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DETERMINANT FACTORS OF THE MENSTRUAL CYCLE IN GRADUATE NURSING STUDENTS

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ABSTRACT

According to WHO, more than 75% of women experience menstrual disorders and on average occur at the age of 17-29 years. One of the factors that influence the occurrence of irregular menstrual cycles is poor sleep quality. This study aims to determine the relationship between sleep quality and menstrual cycle in undergraduate nursing students at Harapan Bangsa University. This type of research is an analytic survey with a cross sectional design. The population in this study were 316 undergraduate nursing students and a sample of 174 students with Proportional random sampling method. Instruments used Pittsburgh Sleep Quality Index (PSQI) and menstrual cycle questionnaire. Data analysis used bivariate analysis for frequency distribution and univariate data analysis with chi square to determine the relationship. The results of this study obtained the frequency distribution of sleep quality obtained the highest results (79.3%) in the bad category and the menstrual cycle obtained results (67.8%) in the normal menstrual cycle category, with a p value = 0.151 ($p > 0.05$). The conclusion is that there is no significant relationship between sleep quality and menstrual cycle in Nursing Study Program Undergraduate Students at Harapan Bangsa University.

I. INTRODUCTION

According to the World Health Organization WHO (2017) on average more than 75% of women experience menstrual disorders. In Sweden around (72%), in the United States it shows that the most common people experiencing menstrual disorders are (94.9%). In Korea, reports of menstrual cycle irregularities were (19.4%). In Turkey it also shows that menstrual disorders have a prevalence of (89.5%), followed by menstrual cycle irregularities (31.2%) and in Indonesia (54.89%) it is still quite high above (50%).

According to Riskesdas (2017) data, it is stated that in Indonesia, 68% of women aged 10-59 years experience regular menstruation and 13.7% experience irregular menstrual problems within 1 year. The problem of irregular menstruation at ages 17-29 years and ages 30-34 years is quite high, namely 16.4%. The reasons given by women aged 10-59 years who experience irregular menstruation are stress and thinking a lot, 5.1%. Based on the results of research conducted by Nathalia (2019) on STIT Diniyyah Puteri students in Padang Panjang City, it was found that out of 89 respondents, 60 (67.4%) respondents had irregular menstrual cycles.

If left untreated, irregular menstrual cycles can cause more serious health problems such as infertility or fertility disorders and uterine cancer. Irregular menstrual cycles can also indicate uterine diseases that may be being experienced, such as uterine polyps and polycystic ovary syndrome (Simbolon et al. , 2023).

Irregular menstrual cycles can be affected by sleep quality and estrogen levels. Poor sleep quality can inhibit melatonin production. The hormone melatonin itself can function to inhibit estrogen production. If there is a decrease in melatonin production, it will result in increased estrogen levels in the body, which can affect the menstrual cycle in women (Lovani., 2019). Based on the results of research conducted by Syintia (2022) on FK UISU students, one of the causes of irregular menstrual cycles is poor sleep quality.

Sleep quality is a condition where an individual's sleep can produce fitness and freshness when they wake up (Hastuti et al., 2019). Sleep quality is influenced by several factors, including stress, lifestyle (habits), and physical activity (Potter & Perry, 2014).

Poor sleep quality often occurs in female students, because female students are one of the early adult groups who have a lot of activities, so they are very at risk of experiencing poor sleep quality (Ratnaningtyas & Fitriani, 2019).

Based on research conducted by Sulana (2020), in the initial study it was found that the majority of 128 (83.1%) female students experienced poor sleep quality. Based on research conducted by Sanger & Sepang (2021) it is also stated that female students have poor sleep quality, with a prevalence of 96 (86%).

Based on a pre-survey conducted on December 20 2022 among undergraduate nursing students at Harapan Bangsa University, it was found that the total number of undergraduate nursing students was 316 students. As a result of interviews conducted with 10 female students regarding sleep patterns and menstrual cycles, it was found that 7 students said that their sleeping hours had changed from 22.00 WIB to 00.00 WIB, so that the students were sleepy during the day while 3 others said there was no change in sleep patterns. Then 5 female students experienced changes in their menstrual cycles in the form of shortened and lengthened menstrual cycles, while the others had normal menstrual cycles.

Based on the explanation above, researchers are interested in conducting research to find out "The relationship between sleep quality and the menstrual cycle in undergraduate nursing students at Harapan Bangsa University."

II. METHOD

This type of research uses an analytical survey method with a cross sectional design. This research was conducted at Harapan Bangsa University with a population of 316 female students from the Nursing Study Program at Harapan Bangsa University, namely 2019, 2020, 2021 and 2022. The sample obtained was 174 female students using a proportional random sampling technique. The data collection technique begins with the researcher asking for consent from the research respondents, after that female students who have met the research criteria will be used as research respondents and distributed questionnaires. This research uses primary data and sleep quality research variables using the Pittsburgh Sleep Quality Index (PSQI) questionnaire and menstrual cycle variables using interview sheets. This questionnaire has been tested for validity and reliability by Habibi (2021). Data analysis in this study used the chi square test (Suhron, 2024). This research has received approval from the Health Research Ethics Committee of Harapan Bangsa University No. B. LPPM-UHB/1915/06/202.

III. RESULTS

Table 1.
Frequency Distribution of Sleep Quality in Undergraduate Nursing Study Program Students at Harapan Bangsa University

Sleep Quality	Frequency	Presentation
Good	36	20,7%
Bad	138	79,3%
Total	174	100%

Table 2.
Frequency Distribution of Menstrual Cycles in Undergraduate Nursing Study Program Students at Harapan Bangsa University

Menstrual Cycle	Frequency	Presentation
Normal	118	67,8%
Abnormal	56	32,2%
Total	174	100%

Table 3.
Results of Analysis of the Relationship between Sleep Quality and Menstrual Cycle in Undergraduate Nursing Study Program Students at Harapan University

Sleep Quality	Menstrual Cycle				Total		<i>P value</i>
	Normal		Abnormal		F	%	
Good	f	%	f	%			
	28	16,1	8	4,6	36	20,7	0,151
Bad	90	51,7	48	27,6	138	79,3	
Amount	118	67,8	56	32,2	174	100,0	

Based on table 3, it is stated that the P value is $0.151 > 0.05$ so it can be concluded that there is no relationship between sleep quality and the menstrual cycle in students of the Undergraduate Nursing Study Program at Harapan Bangsa University.

IV. DISCUSSION

Based on table 1, it shows that the sleep quality of undergraduate Nursing Study Program students at Harapan Bangsa University mostly had poor sleep quality, 138 respondents with a percentage of 79.3% and 36 good sleep quality with a percentage of 20.7%.

The results of this research are in accordance with the results of research conducted by Sulana (2020) that of the 154 respondents, the majority experienced poor sleep quality, numbering 128 (83.1%) female students. The results of this study are also supported by Sanger & Sepang (2021) that female students have poor sleep quality, with a prevalence of 96 (86%).

This is possible because the academic load, demands and intensity of learning are quite large for the female students themselves, considering the important role of these female students in the future as a nurse. This can result in irregular schedules and insufficient rest time so that the student's sleep quality can be disrupted (Syintia et al., 2022).

Another factor that might influence poor sleep quality in female students is the large number of activities during the day and at night before bed, one of which is accessing social media, watching videos, or playing games using a smartphone. If female students play on their smartphones for too long at night, this will keep them awake late at night and will reduce the student's sleep hours. If left for a long period of time this will also have a bad impact on health, therefore students are expected to be able to maintain good sleep quality by managing their time better during the day and reducing activities at night before bed such as excessive use of smartphones so they can wake up fresh in the morning (Dungga et al., 2021).

Based on table 2, it shows that the menstrual cycle of undergraduate Nursing Study Program students at Harapan Bangsa University is mostly in the normal category with 118 respondents with a percentage of 67.8% and the menstrual cycle in the abnormal category is 56 respondents with a percentage of 32.2%.

The results of this research are in accordance with the results of research by Sembiring (2019), which reported that as many as 67 respondents (20%) out of 341 respondents had irregular menstrual cycles and as many as 274 respondents (80%) had regular menstrual cycles. The results of this research are also supported by Mau

(2020), data obtained from 72 respondents, 57 respondents (79.2%) with normal menstrual cycles and 15 respondents (20.8%) with abnormal menstrual cycles.

Most of the respondents in this study (118 respondents or 67.8%) had menstrual cycles in the normal category. This shows that the respondents in this study had a menstrual cycle of between 21 and 35 days. This is because there is a proportion of respondents with normal menstrual cycles indicating that there is consistency in menstrual patterns among respondents, the consistency is relatively similar from month to month and the interval between the next menstruation (cycle duration) and the length of the menstrual period tend to remain stable within the normal range (Harzif et al., 2023)

However, 56 (32.2%) respondents in this study had abnormal menstrual cycles. This is influenced by several factors that can influence menstrual cycle disorders. Several possible causes of abnormal menstrual cycles in this study include poor sleep quality, stress, including the length of the menstrual cycle being too short or too long and changes in the length of the menstrual period (Putri et al., 2021).

Based on table 3, it is stated that the P value is $0.151 > 0.05$ so it can be concluded that there is no relationship between sleep quality and the menstrual cycle in students of the Undergraduate Nursing Study Program at Harapan Bangsa University.

The results of this research are in accordance with Panggabean's research (2021), with research samples coming from the classes of 2023, 2019 and 2020. The research results showed that 54 respondents had poor sleep quality (62.1%) and 54 respondents had irregular menstrual cycles. 11 people (12.6%), with a value of $p=0.522$ ($p>0.05$), which shows there is no significant relationship between sleep quality and menstrual cycle regularity. This can happen because previous research was different in the sampling formula, sampling technique and sample size.

Meanwhile, this research is inversely proportional to previous research by Lovani (2019), it was found that 72.3% of respondents experienced disturbed sleep quality and 58.5% of respondents experienced menstrual disorders, with the results of data analysis using the Chi-Square test the value obtained $p=0.005$ ($p<0.05$), which means there is a significant relationship between sleep quality and menstrual disorders.

What may be the cause of the lack of relationship between sleep quality and the menstrual cycle are other factors that influence the menstrual cycle. As previously mentioned, the menstrual cycle can be influenced by stress factors, nutritional status, physical activity, endocrine disorders, reproductive diseases and general health conditions. It is likely that these factors also play a role in maintaining hormonal balance in the body and influencing the menstrual cycle in female students. A theory that supports this assumption is from Kusmiran (2011) in Kurniawati (2019). The study shows that stress factors, nutritional status, physical activity, endocrine disorders, reproductive diseases and health conditions are factors that influence the menstrual cycle.

Another thing that might happen is that their sleep time is short but of good quality, where respondents can sleep for a short time but get maximum, restful sleep, and can reach a deep and completely fresh sleep phase after waking up. One of the factors for someone to have quality sleep in a short time includes comfortable and dark conditions in the room, getting a comfortable bed and pillow and relaxing before sleeping (Zulfah et al., 2021).

This assumption is in accordance with research conducted by Ayryza (2023) which states that there is no sleep duration setting that is suitable for everyone

because some people may need more sleep than others (depending on a person's psychological and physiological state), including how, when, , and where people choose to sleep also depends on their own culture, traditions and customs. Therefore, even though someone has a short sleep time, it does not mean that the quality of sleep they have is always bad.

In research conducted by Moulinda (2022) which examined the relationship between nutritional status, sleep quality and physical activity with the menstrual cycle, it was stated that the more dominant factor influencing a person's menstrual cycle is physical activity. A person with moderate activity on average has a regular menstrual cycle because respondents adjust their activity patterns according to their abilities so that the hormones that regulate the menstrual cycle are not affected and the body is not stressed. Women whose exercise intensity level is moderate usually have normal menstrual cycles. For female students, the physical activities they do vary, including participating in campus or off-campus organizations, going back and forth from campus, and other sports. This can balance the functions of the human body, including regulating the menstrual cycle in the body.

V. CONCLUSION

The majority of sleep quality among students in the Undergraduate Nursing Study Program at Harapan Bangsa University was in the poor category with a percentage of 79.3%, the majority of menstrual cycles were in the regular category with 118 students with a percentage of 67.8% and obtained a p value = 0.151 ($p > 0.05$) which means that there is no significant relationship between sleep quality and menstrual cycle in undergraduate Nursing Study Program students at Harapan Bangsa University.

It is hoped that students who experience a decrease in sleep quality can take immediate treatment and prevention by arranging a schedule during the day so that at night they can rest on time, not delaying time in completing assignments, avoiding things that can trigger stress before going to bed and keep yourself away from your cellphone and start falling asleep to improve sleep quality.

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