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CORRELATION OF SLEEP QUALITY WITH THE CLASSIFICATION OF PRIMARY HEADACHE PAIN IN 2020 AND 2021 STUDENTS OF THE FACULTY OF MEDICINE, DENTISTRY AND HEALTH SCIENCES

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KEYWORDS
Headache, Sleep Quality, Migraine, Tension-type headache

ABSTRACT
Good quality sleep is an important element in maintaining individual health and well-being. Even so, some individuals often experience sleep disorders which can have a negative impact on health. One of the health problems that is often associated with sleep disorders is primary headaches, including migraine headaches and tension headaches. This study aims to determine the relationship between sleep quality and primary headache classification. Data collected in this research used a survey method. This research applies an analytical approach with a cross-sectional design, where data collection is only carried out once. Data were collected through questionnaires evaluating sleep quality using the Pittsburgh Sleep Quality Index and Headache Screening Questionnaire, and data were analyzed using the Chi-square test. The population in this study was 189 students using the Simple Random Findings Technique with 100 samples. This study shows a significant correlation between poor sleep quality and the incidence of migraines and tension headaches, with test results showing a P value of 0.001<0.005. There is a correlation between sleep quality and the incidence of migraines and tension headaches.

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INTRODUCTION

Good quality sleep is a crucial element in maintaining individual health and well-being. Adequate sleep is vital in physical and mental recovery and influences various cognitive and emotional functions (Thahir, 2014)(Espie et al., 2019). However, several individuals often experience sleep disorders, which can hurt overall health. One of the health problems that is often associated with sleep disorders is primary headache, which includes migraines and tension-type headaches (Nirhamzah, 2022).

Headache is a painful sensation that occurs at the top of the head. Primary headaches, such as migraines, tension-type headaches (TTH), and cluster headaches, are not caused by severe problems. Meanwhile, secondary headaches occur due to other health problems in the body that affect the head (Sjahrir, 2014)(Jensen, 2018). Headaches can occur on one or both sides of the head, be localized to a particular area, spread from one part of the head to surrounding areas, or feel like tight pressure. The headache sensation can vary from sharp throbbing to dull. The onset of headaches can be gradual or sudden, and the duration can range from one hour to a day (Katz & Digre, 2016).

Migraine and TTH are the most common primary headache disorders, with migraine affecting 14% to 16% of people worldwide and the prevalence of TTH ranging from 46% to 78% depending on the study population (Muthmainnina & Kurniawan, 2022). The correlation between poor sleep quality and the increase in the incidence and severity of headaches shows that the severity and prevalence of

sleep disorders are correlated with headaches (Dewi et al., 2021). Sleep problems are generally associated with all types of headaches and their severity (Freedom, 2015).

Sleep deprivation has been proposed as a serious risk factor for human health, especially in the context of neurological diseases, which are commonly associated with headaches (Palma et al., 2013). Headaches and sleep disturbances are symptoms that generally indicate comorbidity. Many sleep disorders have been diagnosed more frequently in patients with primary headaches (Almoznino et al., 2017).

In research by Kim J, Cho SJ, Kim WJ, et al., it was found that individuals who experience migraines tend to experience more sleep deprivation compared to those who experience non-migraine headaches. Poor sleep can change our body's systems for dealing with stress and cell activity during sleep. Poor sleep can also affect how we think and think, ultimately making headaches worse (Huda, 2020) (Hutahaean, 2021).

Based on the description above, the question can be asked is whether there is a relationship between sleep quality and primary headache classification in students of the medical faculty at Prima Indonesia University. This research is expected to bring the following benefits: 1. Benefits for researchers. These findings can be used as a reference for researchers to develop scientific work and expand their knowledge regarding the correlation between sleep quality and primary headache classification. 2. Benefits for society. The results of this research can be used as education to increase insight and awareness among students and the public to maintain good quality sleep and prevent primary headaches. 3. Benefits for future researchers. The findings from this study can be used as a reference basis for further research related to the impact of sleep quality on primary headache classification.

This study aimed to determine the relationship between sleep quality and primary headache classification. Then, aim further: a) Find out the demographic characteristics of migraine headaches. b) Understand the demographic characteristics of TTH headaches. c) Knowing the relationship between sleep quality and migraines. d) Knowing the relationship between sleep quality and TTH.

METHOD

This study adopted an analytical approach with a cross-sectional design, where data was collected only at one specific time to evaluate the relationship between sleep quality and primary headache. The research will be carried out from February – July 2023. Research and data collection were conducted at Prima Medan University using survey methods. The population in this study were all students of the medical faculty at Prima Indonesia University in 2020 and 2021. This study used a cross-sectional analytical approach to explore the relationship between sleep quality and primary headaches in medical students at Prima Indonesia University in 2020 and 2021. Conducted from February to July 2023 at Prima University Medan, this study used Simple Random Sampling to select participants who meet specific criteria. Inclusion criteria involved medical students experiencing Migraine and Tension-type headaches who agreed to participate, while exclusion criteria excluded those without headaches or with certain conditions. Data, which included migraine and TTH-related sleep quality information, were collected using internationally recognized questionnaires (PSQI and HSQ). The PSQI and ICHD-3 measuring instruments on HSQ have been tested for validity and reliability. The assessment criteria determine the quality of sleep and the presence of headaches. The Research Ethics Committee oversaw ethical considerations, ensuring participants' consent and consent. Data analysis used SPSS software, using the Chi-Square test with a significance threshold set at $p < 0.05$ for hypothesis testing. Researchers maintain the confidentiality of participant data and are ethically bound not to release information to prevent adverse consequences.

RESULTS AND DISCUSSION

Distribution of Demographic Data

Table 1 Distribution of Demographic Data FK UNPRI students, Class of 2020 and 2021

Respondent Data	N	%
Gender		
Man	22	22
Woman	78	78
Age		
18 years	1	1.0
19 years old	8	8.0
20 years	50	50.0
21 years	36	36.0
22 years	1	1.0
23 years	4	4.0
Class Year		
2020	56	56
Year 2021	44	44
Sleep Quality		
Bad	38	38
Good	62	62
Headache		
Migraine	27	27
Normal	63	63
TTH	10	10

Based on the data above, 22 people (22%) are men and 78 women (78%). Concerning age groups, there is one person (1%) at the age of 18 years, eight people (8%) at the age of 19 years, fifty people (50%) at the age of 20 years, thirty-six people (36%) at the age of aged 21 years, one person (1%) at the age of 22 years, and four people (4%) at the age of 23 years.

Based on the class year, the 2020 class numbered 56 people (56%), and the 2021 class numbered 44 people (44%). Based on poor sleep quality, there were 38 people (38%), and good sleep quality, there were 62 people (62%). Based on migraine headaches, there were 27 people (27%); typically, there were 63 people (63%); TTH, there were 10 people (10%).

Distribution of Sleep Quality Data

Table 2 Distribution of Respondents Sleep Quality Based on Demographic Data

		Sleep Quality				Total
		Bad		Good		
		n	%	N	%	n
Gender	**Man**	7	31.8%	15	68.2%	22
	Woman	31	39.7%	47	60.3%	78
Total		**38**	**38.0%**	**62**	**62.0%**	**100**
Age	18 years	0	0.0%	1	100.0%	1
	19 years old	3	37.5%	5	62.5%	8
	20 years	17	34.0%	33	66.0%	50
	21 years	17	47.2%	19	52.8%	36
	22 years	1	100.0%	0	0.0%	1
	23 years	0	0.0%	4	100.0%	4
Total		**38**	**38.0%**	**62**	**62.0%**	**100**
Year of Generation **Student**	2020	21	37.5%	35	62.5%	56
	Year 2021	17	38.6%	27	61.4%	44
Total		**38**	**38.0%**	**62**	**62.0%**	**100**

From this table, 15 men (68.2%) and 31 women had quality sleep. Meanwhile, 7 men (31.8 %) and 47 women (60.3%) had poor sleep quality.

According to the age group, good sleep quality consisted of 5 people aged 19 years (62.5%), 33 people aged 20 years (66.0%), 19 people aged 20 years (52.8%), and 4 people aged 23 years (100%). Meanwhile, poor sleep quality consisted of 1 person aged 18 years (100%), 3 people aged 19 years (37.5%), 17 people aged 20 years (34.0%), 17 people aged 21 years (47 .2%), and 1 person aged 22 years (100%).

Based on the class year, 21 people (37.5 %) experienced poor sleep quality, while 35 (62.5%) had good sleep quality. Meanwhile, among the 2021 class of respondents, 17 people (38.6 %) experienced poor sleep quality, and 27 people (61.4%) had good sleep quality.

Distribution of Headache Data

Table 3 Distribution of Headache Respondents Based on Demographic Data

		Headache						Total
		Migraine		Normal		TTH		
		N	%	N	%	N	%	n
Gender	**Man**	3	13.6%	16	72.7%	3	13.6%	22
	Woman	24	30.8%	47	60.3%	7	9.0%	78
Total		**27**	**27%**	**63**	**63%**	**10**	**10%**	**100**
Age	18 years	0	0.0%	1	100.0%	0	0.0%	1
	19 years old	1	12.5%	6	75.0%	1	12.5%	8
	20 years	11	22.0%	33	66.0%	6	12.0%	50
	21 years	14	38.9%	19	52.8%	3	8.3%	36
	22 years	1	100.0%	0	0.0%	0	0.0%	1
	23 years	0	0.0%	4	100.0%	0	0.0%	4
Total		**27**	**27%**	**63**	**63%**	**10**	**10%**	**100**
Year of Student Generation	2020	15	26.8%	36	64.3%	5	8.9%	56
	Year 2021	12	27.3%	27	61.4%	5	11.4%	44
Total		**27**	**27%**	**63**	**63%**	**10**	**10%**	**100**

From this table, it can be seen that 3 respondents (13.6%) who experienced migraine headaches were men, while 3 respondents (13.6%) who experienced TTH headaches were also men. Furthermore, there were 24 respondents (30.8%) women who experienced migraine headaches and 7 respondents (9.0%) women who experienced TTH headaches.

From the table data, it can be seen that no respondents aged 18 years experienced migraine headaches (0%) and TTH headaches (0%). Furthermore, in the 19-year age group, there was 1 respondent (12.5%) with migraine headaches and 1 respondent (12.5%) with TTH headaches. In the 20-year age group, 11 respondents (22.0%) experienced migraine headaches, while 6 respondents (12.0%) experienced TTH headaches. The 21-year age group had 14 respondents (38.9%) with migraine headaches and 3 respondents (8.3%) with TTH headaches. For those aged 22 years, 1 respondent (100.0%) experienced migraine headaches, while TTH headaches did not occur (0%). No respondents aged 23 years experienced migraine headaches or TTH headaches (0%).

This table shows that there were 15 respondents (26.8%) from the class of 2020 who suffered from migraines and 5 respondents (8.9%) from the class of 2020 who experienced TTH headaches. Meanwhile, 12 respondents from the class of 2021 suffered from migraines (27.3%), and 5 people from the class of 2021 experienced TTH (11.4%).

Bivariate Analysis

Table 4 Chi-Square Test Results

		Headache						Total
		Migraine		Normal		TTH		P value = .001
		n	%	n	%	N	%	N
Sleep Quality	Bad	25	65.8%	4	10.5%	9	23.7%	38
	Good	2	3.2%	59	95.2%	1	1.6%	62
Total		**27**	**27%**	**63**	**63%**	**10**	**10%**	**100**

From the table data, it can be seen that there were 59 respondents (95.2%) who did not have headaches and had good sleep quality. Meanwhile, 4 people (10.5%) did not experience headaches but had poor sleep quality. 2 respondents suffered from migraines and had good quality sleep, while 25 people who experienced migraines but had poor quality sleep (65.8%). Furthermore, only 1 respondent with TTH and good sleep quality was 1 person (1.6%), while those suffering from TTH with poor sleep quality were 9 people (23.7%).

Findings indicate that women experience poorer sleep quality than men. According to the findings (Fatima et al., 2016), the proportion of women experiencing poor quality sleep compared to men with a prevalence rate of (65.1%) in women and (49.8%) in men. Changes can influence these differences in hormones during menopause and changes in the body, how the body functions, and emotional feelings that can make sleep problems more likely.

The research results indicated that respondents from the Class of 2020 were likelier to experience poor sleep quality (21 respondents (37.5 %) compared to the Class of 2021. This is by research (Gadie et al., 2017), where sleep quality continues to decline throughout life. This occurs because younger adults experience sleep problems with more extended periods to initiate sleep. In contrast, older adults tend to experience sleep inefficiency, characterized by long periods in bed without actual sleep.

The results of this gender-based study show that women more often experience primary headaches, with migraine in 24 people (30.8 %) and TTH in 7 people (9.9%). In line with findings in the United States, where the prevalence of migraine in one year in the general population is 11.7% (17.1% in women and 5.6% in men) and according to the International Headache Society (IHS), the incidence of TTH varies between 30% in men to 78% in women in various studies (Fahmi et al., 2019).

Based on the findings of this research, the class of 2020 experienced a higher incidence of headaches compared to the class of 2021; namely, 15 people (26.8%) experienced migraines, and 5 people (8.1%) experienced TTH. According to the research results (El Tumi et al., 2017), older adults have a lower pain threshold than young people.

Research findings show a correlation between poor sleep quality, migraines, and TTH. A total of 25 people (65.8 %) who experienced migraines and 9 people (27.3%) who experienced TTH reported a lack of quality sleep. This finding aligns with (Kim et al., 2017) and colleagues on 915 respondents, with 784 people experiencing migraine and 131 people experiencing TTH. This research indicates that poor sleep quality independently correlates with higher headache intensity.

The analysis results show a p-value of 0.001 < 0.05. This indicates a correlation between poor sleep quality mig, rain headaches, and TTH. This finding also aligns with research (Pande & Gupte, 2019), an observational cross-sectional study in psychiatry departments and neuropsychiatric clinics in India using simple random sampling involving 60 patients. The results showed a significant relationship between sleep quality and primary headache (P=0.001%).

Migraine is a common headache disorder characterized by sideways, intense, throbbing pain in the head. Migraine attacks are often accompanied by symptoms such as nausea, vomiting, photophobia, and phonophobia (Indonesia, 2016) (Tuda et al., 2020). Meanwhile, TTH is a primary headache characterized by pain lasting 30 minutes to 7 days. Symptoms of TTH include pain on both sides, a feeling of pressure or tightening (not throbbing), mild or moderate severity, not made worse by routine activities, without nausea or vomiting, and may be accompanied by sensitivity to sound and light (Hidayati, 2016) (Muthmainnina & Kurniawan, 2022).

A person's sleep quality can be seen using indicators such as sleep duration, difficulty falling asleep, waking time, sleep efficiency, and sleep disorders. Sleep disorders are often considered a significant element in the lives of individuals who experience headaches and are often identified as one of the causes of headaches (Suwanto et al., 2017) (Zafirah, 2017) (Rosyidah, 2022).

Factors that cause various symptoms and conditions include lack of sleep, sleep disorders, sleeping too much, staying up late, and sleep cycle irregularities due to shifts or work time zones. The meta-analysis results show that sleep is the most common cause of primary headaches after stress.

CONCLUSION

Based on the results and discussion, it can be concluded that the distribution of demographic data for Prima Indonesia University medical faculty students for the Class of 2020 and 2021 shows that the majority of respondents are women (78%) and have various ages. range, with the majority of respondents being in the 20 year age group (50%). Apart from that, the data shows that the distribution of the two classes is relatively even, namely 56% in 2020 and 44% in 2021. Sleep quality varies, 62% reported good sleep quality. Migraine headaches were reported by 27%, while Tension Type Headaches (TTH) were reported by 10% of respondents. The Class of 2020 showed a higher incidence of headaches compared to the Class of 2021, possibly due to differences in age and life stage. Notably, there was a substantial and statistically significant correlation between poor sleep quality and the prevalence of migraine and Tension Type Headache (TTH) in these students ($P = 0.001$), indicating a significant association below the significance threshold of $P < 0.05$. Female respondents in particular showed a higher prevalence of migraine (30.8%) than TTH (9.0%). Most of the 2020 cohort with poor sleep quality primarily demonstrated migraines (26.8%). Overall, this study highlights the complex interactions between sleep quality and primary headaches, emphasizing the need for targeted interventions and increasing awareness among medical students.

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