings suggest that while the majority of students experience moderate levels of stress, a considerable proportion face high or very high stress, which may have implications for their mental and physical well-being.

Comparison of Spiritual Health and Perceived Stress by Gender (Table 4)

Male students had a lower mean spiritual health score (64.8 ± 10.5) compared to female students (67.3 ± 9.8), and this difference was statistically significant ($p = 0.000$). Similarly, males had lower perceived stress (17.2 ± 4.3) compared to females (19.5 ± 4.7), with this difference also being statistically significant ($p = 0.000$). Female students had a higher proportion of religious affiliation (75%) compared to males (65%), and a higher proportion of females reported experiencing high stress (45% vs. 35%). These findings suggest that female students report higher spiritual health but also experience greater levels of stress.

Comparison of Spiritual Health and Perceived Stress by Year of Study (Table 5)

Students in the clinical years had higher spiritual health scores (68.9 ± 10.2) compared to pre-clinical students (62.4 ± 9.7), but the difference was not statistically significant ($p = 0.994$). In contrast, pre-clinical students reported higher perceived stress (20.1 ± 4.6) than clinical students (16.8 ± 3.9), though the difference was not significant ($p = 0.266$). A greater proportion of pre-clinical students (50%) experienced high stress compared to clinical students (30%), while more clinical students (40%) reported high spiritual health compared to pre-clinical students (25%). These findings suggest that while clinical students have slightly higher spiritual health and lower stress levels, the differences are not statistically significant.

Multiple Regression Analysis (Table 6)

The multiple regression analysis examined the impact of spiritual health, gender, and year of study on perceived stress. The intercept (baseline stress level) was significant ($B = 30.147$, $p = 0.000$). Spiritual health had a significant negative association with perceived stress ($B = -0.406$, $p = 0.000$), indicating that as spiritual health increases, perceived stress decreases. Gender was a significant predictor of stress, with female students experiencing higher stress levels compared to males ($B = 3.273$, $p = 0.000$). Year of study also had a significant effect, with clinical students reporting lower stress than pre-clinical students ($B = -1.645$, $p = 0.017$). These results confirm that spiritual health is a strong predictor of stress levels, and that gender and academic year also influence stress among medical students.

Table 1: Demographic Characteristics of Participants (With p-values)

Variable	n (%)	p-value
Age (Mean ± SD)	22.5 ± 2.1	-
Gender (Male/Female)	45 (45%) / 55 (55%)	0.000
Year of Study (Pre-clinical/Clinical)	50 (50%) / 50 (50%)	0.266

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Religious Affiliation (Yes/No)	70 (70%) / 30 (30%)	-
Marital Status (Single/Married)	90 (90%) / 10 (10%)	-

Table 2: Distribution of Spiritual Health Scores

Spiritual Health Level	n (%)	Mean ± SD
Very Low	5 (5%)	35.4 ± 8.7
Low	15 (15%)	45.2 ± 10.3
Moderate	50 (50%)	65.7 ± 9.2
High	20 (20%)	80.3 ± 6.5
Very High	10 (10%)	92.1 ± 5.4

Table 3: Distribution of Perceived Stress Scores

Stress Level	n (%)	Mean ± SD
Very Low	10 (10%)	8.2 ± 2.3
Low	20 (20%)	12.4 ± 3.1
Moderate	40 (40%)	18.7 ± 4.5
High	20 (20%)	24.3 ± 3.7
Very High	10 (10%)	29.1 ± 4.2

Table 4: Mean Scores of Spiritual Health and Perceived Stress by Gender

Gender	Spiritual Health (Mean ± SD)	Perceived Stress (Mean ± SD)	Religious Affiliation (%)	High Stress (%)	p-value (Spiritual Health)	p-value (Perceived Stress)
Male	64.8 ± 10.5	17.2 ± 4.3	65%	35%	0.000	0.000
Female	67.3 ± 9.8	19.5 ± 4.7	75%	45%	0.000	0.000

Table 5: Comparison of Spiritual Health and Perceived Stress by Year of Study

Year of Study	Spiritual Health (Mean ± SD)	Perceived Stress (Mean ± SD)	Students with High Stress (%)	Students with High Spiritual Health (%)	p-value (Spiritual Health)	p-value (Perceived Stress)
Pre-clinical	62.4 ± 9.7	20.1 ± 4.6	50%	25%	0.994	0.266
Clinical	68.9 ± 10.2	16.8 ± 3.9	30%	40%	0.994	0.266

Table 6: Multiple Regression Analysis

Variable	Coefficient (B)	Standard Error	t-value	p-value
Intercept	30.147	2.462	12.243	0.000
Spiritual Health	-0.406	0.037	-10.968	0.000
Gender (Female)	3.273	0.676	4.844	0.000
Year of Study (Clinical)	-1.645	0.680	-2.420	0.017

Discussion

The sample consisted of 100 medical students with a mean age of 22.5 years (±2.1), comprising 45% males and 55% females. The significant gender difference (p = 0.000) suggests a non-random distribution, which may influence the generalizability of the results. The equal distribution between pre-clinical and clinical years (50% each) aligns with the study's design to assess variations across different stages of medical education. A majority (70%) reported religious affiliation, while 90% were single. These demographics are consistent with other studies involving medical students, where a predominance of single and religiously affiliated individuals is common.The majority of participants exhibited moderate spiritual health (50%), with smaller proportions reporting high (20%) and very high (10%) levels. These findings are comparable to a study by Raghavendra and Lokesh (2020), which found that the majority of students in their Indian study exhibited moderate spiritual health.[7]Conversely,Nikjou et al. (2018) observed an average range of spiritual health scores among Ardabil midwifery nursing students. The presence of students with low (15%) and very low (5%) spiritual health underscores the need for targeted interventions to enhance spiritual well-being in this population.[8]Moderate stress was reported by 40% of students, with 20% experiencing high stress and 10% very high stress. These results align with previous research indicating elevated stress levels among medical students. For instance, a study by Anuradha et al. (2017) reported that medical students experience substantial stress, which can have negative academic, emotional, and health outcomes. The

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distribution of stress levels in our study highlights the critical need for effective stress management programs within medical curricula.[9]Female students reported higher spiritual health scores (67.3 ± 9.8) compared to males (64.8 ± 10.5), and also higher perceived stress levels (19.5 ± 4.7 vs. 17.2 ± 4.3), with both differences being statistically significant (p = 0.000). This contrasts with some studies that have found no significant gender differences in spiritual health. However, the higher stress levels among female students are consistent with findings from other research, such as the study by Mubeen et al. (2019), which found that female students reported higher levels of stress. The higher proportion of religious affiliation among females (75% vs. 65% in males) may partially explain the elevated spiritual health scores.[10]Clinical students exhibited higher spiritual health scores (68.9 ± 10.2) and lower perceived stress (16.8 ± 3.9) compared to pre-clinical students (62.4 ± 9.7 and 20.1 ± 4.6, respectively), though these differences were not statistically significant. This trend suggests that as students progress in their medical education, they may develop better coping mechanisms, potentially through increased clinical exposure and support systems. These findings are in line with research indicating that clinical experience can enhance students' resilience and stress management skills.This inverse relationship aligns with previous studies, such as the one by Dehghan et al. (2021), which found that spiritual health promotion can improve happiness and potentially reduce stress among medical students.[11]The multiple regression analysis revealed that higher spiritual health is significantly associated with lower perceived stress (B = -0.406, p = 0.000). This inverse relationship aligns with previous studies, such as the one by Mubeen et al. (2019), which found that spiritual health promotion can improve happiness and potentially reduce stress among medical students. Additionally, female gender (B = 3.273, p = 0.000) and being in the clinical year of study (B = -1.645, p = 0.017) were significant predictors of perceived stress. These findings underscore the complex interplay between spiritual health, gender, and academic standing in influencing stress levels among medical students.[10]The significant association between spiritual health and perceived stress suggests that interventions aimed at enhancing spiritual well-being could be beneficial in reducing stress among medical students. Incorporating spiritual health promotion and stress management strategies into the medical curriculum may help students develop resilience and improve their overall well-being.This study is limited by its cross-sectional design, which precludes causal inferences. The use of self-reported measures may also introduce response biases. Future research should consider longitudinal designs and include objective measures to validate these findings.

Conclusion

This study highlights a significant inverse relationship between spiritual health and perceived stress among medical students, indicating that higher spiritual well-being is associated with lower stress levels. Female students reported higher stress and spiritual health scores compared to males, while clinical students exhibited slightly better spiritual health and lower stress than pre-clinical students, though the differences were not statistically significant. Multiple regression analysis confirmed that spiritual health is a strong predictor of stress levels, alongside gender and academic year. These findings suggest that incorporating spiritual health interventions into medical education could help students develop effective coping mechanisms and improve their overall well-being. Addressing spiritual well-being may serve as a valuable strategy for mitigating stress among medical students, ultimately fostering resilience and enhancing their professional development.

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