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SPIRITUALITY AND RESILIENCE IN MEDICAL STUDENTS; A CROSS SECTIONAL STUDY

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ABSTRACT

Resilience plays a very important role for medical students. The forming of resilience in overcoming problems is closely related to spirituality. Spirituality helps individuals see problems as part of the learning and growth process. The aim of this research is to identify whether there is a positive relationship between the level of spirituality and the level of resilience. This research is an analytical observational research with a cross sectional approach. Sampling was carried out using a random sampling technique with a total research sample of 100 medical students. Measurement of the level of spirituality was carried out using the Daily Spiritual Experience Scale (DSES) questionnaire, while measurement of the level of resilience was carried out with the Connor-Davidson Resilience Scale (CD-RISC 25) questionnaire. Bivariate analysis of the two variables used the Spearman correlation test. The result of the bivariate analysis test using Spearman obtained a significance value of $p<0,05$ which shows that the relationship between the independent variable and the dependent variable is significant. The level of spirituality and the level of resilience is positively correlated in medical students.

Keyword: spirituality level, resilience level, medical students

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1. INTRODUCTION

Resilience is an ability to remain calm when experiencing a crisis or stress, thereby helping the individual to survive and understand that every problem has a solution[1]. Resilience plays an important role for medical students[2]. Studying medicine requires a lot of time and effort because of the material involved is very complex and requires in-depth understanding. With resilience, medical students can persist when facing challenges and difficulties[3].

Looking from the perspective of medical students, this study sought to identify the extent to which their spiritual lives, including spiritual beliefs and practices, may influence their ability to deal with the challenges, stress, and pressure that are an integral part of medical education. By analyzing the views of different subjects, this study aims to provide further insight into the relationship between spiritual dimensions and resilience in this group, with potentially significant implications in the development of mental and emotional support strategies for aspiring doctors. It is hoped that research in this area can become a basis for medical students in developing interventions and support systems to help medical students build resilience by increasing their spiritual well-being while studying the medical sciences.

Research on the relationship between spirituality and resilience has been carried out in various fields, from psychology to social sciences. These studies aim to explore the relationship between the spiritual dimension of a person's life and the ability to overcome challenges and trauma. In several studies, it was found that individuals who have strong ties to the spiritual dimension tend to have a higher level of resilience. Through spiritual experiences, individuals feel supported emotionally and mentally, so they are able to deal with pressure and stress better. In conclusion, there is a positive relationship between spirituality and resilience as spirituality helps individuals understand the existence of a transcendent existence that regulates human life so that they are able to see the positive side of the negative things that happen in life[4]. From research that is conducted at UNY, the results showed that there was a positive relationship between the level of spirituality and the level of resilience[5]. This research used a measurement instrument created by the researcher himself using validity and reliability tests to measure the level of spirituality and level of resilience which was adapted to Bidikmisi students respondents at the Faculty of Education in UNY.

One of the popular instruments that are more common and proven to be valid for measuring the level of spirituality and level of resilience are the Daily Spiritual Experience Scale (DSES)[6] and the Connor Davidson Resilience Scale (CD-RISC 25)[7] respectively. Therefore, in this study the DSES and CD-RISC measurement instruments were used so that the results of measuring the level of spirituality and level of resilience in respondents

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were more representative. Research on the relationship between spirituality and resilience in medical students is also still rarely conducted, so researchers are interested in researching further and finding out whether there is a positive relationship between the two.

2. METHOD

This research is an analytical observational study with a cross-sectional approach and has been registered with the Health Research Ethics Committee of RSUD Dr. Moewardi with ethical number 1,568 / VIII / HREC / 2023. The aim of this research is to determine if there is any positive correlation between spirituality level and resilience level in medical students.

This research was conducted at the UNS Faculty of Medicine in Surakarta City, Central Java, in August-September 2023. The research subjects were selected using a random sampling technique with the number of research samples being 100 medical students out of a total of 926 students which is then divided into 4 year groups namely 2020, 2021, 2022, and 2023 evenly.

The independent variables in this study were spirituality level. Spirituality level is obtained from the results of the Daily Spiritual Experience Scale (DSES) in the form of ordinal data which is divided into three categories, namely high, medium and low respectively. The DSES consists of sixteen items that present positive statements. This instrument uses a scale with six answer choices indicating the intensity of an individual's spiritual experience, and there is one additional descriptive item to support the research subject's response.

The validity and reliability of this spirituality instrument have been tested and analyzed using SPSS software by previous researchers. The validity test results show a coefficient between 0.301 to 0.729, while the reliability test results show a value of 0.858. These validity and reliability values show that this spirituality instrument can be used well in this research[6].

The dependent variable in this study is resilience level. Resilience level is obtained from the results of the Connor Davidson Resilience Scale (CD-RISC 25) in the form of ordinal data which is also divided into three categories, namely high, medium and low respectively. The CD-RISC consists of twenty-five items that present positive statements. This instrument uses a scale with five answer choices that indicate the relevance of individual problem solving experiences to the statements that is presented.

The validity and reliability of this spirituality instrument have been tested and analyzed using SPSS software by previous researchers. The validity test results show a coefficient between 0.493 to 0.828, while the reliability test results show a value of

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0.966. These validity and reliability values show that this spirituality instrument can be used wellin this research[7].

This research began by conducting a survey to students who had agreed to take part in the research who were selected using students identification numbers using a randomizer tool. Students who have been selected are then instructed to fill in 16 question items on the DSES questionnaire form and 25 question items on the CD-RISC 25 questionnaire form.

The spirituality level and resilience level data will then be processed statistically using the SPSS-25 for Windows application with the Spearman correlation statistical test. The research data were analyzed for the ordinal relationship of each variable. The significance degree used is $p<0.05$.

3. RESULTS

Spirituality level and resilience level data that is statistically processed is in the form of ordinal data. The Spirituality level and resilience level data for each study group is shown in table 1.

Table 1. Spirituality and resilience level data

Year group	Spirituality level category	Mean spirituality score ± SD	Resilience level category	Mean resilience score ± SD
2020	High (21 students) Medium (4 students) Low (0 students)	73,4 ± 11,35	High (10 students) Medium (15 students) Low (0 students)	93 ± 11,70
2021	High (20 students) Medium (5 students) Low (0 students)	74,08 ± 10,07	High (12 students) Medium (13 students) Low (0 students)	94,84 ± 9,84
2022	High (20 students) Medium (5 students) Low (0 students)	73,6 ± 8,77	High (17 students) Medium (8 students) Low (0 students)	98,4 ± 10,29
2023	High (24 students) Medium (1 students) Low (0 students)	73,16 ± 6,12	High (17 students) Medium (8 students) Low (0 students)	100,2 ± 12,38

It was found that there were more female respondents than male respondents out of 100 subjects. The frequency of female respondents was 61 students (61%) and the frequency of male respondents was 39 students (39%).

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In the spirituality level section, it can be seen that the majority of research subjects (85%) fall into the high spirituality level category and the rest have a medium spirituality level. There were no respondents with a low level of spirituality category out of the 100 students who were research subjects. Meanwhile, in the resilience level section, of the 100 students who were respondents, it was also found that respondents in the high resilience level category were the majority (56%) followed by the remainder who were in the medium resilience level category. Similar to the spirituality level section, no respondents were found in the low resilience level category.

A Spearman correlation analytical tests were conducted to test the ordinal relationship between spirituality level and resilience level. The Spearman correlation analytical test results are shown in table 2.

Table 2. Results of the Spearman correlation test on each variables

Variable	N	C	p
Spirituality level Resilience level	100	0,192	0,028*

The results of the Spearman correlation analytical test showed the correlation between the level of spirituality and the level of spirituality with a significant positive correlation of 0.192 at the 5% significance level. This shows that the higher the level of spirituality, the higher the level of resilience. Therefore, the hypothesis that there is a positive relationship between the level of spirituality and the level of resilience can be accepted.

A correlation of 0.192 means that the resilience level variable can be explained by only 19.2% of the spirituality level variable, so there is still 80.8% of the resilience level that cannot be explained by the spirituality level. This shows that there are other factors outside the level of spirituality that have a correlation with the level of resilience.

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4. DISCUSSION

The table of spirituality and resilience level data shows the distribution of subjects based on spirituality level. Based on that table, the majority of medical students at Sebelas Maret University have a high level of spirituality.

Various studies regarding the level of spirituality have been conducted with different research subjects. Of the counseling guidance students, 114 students (91.9%) had high spirituality scores, and 10 students (8.1%) had medium spirituality scores[5]. For employees of companies (state or private), 33 people (41%) had a moderate level of spirituality and 48 people (59%) showed a high level of spirituality[8]. In orphanage youth, in the high category there were 63 people (84%), in the medium category there were 12 people (16%)[9]. Of the parents of autistic children, 38 of them had a high level of spirituality (88.4%), 4 people had moderate spirituality (9.3%), and 1 person had a low level of spirituality (2.3%)[10] . Then also among nursing and midwifery students who did their final assignments, 71 people had high spirituality results (49.3%) while 69 people (50.7%) had low spirituality results[11].

Across various research subjects with various age groups and different backgrounds, the majority of respondents consistently have a high level of spirituality, although the distribution varies. This is in accordance with research that has been conducted on medical students which shows that the majority of respondents have a high level of spirituality. The majority of respondents from various backgrounds and age groups who showed a high level of spirituality reflected that the level of spirituality does not completely depend on a person's background or age group.

A person may seek spiritual solutions to respond to life's challenges or seek deeper meaning beyond material aspects[12]. An increased level of spirituality can be a way for individuals to find inner peace, improve emotional well-being, or seek answers to existential questions. The practice of spirituality can provide emotional support, help in dealing with stress, and a greater sense of purpose in life. Therefore, although each individual's life burden is different, high levels of spirituality may remain consistent due to the important role it plays in psychological well-being.

However, although the level of spirituality does not completely depend on a person's age group or background, the level of spirituality is still influenced by these two things[13]. This influence can be seen in variations in the distribution of spirituality levels. Differences in characteristics within age groups, where today's older generations come from backgrounds and times where religion was considered something very sacred, so they carry these spiritual values into old age, can explain the reasons for variations in the level of spirituality. Additionally, as a person gets older, the level of

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spirituality will increase for several reasons. One reason is that as people become more aware of death, they will turn to spirituality as a way to find meaning and purpose in life[14]. Research on the relationship between age and level of spirituality conducted on 45 respondents using electroncephalography has shown that there is a relationship between age group and level of spirituality. Randomly selected respondents aged 20-35 years were given pictures related to spirituality in the Islamic religion in the form of the Goharshad Mosque in Iran. Respondents then measured alpha and theta waves in their brains using EEG. The results of this study showed that the group of respondents at an older age (30-35 years) experienced a faster increase in alpha and theta waves than respondents at a younger age (20-29 years). This research concludes that there is a positive relationship between age and spirituality which is significant with a significance level of 0.02 at a significance level of 5%[15]. This research can be the reason that differences in age groups can cause variations in the distribution of spirituality levels.

Differences in background, for example environment and gender, can also influence the level of spirituality seen in variations in spirituality levels. Women's brains are organized in such a way that they can more effectively express their feelings. A woman can feel, think and speak at the same time. They more easily perceive spiritual phenomena with their minds. Women tend to be more open to spiritual experiences and express spirituality in different forms, such as empathy, namely deep attention and understanding of social relationships[16]. The existence of a relationship between gender and level of spirituality is demonstrated by research on the relationship between gender and level of spirituality which was conducted on 45 respondents using electroncephalography. Randomly selected respondents, 23 men and 22 women aged 20-35 years, were given pictures related to spirituality in the Islamic religion in the form of the Goharshad Mosque in Iran. Respondents then measured alpha and theta waves in their brains using EEG. The results of this research showed that the female respondent group experienced a faster increase in alpha and theta waves than male respondents. This research concludes that there is a positive relationship between gender and spirituality which is significant with a significance level of 0.01 at a significance level of 5%[15]. However, although the level of spirituality is influenced by gender, the level of spirituality is also influenced by environmental factors so that it is not uncommon to find male respondents with a higher level of spirituality than female respondents. It is indeed easier for women to express spirituality, but the right environment is also needed to express this spirituality[17]. If someone grows up in a society or family that places an emphasis on certain spiritual or religious values, they are likely to be influenced and adopt those values. On the other hand, an environment that is secular or does not pay special attention to aspects of spirituality may form a view of life that is

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more skeptical or less focused on the spiritual dimension. Therefore, this complex interaction between gender and environment highlights the importance of understanding that the factors that make up a person's spiritual background complement each other and influence each other in the course of forming varying levels of spirituality.

The table of spirituality and resilience level data also shows the distribution of subjects based on resilience level. Based on that table, the majority of medical students at Sebelas Maret University have a high level of resilience.

Various studies on resilience were carried out with different research subjects. Of the counseling guidance students, 78 students (62.9%) had a high level of resilience, and 46 students (37.1%) had a moderate level of resilience[5]. For employees (state or private), the subject's level of resilience was low at 28 people (22%), medium at 88 people (70%), and 10 people (8%) showed a high level of resilience[18]. In chronic kidney failure patients, 8 people had a high level of resilience (15.7%), 39 people had moderate resilience (9.3%), and 4 people had a low level of resilience (7.8%)[19]. Then also in the elderly, high resilience results were 38 people (63.3%) while low resilience results were 22 people (36.7%)[20].

In various research subjects with various age groups and different backgrounds, the majority of respondents had varying levels of resilience with varying distributions. This is not in accordance with research conducted on medical students which shows that the majority of respondents have a high level of resilience. The majority of respondents from various backgrounds and age groups showed levels of resilience that varied between moderate or high, reflecting that the level of resilience is greatly influenced by a person's background or age group. Resilience does vary in the context of age, gender, circumstances or situations, culture and socioeconomic conditions[21].

Research on resilience in health service workers conducted on 845 respondents stated that there was a positive influence between age and a level of resilience of 0.113 with a significance value of 0.002 ($p < 0.01$), so that the older the health service worker, the greater their resilience[22]. This research is consistent with the results of research on resilience on various subjects where elderly subjects are known to have the majority of respondents with high resilience, namely 63.3%. As individuals get older, they will become more skilled and experienced in dealing with the problems they experience in their lives so that the burden they face is relatively light compared to their skills. Then, the elderly will usually receive more compensation from the results of their experience and from their children and relatives by reducing the cost of living due to children starting to have independent lives, whereas younger individuals will actually experience additional costs in their lives. However, respondents with employee backgrounds and chronic kidney failure patients found that their level of resilience was

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actually lower when compared to students even though they generally belonged to an older age group. This shows that the level of resilience is not completely influenced by age alone but is also influenced by other factors such as differences in background.

Differences in background, for example environment and gender, can also influence the level of resilience that can be seen in the level of resilience of employees and chronic kidney failure patients which is actually lower when compared to the level of resilience in students. research on resilience in health service workers conducted on 845 respondents with 21% men and 79% women stating that there is a positive influence between the female gender with a significance value of 0.003 ($p < 0.01$) at a significance level of 1%, so it can It was concluded that women would have a higher level of resilience than men[22]. There are differences between students and employees and patients with chronic kidney failure. For students, the academic burden borne by them is relatively the same for men and women. On the contrary, more women in companies take administrative-related jobs than men so they are less often responsible for the decisions taken[23]. Likewise, when compared with chronic kidney failure patients, it is known that research on resilience in chronic kidney failure patients involved more men as respondents, namely 76.5%. These two studies, on employees and patients with chronic kidney failure, used more male respondents, thereby reducing the majority of respondents with high levels of resilience. Apart from gender, the level of resilience is also influenced by environmental factors so that it is not uncommon to find male respondents with higher levels of resilience than female respondents. In several studies, women do have higher resilience than men because they face less pressure, but this cannot be generalized to all female individuals. If a person grows up in a society or family that puts heavy pressure on a person, it is likely that the individual will be affected and have a low level of resilience even though the individual is female. On the other hand, if someone grows up in a society or family that does not put heavy pressure or only puts pressure within reasonable or light limits, it is likely that the individual will be affected and have a high level of resilience even if the individual is male. Therefore, this complex interaction between gender and environment highlights the importance of understanding that the factors that make up a person's resilience background complement each other and influence each other in the course of forming varying levels of resilience.

There is also a positive relationship between the level of spirituality and the level of students resilience as shown by the results of the analysis using the Spearman correlation test. The higher a students's spirituality level, the higher their resilience level.

This research is in accordance with research on the relationship between spirituality and resilience in Bidikmisi students. The research that is conducted by

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Fajria (2014) stated that there was a positive relationship between the level of spirituality and the level of resilience in bidikmisi students at the Faculty of Education at Yogyakarta State University (UNY). The data analysis used is Pearson correlation with a value of p=0.000 (p<0.05) with a correlation coefficient of 0.691, which means that the level of spirituality is positively correlated with the level of resilience of 19.2%[5].

As part of resilience, spirituality helps individuals face life's challenges and see the positive side of negative things. Spirituality is often associated with resilience because it involves inner dimensions and transcendent experiences that can provide support and meaning to individuals in facing difficulties[24]. Belief in a greater power and life after death can provide important emotional and mental support for individuals in overcoming life's challenges. Spirituality plays a significant role in increasing medical students' resilience when facing complex academic burdens[25]. Spirituality provides a strong emotional foundation in the academic process of medical students[26]. Students can find peace in spirituality, which helps them overcome the stress and anxiety that often accompany academic burdens such as complex medical material and a busy schedule Three basics of resilience; equanimity, individual perseverance, and self-reliance all have their basis in three distinct nervous systems; the somatic nervous system, autonomic nervous system, and central nervous system (important parts of the human nervous system) each have different roles in regulating body functions and responses to external and internal stimuli. with modulation by associated neurotransmitters. The two main neurotransmitters responsible for counteracting stress in the brain are dopamine and endogenous opioids as well as other hormones secreted with endogenous opioids (oxytocin and serotonin), as evidenced by studies showing that dopamine and opioid antagonists enhance the stress response in both humans and animals . In contrast, dopamine and opioids reduce negative reactivity to stress in the brain in both humans and animals. The relationship between sociocultural support (e.g. a person's level of spirituality) and resilience to stress is believed to be influenced by the oxytocin system of the hypothalamic-pituitary-adrenal axis[27].

Spirituality encourages improving the quality of interpersonal relationships. Students who take care of the spiritual aspects of their lives are more likely to have greater empathy and better communication skills[28]. These skills help them in collaboration with fellow students and faculty, strengthening the social support that is important in their academic journey which will also further support their abilities. they are good clinicians in communicating effectively with patients or colleagues.

Spirituality can also direct individuals to healthy practices that improve physical well-being[13]. Meditation, yoga, or other practices related to spirituality can help reduce stress, improve sleep quality, and increase energy[29]. Physical resilience is important in supporting students resilience. in facing a heavy academic load.

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Through prayer, meditation, or other spiritual practices, students can also gain a sense of calm and the presence of a transcendent existence which will increase their level of resilience[30]. Resilience possessed by medical students can act as a tool to overcome failures and challenges. With resilience, students can learn to accept that their lives are not only limited to academic results or achievements, but also as human beings who develop. When students experience failure or difficulty, resilience can give them calmness and the sense greater perspective, helping them to pick themselves up and continue their journey[16].

Overall, resilience is a valuable asset for medical students in dealing with complex academic loads. Resilience not only helps them manage stress and pressure, but also enriches their lives as a whole by providing meaning, purpose and resources to develop holistically[17]. Resilience can be developed by developing aspects of spirituality. The positive relationship between spirituality and resilience among medical students suggests that integrating spiritual practices and support into mental health strategies could be beneficial. Spirituality, often tied to a sense of meaning and connection, can act as a coping mechanism for stress and adversity. It may provide emotional support, a sense of community, and perspective, all of which are crucial for maintaining mental well-being in demanding environments like medical school. Therefore, incorporating spiritual practices such as mindfulness meditation or yoga into wellness programs, and supporting students in exploring their spirituality, could enhance their resilience and contribute to more effective mental and emotional support strategies.

Medical students need to develop aspects of spirituality so that they can increase their resilience. Enhancing the spiritual well-being of aspiring doctors through interventions involves recognizing the importance of spirituality in their overall health and resilience. Integrating teachings on spirituality into the medical school curriculum can help students understand how spiritual beliefs can support their personal well-being and professional practice. Encouraging self-reflection and contemplative practices allows aspiring doctors to deepen their understanding of themselves and their spiritual beliefs, which can enhance their resilience. Creating supportive communities and providing access to resources like spiritual counselors or mindfulness programs can further support their spiritual growth. Overall, these interventions aim to cultivate a strong spiritual foundation for aspiring doctors, promoting their overall well-being and resilience as they navigate the challenges of medical training and practice.

5. CONCLUSION

The level of spirituality significantly influences the level of resilience. Because of that, the level of spirituality can be used as a reference to maintain the level of resilience so that it is always in optimal condition.

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