

Correlation between Spirituality Levels and Stress among First-Year Students in Health Science Programs

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ABSTRACT

Introduction: University students, particularly those in health-related programs, are often subjected to various academic demands that must be completed within strict timeframes. These demands, coupled with a lack of preparedness to cope, can lead to psychological issues such as stress. Globally, stress affects more than 350 million people and ranks as the fourth most common health problem.

Objective: This study aimed to determine the relationship between spirituality levels and stress among freshmen in the Health Sciences Program at Universitas Muhammadiyah Kalimantan Timur.

Methods: This research employed a quantitative approach with a cross-sectional design. A total of 271 respondents were selected using random sampling. The instruments used were the Daily Spiritual Experience Scale (DSES) to measure spirituality and the Depression Anxiety and Stress Scale (DASS-21) to measure stress levels. Data were analyzed using the Spearman rank correlation test.

Results: The majority of respondents had a high level of spirituality (160 respondents or 59%), while most respondents also reported normal levels of stress (159 respondents or 58.7%). Statistical analysis revealed a negative correlation between spirituality and stress levels, with a correlation coefficient of -0.417 and a p-value of 0.000, indicating a significant inverse relationship.

Conclusion: The findings indicate that higher levels of spirituality are associated with lower levels of stress among new health students. This suggests that spirituality may serve as a protective factor and should be considered in holistic student support and stress management programs in higher education settings.

Keywords: spirituality, stress, students

Introduction

The transition from high school to university represents a critical developmental phase that is often accompanied by significant adaptation challenges for freshmen. During this period, academic demands, social adjustments, and environmental changes serve as potential stressors that may adversely affect students' mental well-being (Azizah, Warsini, & Yuliandari, 2023). This is particularly evident among students enrolled in health-related study programs, who are frequently confronted with intensive and demanding curricula that increase their susceptibility to stress (Hamzah & Hamzah, 2020).

Mental well-being encompasses an individual's capacity to manage life's challenges, realize personal potential, and contribute meaningfully to their community. While several determinants—such as physical health, social support, and socioeconomic status—play crucial roles in shaping mental health, spirituality has also emerged as a significant dimension associated with improved psychological resilience and stress management (Fitra, 2025). Spirituality provides individuals with a sense of meaning, inner peace, and moral direction, enabling them to navigate adversity with greater hope and resilience.

Previous research conducted among diverse student populations in Indonesia has demonstrated a significant relationship between spirituality and mental health, including stress levels (Wahyuni & Bariyyah, 2019; Riyadi et al., 2023). However, further investigation is warranted to understand how spiritual dimensions interact with the stress experiences of freshmen during the transitional phase into university life, particularly within institutions that possess distinctive cultural or religious characteristics. While existing studies confirm a general correlation, they often fall short in detailing the mechanisms through which spirituality influences stress during this critical adjustment period.

A preliminary study involving interviews with 15 first-year students in the health sciences program at Universitas Muhammadiyah Kalimantan Timur (UMKT), class of 2024, revealed notable experiences of stress and difficulties in adaptation. Students reported symptoms such as fatigue, feeling overwhelmed, and confusion—often attributed to the transition in learning environments, increased academic workload, and obligations from campus organizations. Moreover, several participants indicated challenges in maintaining consistent religious practices, suggesting that their spiritual lives may be disrupted under academic pressure.

Given the significance of stress in the early stages of university life—especially for students in health-related fields—and the potential mitigating role of spirituality, this study aims to examine the relationship between spirituality and stress among freshmen in the health study programs at UMKT. The choice of UMKT as the research site is based on academic and contextual relevance: students are exposed to intensive learning demands, and the institution itself is rooted in Muhammadiyah values, which emphasize religious and spiritual development. This unique setting provides an ideal context for exploring the interplay between spirituality and stress among a population that is both vulnerable and immersed in a value-based educational environment.

From a theoretical perspective, stress is defined as an individual's psychological and physiological response to perceived demands that exceed their coping capacity (Diah, 2023). In this framework, spirituality can serve as a coping strategy that enables individuals to interpret challenges more meaningfully, find purpose in adversity, and foster psychological resilience (Wartono, 2024). Accordingly, this study investigates the extent to which spirituality correlates with stress levels among new health sciences students at UMKT.

Objective

This study aimed to determine the relationship between spirituality levels and stress among freshmen in the Health Sciences Program at Universitas Muhammadiyah Kalimantan Timur.

Method

This study employed a cross-sectional research design, which was selected to measure and analyze the correlation between the independent variable (spirituality) and the dependent variable (stress) among freshmens at a single point in time. The cross-sectional approach is advantageous due to its efficiency in terms of time and resources, as it allows researchers to simultaneously assess the relationship between potential risk factors and outcomes. However, it is important to note that while this design can reveal associations or correlations between variables, it does not permit conclusions regarding causality or the direction of influence.

The population of this study comprised all freshmens enrolled in the health study programs at Universitas Muhammadiyah Kalimantan Timur during the [insert academic year, e.g., 2024/2025] academic year. Based on data provided by the Academic Administration Bureau (BAA), the total population consisted of 836 students. These students were distributed across six health-related study programs, including the Bachelor of Nursing (149 students), Diploma in Nursing (122 students), Bachelor of Environmental Health (84 students), Bachelor of Public Health (269 students), Bachelor of Pharmacy (162 students), and Bachelor of Medicine (50 students). This population served as the basis for determining the appropriate sample size and sampling technique for further analysis in the study.

Table 1. Research Sample Proportion

Study program	Calculation	Population	Samples
D3 Nursing	149	$\frac{149}{836} \times 271$	48
S1 Nursing	122	$\frac{122}{836} \times 271$	40
S1 Public Health	84	$\frac{84}{836} \times 271$	27
S1 Environmental Health	269	$\frac{269}{836} \times 271$	87
S1 Pharmacy	162	$\frac{162}{836} \times 271$	53
S1 Medicine	50	$\frac{50}{836} \times 271$	16

Considering the accessibility of the population and the aim to obtain a comprehensive overview of all freshmens in the health study program, this study employed a total population

sampling technique, also known as saturated sampling. Using this approach, all 836 freshmen enrolled in the health study programs at Universitas Muhammadiyah Kalimantan Timur were included as research participants. Thus, the total number of samples in this study was equal to the population, comprising 836 respondents.

The primary data collection instrument used in this study was a structured questionnaire (Kusuma et al., 2021). The questionnaire consisted of two main sections: one measuring spirituality levels using the Daily Spiritual Experience Scale (DSES), and another assessing levels of stress, anxiety, and depression using the Depression Anxiety and Stress Scale (DASS-21). Both instruments are standardized tools that have been previously validated and proven reliable in various research settings. Consequently, the researchers did not conduct separate validity and reliability tests for this study. Based on prior studies, the DASS-21 has shown strong validity with correlation coefficients of $r > 0.72$ and $r > 0.78$ ($p < 0.05$), as reported by Arjanto (2022) and Ali et al. (2021). Its reliability has also been established, with alpha coefficients ranging from 0.82 to 0.91 for the stress subscale. The DSES questionnaire demonstrated a Cronbach's alpha of 0.916 (Qomaruddin & Indawati, 2019) and 0.96 (Luhrmann et al., 2021), both exceeding the minimum threshold of 0.6, indicating high reliability. Similarly, the DASS-21 questionnaire reported alpha coefficients between 0.84 and 0.959 in different studies (Arjanto, 2022; Ali et al., 2021), confirming its reliability.

The research procedures consisted of data collection and data analysis stages. Primary data were collected by distributing the questionnaires directly to participants (Sugiyono, 2019), while secondary data such as demographic information were obtained from the Academic Administration Bureau (BAA) of Universitas Muhammadiyah Kalimantan Timur. After data collection, several processing steps were performed, beginning with editing to check for completeness and consistency of the responses. Coding was then conducted to assign numerical values to the responses, facilitating entry into SPSS software. Data entry was followed by data cleaning to identify and address missing values or outliers. In cases where such issues were found, data entries were removed only after considering their impact on the sample size and overall data integrity. The final step involved data tabulation to organize the cleaned data into structured tables for analysis.

Data analysis included both univariate and bivariate analyses. Univariate analysis was performed to describe each variable independently (Sugiyono, 2019). Bivariate analysis was used to test the research hypothesis concerning the relationship between the independent variable (spirituality) and the dependent variable (stress). To examine the strength and direction of this relationship, the Spearman Rank correlation test (ρ) was employed. This non-parametric test was deemed appropriate because the data collected were ordinal in nature, derived from Likert-scale responses, and did not meet the assumptions of normality required by parametric tests such as Pearson correlation. The Spearman Rank test evaluates the monotonic relationship between two variables without requiring linearity or normal distribution. Before conducting this test, ranking of data for each variable was performed in accordance with standard Spearman correlation procedures.

Result

A total of 271 first-year students from health-related study programs at Universitas Muhammadiyah Kalimantan Timur (UMKT) participated in this study. The majority of respondents were 18 years old (69.4%), followed by those aged 19 years (20.7%). Most respondents were female (81.2%) and identified as Muslim (98.9%). Regarding study program

distribution, the highest proportion of students were enrolled in the Bachelor of Public Health program (32.1%), followed by the Bachelor of Pharmacy (19.6%) and Bachelor of Nursing (17.7%).

Based on the analysis of spiritual level, 59.0% of the respondents were categorized as having a high level of spirituality, while the remaining 41.0% were in the moderate category. These findings indicate that spirituality is relatively well-developed among health students at UMKT. Previous research suggests that higher spiritual engagement in university students may contribute to improved emotional well-being and coping capacity (Aflakseir & Coleman, 2011).

Regarding students' perceived closeness to God, almost half of the participants (49.8%) reported feeling "close," while 44.3% felt "very close" to God in their daily lives. Only 5.9% of respondents felt "quite close," and no students reported feeling "not at all" close to God. This suggests a strong spiritual orientation among the participants, which may serve as a protective factor against psychological distress during the early stages of university life (Koenig, 2012).

In terms of stress levels, most students were classified as having normal stress (58.7%). However, 21.0% experienced mild stress, 12.9% experienced moderate stress, and smaller proportions reported severe (5.2%) and very severe stress (2.2%). Although the majority of students fell within the normal range, a considerable number still exhibited elevated stress levels, which may be linked to the transition into higher education and the demands of health-related academic programs. These findings align with previous studies reporting that health students are particularly vulnerable to psychological strain due to academic pressures and expectations (Dyrbye et al., 2006).

Table 2 . Characteristics of Respondents

Variable	Category	Frequency (n)	Percentage (%)
Age	17 years	18	6.6
	18 years	188	69.4
	19 years	56	20.7
	20 years	7	2.6
	21 years	2	0.7
Gender	Male	51	18.8
	Female	220	81.2
Religion	Islam	268	98.9
	Protestant Christianity	3	1.1
Study Program	Bachelor of Nursing	48	17.7
	Diploma in Nursing	40	14.8
	Bachelor of Environmental Health	27	10.0
	Bachelor of Public Health	87	32.1
	Bachelor of Pharmacy	53	19.6
	Bachelor of Medicine	16	5.9
Spiritual Level	Moderate	111	41.0
	High	160	59.0
Closeness to God	Quite close	16	5.9
	Close	135	49.8
	Very close	120	44.3
	Not at all	0	0.0
Stress Level	Normal	159	58.7
	Mild	57	21.0
	Moderate	35	12.9
	Severe	14	5.2
	Very Severe	6	2.2

The table presents the demographic, spiritual, and psychological characteristics of 271 first-year students from health-related study programs at Universitas Muhammadiyah Kalimantan Timur (UMKT). The majority of respondents were 18 years old (69.4%) and female (81.2%), with most identifying as Muslim (98.9%). The highest representation came from the Bachelor of Public Health program (32.1%), followed by Bachelor of Pharmacy (19.6%) and Bachelor of Nursing (17.7%). Regarding spirituality, 59.0% of students had a high spiritual level, while 41.0% had a moderate level. In terms of perceived closeness to God, 49.8% reported feeling “close,” 44.3% “very close,” and 5.9% “quite close,” with no respondents indicating they did not feel close at all. Stress levels among respondents showed that 58.7% were within the normal range, while 21.0% experienced mild stress, 12.9% moderate stress, and smaller proportions reported severe (5.2%) or very severe stress (2.2%). These findings highlight a strong spiritual orientation and a moderate level of psychological stress among UMKT health students, consistent with literature suggesting that spirituality may serve as a protective factor against stress (Koenig, 2012; Aflakseir & Coleman, 2011), while academic demands contribute to elevated stress levels among health students (Dyrbye et al., 2006).

Bivariate analysis was conducted to test the relationship between the independent variable, namely spiritual level, and the dependent variable, namely stress, using the Spearman rank test and can be seen in table 6 below:

Table 3. Analysis of the Relationship between Spiritual Level and Stress in Freshmens

	Spirituality	Stress
Spirituality	1.000	-0.417** p = 0.000
Stress	-0.417** p = 0.000	1.000

Based on Table 6, the results of the Spearman Rank statistical test obtained a significance value (p) of 0.000. Because the p value <0.05, it can be concluded that there is a statistically significant relationship between the level of spirituality and stress in freshmens of the health study program at the Universitas Muhammadiyah Kalimantan Timur. The Spearman correlation coefficient value of -0.417 indicates a negative correlation with a correlation strength in the moderate category. This negative correlation indicates that higher levels of spirituality tend to be associated with lower levels of stress.

Discussion

The results of this study revealed that among 271 respondents, the majority were 18 years old, totaling 188 individuals (69.4%). This finding aligns with previous research by Rahmayani (2019), which found that most stress cases occurred in 18-year-olds (71.3%) among 188 respondents aged 18–20. Similarly, Sekh (2021) reported that 18-year-olds constituted the most stressed group (68.9%) among respondents aged 17–20. Adolescence is a critical developmental period categorized into early (11–14 years), middle (15–17 years), and late adolescence (18–21 years), during which individuals experience rapid physical and psychological changes (Diananda, 2019). In late adolescence, individuals face increased demands for establishing peer relationships, accepting gender roles, achieving emotional independence, and preparing for future careers. These developmental tasks may contribute to elevated stress levels (Rosyad,

2019). Based on these findings, the researcher assumes that younger students are more vulnerable to stress due to limited emotional maturity and coping skills, while older students may have better-developed mechanisms for managing stressors.

Regarding gender distribution, the majority of respondents were female (220 students, 81.2%), while males accounted for 51 students (18.8%). These findings support Rahmayani (2019), who reported that 69.6% of 188 respondents were female, and 30.8% experienced severe stress. Ariviana et al. (2021) similarly noted that 77.5% of nursing students were female. The predominance of females in nursing and other health fields is often associated with traits such as compassion, patience, and sociability. Supporting this, Sitorus et al. (2023) found that 85.4% of respondents were female, with higher reported stress levels (16.6%) compared to males (0.7%). These differences may be attributed to hormonal factors, including oxytocin, estrogen, and other sex hormones, which influence stress responses differently in males and females. Based on this evidence, the researcher assumes that female students are more susceptible to stress due to greater emotional sensitivity and hormonal influences affecting stress regulation.

In terms of religious affiliation, the vast majority of respondents were Muslim (268 students, 98.9%), with only 3 Protestant Christians (1.1%). This indicates that all participants identified with a religion. For adults, religion is a significant coping mechanism for managing illness and life stress. As part of spirituality, religion provides a framework for meaning-making and resilience. These findings are consistent with Nulhakim et al. (2019), who reported that 94.8% of respondents were Muslim. Given the dominance of Islam in East Kalimantan, this distribution reflects the region's religious demographics. The researcher infers that students with spiritual beliefs are more likely to rely on their faith to navigate life challenges and reduce stress.

The study also found that most respondents were enrolled in the Public Health undergraduate program (87 students, 32.1%). This is consistent with Feriyanto et al. (2021), who reported high stress levels among medical students, attributed to academic pressure, psychosocial issues, parental expectations, financial concerns, and lack of recreational time. Agustiningsih (2019) also noted that nursing students face considerable stress due to heavy workloads, time constraints, and numerous assignments. These academic and environmental stressors suggest that students in health-related fields are particularly vulnerable to stress. Therefore, the researcher concludes that the campus environment and study program significantly contribute to student stress levels.

Univariate analysis showed that 160 respondents (59.0%) had high spiritual levels, while 111 (41.0%) had moderate levels. These results align with Riyadi (2023), who found that 67.8% of respondents had good spirituality. Factors influencing spiritual intelligence include both innate traits and environmental factors such as family, school, and community settings. The results from statement number 16 in the spirituality questionnaire indicated that all respondents reported some level of closeness to God: 49.8% felt close, 44.3% very close, and 5.9% quite close. Febriana (2024) similarly found that 87.5% of students had high spiritual intelligence. Vebrian et al. (2021) emphasized that good spirituality equips individuals to handle life's challenges. Spirituality promotes resilience, provides existential meaning, and helps individuals manage stress and depression. Consequently, the researcher posits that high spiritual levels function as a coping mechanism by reinforcing personal meaning and life purpose, thereby mitigating stress.

Regarding stress levels, 159 respondents (58.7%) were within the normal range, 57 (21.0%) had mild stress, 35 (12.9%) moderate stress, 14 (5.2%) severe stress, and 6 (2.2%) very severe stress. This corresponds with research by Fahmi (2022), where 64% of 83 respondents

experienced normal stress levels. Academic stress arises when students perceive academic demands as overwhelming, leading to frustration, emotional tension, and psychological distress (Yuda et al., 2023). Cahyani (2020) found similar results, with 50% of 19 students experiencing normal stress. According to Widiyanti & Dewi (2020), first-year students face greater stress than senior students due to adjustment difficulties and academic demands. Fernandes et al. (2023) noted that elevated stress impairs concentration and emotional regulation. Stress responses may include physiological, cognitive, emotional, and behavioral reactions. Coping mechanisms are critical in managing stress: poor coping exacerbates stress, while effective strategies can alleviate or eliminate it. Thus, the researcher concludes that first-year students, facing the transition to university life, may experience elevated stress, but those with effective coping strategies can manage stress more successfully.

Bivariate analysis revealed a statistically significant relationship between spirituality and stress. Spearman rank correlation yielded a p-value of 0.000 (<0.05), indicating a significant association between the two variables among freshmen in health programs at Universitas Muhammadiyah Kalimantan Timur. The correlation coefficient of -0.417 indicates a negative relationship of moderate strength, suggesting that higher levels of spirituality are associated with lower stress levels.

These findings align with Budiayati (2022), who found a significant negative correlation ($p = 0.021$, $r = -0.236$) between spirituality and stress in nursing students working on their theses. Academic demands, time pressure, and poor time management were reported as major stressors. Pradiri et al. (2021) noted that performance pressure, competition, and poor time management contribute to stress among students. Similarly, Vebrian (2021) reported that students with high spirituality experienced lower stress levels, with a significant relationship ($p = 0.044$). High spirituality enables individuals to find meaning in life events and adopt positive coping strategies.

Based on these findings, the researcher concludes that spirituality plays a vital role in stress management. Students with high levels of spirituality are better equipped to manage academic pressures and life challenges. Spiritual beliefs foster emotional resilience, provide existential meaning, and strengthen coping mechanisms, all of which contribute to lower stress levels among students.

Conclusion

The results of this study suggest that most new health students at Universitas Muhammadiyah Kalimantan Timur possess a relatively high level of spirituality, accompanied by generally low to moderate levels of stress. A statistically significant inverse relationship was identified between spirituality and stress, indicating that as spirituality increases, stress levels tend to decrease. Although the strength of this correlation is moderate, the findings support the notion that spirituality may act as a protective factor against stress during the early stages of university life. These results highlight the potential importance of integrating spiritual well-being into student support programs as part of a holistic approach to stress management in higher education settings.

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Authors' contribution

Each author contributed equally in all the parts of the research. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

Conflict of interest

The researchers stated that there is no conflict of interest related to the implementation and publication of the results of this research. The entire research process, from planning, data collection, analysis, to report preparation, was carried out independently without any influence or pressure from any third party. A commitment to research ethics is upheld throughout the research process, ensuring transparency, accuracy and honesty in reporting results. Respondents' participation was voluntary with informed consent, and their confidentiality and privacy were maintained in accordance with applicable research ethics standards. With this statement, researchers hope that the research results can be trusted and used as a valid reference for the development of science and health practices related to ethnomedicine and reproductive health.

Ethical consideration

Not applicable.

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