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RESEARCH ARTICLES

The Effect of Thesis Writing on Stress Symptoms among Medical Students at UMSU Faculty of Medicine

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Abstract: Migraine is a type of primary headache defined as recurrent headache attacks that vary widely in both intensity and duration. One of the risk factors or causes of migraine is stress. Stress is a response to stressors that may threaten a person's safety and well-being. Stress symptoms are classified into normal and stress-related symptoms. This study aimed to determine the relationship between stress symptoms and the occurrence of migraine among students who are writing their thesis at the Faculty of Medicine, UMSU. Methods: This was an analytical study with a cross-sectional design, in which data were collected at a single point in time. The sample consisted of 81 participants. Data were collected by completing a questionnaire via Google Forms. The sampling technique used was purposive sampling based on predefined inclusion and exclusion criteria, and the data were analysed using the Chi-square test. Results: The study showed a significant association between stress symptoms and the occurrence of migraine among students who were writing their thesis at the Faculty of Medicine, UMSU, as evidenced by a p-value of 0.00, which is less than 0.05. Conclusion: Based on the results, there is a relationship between stress symptoms and the occurrence of migraine among students writing their thesis at the Faculty of Medicine, UMSU.

Keywords: Migraine, stress symptoms, thesis

INTRODUCTION

Headache is one of the most common health problems worldwide and can be experienced by individuals of all ages.[1] Globally, it is estimated that approximately 50% of adults have experienced headache symptoms at least once in the past year. Moreover, 1.7–4% of the world's adult population suffers from headaches on 15 days or more each month.[2]

Migraine is one of the primary headache disorders that is commonly experienced during adolescence.[3] The highest incidence of migraine is found in individuals aged 15 to 24 years. A study conducted by the International Headache Society in 2018 reported that migraine is identified as one of the top 10 global causes of disability.[4] In the United States, approximately 28 million people suffer from migraine, and it is estimated that in a

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room of 100 people, about 13 individuals experience this condition.[3] According to a study conducted by Aulia in 2021, one of the causes of migraine is stress.[4]

Stress is a condition experienced by humans when there is a mismatch between the demands placed upon them and their ability to cope with those demands.[5] Stress is also defined as a nonspecific bodily response to situations that are perceived as threatening or that trigger pressure due to difficult challenges.[6] Such threatening conditions or pressures are referred to as stressors. Stressors can cause physiological and behavioural changes in an individual as a response to these stressors. The response occurs as a result of complex interactions between the nervous, hormonal, and immune systems.[7] A study conducted by Putri at Universitas Muhammadiyah Magelang reported that 47.5% of final-year students experienced stress. This was due to internal factors, such as difficulty in understanding and coping with problems, as well as external factors, including an increased academic workload, receiving lower grades than expected, and working on a thesis.[8]

A thesis is a scientific work prepared by students as one of the requirements for completing their study program.[9] According to a case study conducted by Wondo, Maria, and Stefania in 2020, thesis writing can cause stress among students. The study reported that 77% of students in East Nusa Tenggara Province experienced moderate levels of stress. Several factors that can trigger stress in students writing a thesis include difficulty in finding a research topic, boredom during the writing process, time constraints set by the university, and other academic assignments that must be completed in addition to the thesis, requiring students to manage their time effectively.[10]

This study aims to determine whether there is a relationship between stress symptoms and the occurrence of migraine headaches among students who are currently writing their thesis at the Faculty of Medicine, UMSU.

METHOD

This study is a descriptive-analytic study with a cross-sectional approach, in which data were collected at a single point in time to analyse the relationship between stress symptoms and the occurrence of migraine headaches among students who are writing their thesis at the Faculty of Medicine, UMSU. The sample was selected based on predefined inclusion criteria using primary data.

RESULT

This study was conducted at the Faculty of Medicine, Universitas Muhammadiyah Sumatera Utara, located at Jl. Gedung Arca No. 53, Teladan Barat, Medan Kota District, Medan City, North Sumatra. The number of respondents in this study was 81.

The study used the DASS-42 (Depression Anxiety Stress Scale) questionnaire to assess stress symptoms and the MS-Q (Migraine Screen Questionnaire) for the early detection of migraine. Data collection was carried out using primary data obtained through Google Forms, and the hypothesis was tested using the *Chi-square test.*

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Table 1: Distribution of Respondents' Stress Symptoms Based on Demographic Data

Sex	Stress symptoms		Total
	Normal	Stres	
Male	19(59,4%)	8(16,3%)	**27**
Female	13(40,6%)	41(83,7%)	**54**
Total	**32(100%)**	**49(100%)**	**81**
Age			
21	7(27,9%)	14(26,5%)	**20**
22	10(31,3%)	27(55,1%)	**37**
23	12(37,5%)	8(16,3%)	**20**
24	3(9,4%)	1(2%)	**4**
Total	**26 (100%)**	**49 (100%)**	**81**

In this study, the majority of respondents who experienced stress symptoms were female, totalling 41 individuals (83.7%). Meanwhile, based on age, the respondents who most frequently experienced stress symptoms were 22 years old, with a total of 22 individuals (55.1%).

Table 2: Distribution of Migraine Respondents Based on Demographic Data

Sex	Migraine		Total
	Yes	No	
Male	6(23%)	21(38,1%)	**27**
Female	20(77%)	34(61,9%)	**54**
Total	**26(100%)**	**55(100%)**	**81**
Age			
21	6(23%)	14(25,4%)	**20**
22	12(46,1%)	25(45,4%)	**37**
23	6(23%)	14(25,4%)	**20**
24	2(7,9%)	2(3,8%)	**4**
Total	**26 (100%)**	**55 (100%)**	**81**

Based on the table above, the respondents who most frequently experienced migraine by sex were female, totalling 20 individuals (77%). Furthermore, based on age, the respondents who most frequently experienced migraine were 22 years old, with a total of 12 individuals (46.1%).

Table 3: Results of the Chi-Square Test on the Association Between Stress Symptoms and Migraine

Stress Symptoms	Migraine		Total	P value
	Yes	No		
Normal	3(11,5%)	29(52,8%)	32	0,00
Stress	23(88,5%)	26(47,2%)	49	
Total	**26(100%)**	**55(100%)**	**81**	

Based on the results of the *Chi-square* analysis, a significant p-value of 0.00 was obtained, which is less than 0.05. This indicates that there is a statistically significant association between stress symptoms and the occurrence of migraine among students who are writing their thesis at the Faculty of Medicine, UMSU.

DISCUSSIONS

Based on the study results, male respondents experienced normal stress symptoms more frequently than female respondents. Of the 54 female respondents, 83.7% experienced stress, indicating that females were more likely to experience pathological stress than males. This finding is consistent with a study by Yoga, which reported that male students are less likely to experience stress compared to female students.[11] Several factors may contribute to this difference, with hormonal factors being the primary one. Women who are in their menstrual cycle experience an increase in testosterone levels, which can lead to increased cortisol production and ultimately trigger stress.[12]

In this study, among the 20 respondents aged 21 years, the most common stress symptom category was stress (26.5%). Among the 37 respondents aged 22 years, the majority also experienced stress (55.1%). In contrast,

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among the 20 respondents aged 23 years, the most common category was normal stress (37.5%), and among the 4 respondents aged 24 years, the majority also fell into the normal category (9.4%). These results indicate that age influences stress symptoms. This finding is consistent with the study by Hamzah and Rahmawati, which stated that age is closely related to an individual's experience in dealing with stressors. As a person gets older, their ability to manage stress improves, thereby reducing the potential for stress with increasing age.

The results of this study showed that among the 27 male respondents, 6 individuals (23%) experienced migraine, whereas among the 54 female respondents, 20 individuals (77%) experienced migraine. The findings indicate that women are more susceptible to migraine than men. This is consistent with a study conducted by Maleki et al., who performed brain scans on 44 men and women, half of whom were migraine sufferers (11 men and 11 women), with comparable age, treatment type, and migraine attack frequency, to investigate the causes of these differences. The results showed that female migraine sufferers had thicker regions in: 1) the posterior insula, which is known to be involved in pain processing; and 2) the precuneus, which has recently been associated with migraine and is better known as the brain centre for self-awareness (sense of self).[14] A study conducted by Putra also found that women are more susceptible to stress than men.[15]

Based on age group, the study results showed that among the 20 respondents aged 21 years, the majority did not experience migraine (25.4%). Among the 37 respondents aged 22 years, most also did not experience migraine (45.4%). Furthermore, among the 20 respondents aged 23 years, the majority did not experience migraine (25.4%), and among the 4 respondents aged 24 years, the frequency of migraine and non-migraine cases was the same. At the ages of 21 to 24 years, migraine does not show a significant difference because the increase in migraine prevalence occurs very slowly with increasing age. This is in line with the study by Shahdevi N and Dyah K, which reported that migraine prevalence increases with age, from 1–3% at the age of 3–7 years to 41% at the age of 70 years. As a person gets older, the ageing process occurs, making individuals more susceptible to various diseases, one of which is migraine.[16 17]

The results of the Chi-square analysis showed a significant p-value of 0.00, which is less than 0.05, indicating a statistically significant association between stress symptoms and the occurrence of migraine among students who are writing their thesis at the Faculty of Medicine, UMSU. This finding is consistent with a study conducted by Nurrezki and Irawan (2020) among medical students in Jakarta, which reported a significant relationship between stress and the occurrence of migraine ($p = 0.001 < 0.05$) with an odds ratio (OR) of 2.906. This means that individuals who experience stress are 2.906 times more likely to experience migraine than those who do not experience stress.[18 19]

A study conducted by Kelman, which involved more than 120 consecutive migraine patients, found that 76% of patients reported identifiable triggers, with

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stress being the most frequently reported trigger (80%).[20]

CONCLUSION

Based on the results of the study conducted to describe stress symptoms and migraine among students who are writing their thesis at the Faculty of Medicine, Universitas Muhammadiyah Sumatera Utara, several conclusions can be drawn, as follows:

1. The results of this study show that females experience stress more frequently, with a prevalence of 83.7%.
2. The age group of 22 years is the age group that experiences stress most frequently, accounting for 55.1%.
3. Females are the sex most affected by migraine compared to males, with a proportion of 37%.
4. Respondents who experience stress are at a much higher risk of developing migraine compared to those with normal stress levels, with a proportion of 46.9%.
5. There is a statistically significant association between stress symptoms and the occurrence of migraine among students who are writing their thesis at the Faculty of Medicine, UMSU.

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