
The Relationship Between Stress Levels And Headaches And Academic Achievement In Students Of The Faculty Of Medicine, Muhammadiyah University Of North Sumatra, Class of 2023

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Abstract

Medical students face academic burdens that can be related to stress and headache complaints. These conditions have the potential to affect the learning process and academic achievement. To determine the relationship between stress levels and headaches on academic achievement of students of the Faculty of Medicine, Muhammadiyah University of North Sumatra, class of 2023. Method: Analytical research using Kendall's Tau correlation. Stress levels were assessed using the Medical Students' Stress Questionnaire (MSSQ), headaches based on pain intensity, and academic achievement based on grade point average (GPA). A total of 73 students became respondents. A total of 36 respondents (49.3%) experienced severe stress, 31 (42.5%) moderate stress, and 6 (8.2%) very severe stress. There were no respondents with mild stress. Most headaches were in the moderate category, namely 30 respondents (41%), followed by mild 29 (39.7%), normal 9 (12.3%), and severe 5 (6.8%). All dimensions of stress showed a significant negative correlation with GPA: ARS $r=-0.449$; IRS $r=-0.458$; TLRS $r=-0.520$; SRS $r=-0.330$; and GARS $r=-0.419$ ($p \leq 0.001$). Headache was also negatively correlated with IP ($r=-0.230$; $p=0.028$). Stress level and headache intensity were negatively related to students' academic achievement.

Keywords: Academic Stress, Headache, Academic Achievement, Medical Students, MSSQ

INTRODUCTION

Medical education is an educational environment that requires students to be able to cope with the learning load, manage time, adapt to academic demands, and meet various social demands. These conditions can be a source of stress for medical students because the educational process takes place in an environment with relatively high academic demands. Stress in medical students can be seen through various sources of stress, including academic-related stress, interpersonal-related stress, time-related stress, social-related stress, and general academic-related stress. Measurement of these sources of stress can be done using the Medical Students' Stressor Questionnaire (MSSQ), which has been used to identify various stressors in medical students (Jayarajah et al., 2020). The description of stress levels based on stress sources has also been a focus in research on medical students in Indonesia (Rahmayani et al., 2019).

Besides stress, headaches are a common complaint among students and can potentially disrupt daily activities, including studying. Headaches are a common disorder and come in various forms and levels of intensity (World Health Organization, 2022). Stressful conditions can also be associated with the emergence or increase of headache complaints, making stress and headaches two relevant conditions to consider in students' academic lives (Buse & Lipton, 2015). In students of the Faculty of Medicine, Muhammadiyah University of North Sumatra, the level of stress and headaches has also been previously studied, making these two conditions relevant phenomena in the context of medical students (Sastra & Hamdani, 2023).

The problem that arises is that high levels of stress can be related to students' learning processes and academic achievement. Stress can be a barrier to academic performance because the psychological conditions experienced by students can be related to their ability to carry out academic activities. The relationship between stress and academic performance is important to note because academic achievement is one indicator of student achievement

during the educational process. Research on stress and academic performance in students also shows that stress needs to be considered as a condition related to academic achievement (Frazier et al., 2019).

Another issue relates to headaches, which can disrupt students' activities. Severe headaches can interfere with daily activities, including those related to learning. Managing headaches is crucial because they can impact an individual's ability to perform activities (Becker et al., 2015). Furthermore, the link between stress and headaches suggests that these physical complaints should be considered alongside stress when assessing the condition of medical students (Buse & Lipton, 2015).

Based on these conditions, research is needed that simultaneously examines the relationship between stress levels and headaches with academic achievement in medical students. This research is important to conduct to determine the relationship between each dimension of stress as measured using the MSSQ and headache intensity with the achievement index of students of the Faculty of Medicine, Muhammadiyah University of North Sumatra, class of 2023. This study aims to determine the relationship between stress levels and headaches with students' academic achievement. The urgency of this research lies in the need to understand the relationship between stress conditions and headache complaints with students' academic achievement, while the novelty of this research lies in examining the relationship between all dimensions of stress as measured using the MSSQ and headache intensity with academic achievement in students of the Faculty of Medicine, Muhammadiyah University of North Sumatra, class of 2023.

RESEARCH METHODS

This analytical study aims to determine the relationship between stress levels and headaches with academic achievement in students of the Faculty of Medicine, Muhammadiyah University of North Sumatra, class of 2023. The study used a correlational approach to analyze the relationship between stress levels, headache intensity, and academic achievement. Students' stress levels were identified based on the source of stress using the Medical Students' Stress Questionnaire (MSSQ), which is used to assess various stressors in medical students (Jayarajah et al., 2020).

The research instruments consisted of the MSSQ to measure students' stress levels, pain intensity to determine headache categories, and the academic performance index (GPI) as a measure of academic achievement. The MSSQ was used to identify several dimensions of stress, including academic-related stress (ARS), interpersonal-related stress (IRS), time-limited-related stress (TLRS), social-related stress (SRS), and general academic-related stress (GARS). The use of the MSSQ as a stress measurement instrument in medical students is supported by research validating the instrument (Jayarajah et al., 2020). The data obtained were then analyzed using the Kendall's Tau correlation test to determine the relationship between stress dimensions and headache intensity with the GPI. The statistical significance level was set at $\alpha = 0.05$.

The study population was students from the Faculty of Medicine, Muhammadiyah University of North Sumatra, graduating class of 2023. The sample consisted of 73 students who served as respondents. The data were used to assess stress levels, headache intensity, and academic achievement. The variables analyzed included stress dimensions based on the MSSQ, headache intensity categories, and student achievement index.

The research procedure was conducted by collecting data on stress levels, headaches, and academic achievement from 73 students from the Faculty of Medicine, Muhammadiyah University of North Sumatra, class of 2023. Stress levels were assessed using the MSSQ, while headaches were categorized based on their intensity. Furthermore, academic

achievement was determined based on the students' grade point average (GPA). The obtained data were then grouped according to the categories of each variable and analyzed using Kendall's Tau correlation to determine the relationship between each dimension of stress and headache with academic achievement. The results of the analysis were assessed based on the correlation coefficient and p-value with a significance level of $\alpha = 0.05$.

RESULTS AND DISCUSSION

Table 1. Distribution of respondents' stress and headache levels

Variables	Category	n	%
Stres	Light	0	0
	Currently	31	42.5
	Heavy	36	49.3
	Very heavy	6	8.2
Headache	Normal	9	12.3
	Light	29	39.7
	Currently	30	41.0
	Heavy	5	6.8

The results of the correlation analysis between the dimensions of stress, headaches, and academic achievement are shown in Table 2.

Table 2. Relationship between stress and headaches with academic achievement

Variables	Kendall's Tau (r)	p
ARS	-0.449	0,000
IRS	-0.458	0,000
TLRS	-0.520	0,000
SRS	-0.330	0.001
GARS	-0.419	0,000
Headache	-0.230	0.028

Discussion

Most students experienced severe stress (49.3%), followed by moderate stress (42.5%). The time-limited stress domain showed the strongest negative correlation with academic achievement ($r=-0.520$; $p<0.001$). Academic-related stress also showed a significant negative relationship ($r=-0.449$; $p<0.001$). These results indicate that increased stress goes hand in hand with decreased GPA in the study population.

Headaches were also significantly negatively associated with academic achievement ($r=-0.230$; $p=0.028$). Forty-one percent of respondents experienced moderate headaches, and 39.7% experienced mild headaches. This negative association suggests that increased headache intensity is associated with decreased academic achievement.

Research findings should be interpreted as statistical associations and do not directly prove cause and effect. Other factors such as sleep quality, learning motivation, non-academic activities, and academic characteristics can influence academic achievement and should be considered in future research.

CONCLUSION

This study shows that stress levels and headache intensity have a significant negative relationship with academic achievement of students of the Faculty of Medicine, Muhammadiyah University of North Sumatra, class of 2023. All stress dimensions measured using the Medical Students' Stressor Questionnaire (MSSQ) are negatively related to the

achievement index, with time-limited-related stress showing the strongest correlation ($r = -0.520$; $p < 0.001$), followed by interpersonal-related stress ($r = -0.458$; $p < 0.001$), academic-related stress ($r = -0.449$; $p < 0.001$), general academic-related stress ($r = -0.419$; $p < 0.001$), and social-related stress ($r = -0.330$; $p = 0.001$). Headache intensity also showed a significant negative relationship with academic achievement ($r = -0.230$; $p = 0.028$). The findings showed that higher stress levels and headache intensity went hand in hand with lower grade point averages in the study respondents.

The study's limitations lie in the sample size, which only included 73 students from the Faculty of Medicine, Muhammadiyah University of North Sumatra, class of 2023. Therefore, the results should be interpreted based on the characteristics of that population. Furthermore, this study only demonstrates a statistical relationship and does not prove a causal relationship. Other factors such as sleep quality, learning motivation, non-academic activities, and academic characteristics were not analyzed in this study. Future research is recommended to involve a broader sample and consider these factors to gain a more comprehensive understanding of the relationship between stress, headaches, and academic achievement. Practically, the study's findings can be used as a basis for addressing stress management and headache complaints in students as part of efforts to support their academic performance.

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