ISSN. 2338-7475
E-ISSN. 2620-7869
Hearty
Jurnal Kesehatan Masyarakat
Beriman, Tulus, Sepenuh Hati,Berbesar Hati, Jujur, Sehat dan Kuat
Vol. 13 No. 1, Februari 2025, Hal. 134-140

THE RELATIONSHIP BETWEEN STRESS LEVEL AND MENSTRUAL CYCLE IN STUDENTS AT SMK INSAN MANDIRI AL-KHAIRI, LEBAK REGENCY IN 2023

Hevi Yolanda Putri T. *, Indah Yuliani
Nursing Study Program, Sekolah Tinggi Ilmu Kesehatan Abdi Nusantara
Jl. Swadaya No.7, RT.001/RW.014, Jatibening, Kec. Pd. Gede, Kota Bks, Jawa Barat 17412, Indonesia
Email: hevyolanda15@gmail.com

Abstract

Background: Based on a preliminary study conducted at Vocational Secondary School Insan Mandiri Al-Khairi, Lebak Regency, it was found that 80% (16 out of 20) female students experienced menstrual cycle disorders. Purpose: To determine the relationship between stress levels and menstrual cycles in female students at Vocational Secondary School Insan Mandiri Al-Khairi, Lebak Regency. Methods: Cross sectional through a point time approach where samples were taken using a total sampling of 97 respondents. Data analysis using chi square test. Results: Shows stress levels related to the menstrual cycle (p-value 0.001). Conclusion: There is a relationship between stress levels and female students' menstrual cycles. It is hoped that students can strengthen coping mechanisms in dealing with stressors when carrying out their duties as students at school and their adolescent life outside of school so that the menstrual cycle becomes regular and the growth and development process becomes optimal.

Keywords: Stress Level, Mesntrual Cycle

Introduction

Indonesian youth and youth population increased rapidly, around 1970 and 2000, the number of Indonesians aged 15 to 24 increased from 21 million to 43 million, accounting for 18% to 21% of the total population in Indonesia (Anjarsari & Purnama Sari, 2020).

In terms of population, Indonesia was the fourth largest country in the world in 2017. According to the 2010 census, Indonesia has a population of 151,432,500 women, with unmarried adolescents aged between 10 and 24 years. As of the 2022, the population population of Indonesia is 44.3 million people aged 10 to 19, or almost 18% of the total population (BPS Banten, 2023). It is estimated that there are 1.2 billion teenage girls in the world, accounting for 18 percent of the global population. Puberty is the early stage of adolescence, during which physical changes such as body structure and physiological functions such as sexual maturity occur. Physical changes during puberty are important events in the reproductive system that occur rapidly, drastically, and irregularly. (B. Sugiharto, 2018).

Students as academic individuals are also inseparable from stress in daily activities. Academic activities, especially external tasks and demands of self-esteem, can stress students. External expectations that include duty, study burden, pressure from parents to succeed, and social adaptability at school are some examples of external demands. Increasingly complex subjects are increasingly challenging demanding student skills, and lack of free time or recreation is also one of their demands. (B. Willibrordus & M. Nainggolan, 2021).

Menstrual periods can be disrupted or irregular due to stress. Stress, as a stimulation of the nervous system, is communicated through nerve transmission to the central nervous systems, mainly the limbic system, and then through the autonomous nerve to the endocrine hormonal glands, which emit neurohormonal secretions that are then passed on to the pituitary gland. These hormones are controlled

Submitted: January-2024 Received: August-2024 Available Online: February-2025

by the Releasing Hormone (RH), which is channelled from the hypothalamus to the pituitary gland and releases gonadotropins in the form of the Follicle Stimulating hormone (FSH) and the Luteinizing hormone, second production (LH) through the prostate system. (P. S. A. Putri & S. Aisa, 2018).

According to the report (WHO, 2020) the prevalence of menstrual cycle disorders in women is around 45%. Data (Riskesdas, 2018), explains that in Indonesia, women aged 10-59 years have irregular menstrual problems of 13.7% in 1 year. (Khoirul et al., 2020). The proportion of teenage girls aged 10-19 years in the province of Banten of 71% have already had menstruation and who have not had a period/menstruation of 29%, while in the district of Lebak in the teenage daughters aged 10-19 years of 67.38% have had a menstruation with the average age of first menstruation at the age of 12 years (Riskesdas, 2018).

Based on the results of a preliminary study conducted at SMK Insan Mandiri Al-Khairi Lebak district on October 27, 2023, the researchers obtained data that showed the number of girls who have menstrual disorders is 16 out of 20 girls. Based on the above descriptions, the researchers are interested in conducting a study entitled "The Relationship of Stress with Menstrual Cycles in Adolescents in SMK Insan Mandiri Al-Khairi district of Lebak 2023".

Methods

1.1 Research Design

The type of research used in this study is analytical research with a cross sectional study approach, which is a research to study the dynamics of correlation between risk factors and effects through an approach, by approaching, observing and collecting data at once at a time (point time approach), so that the object of research is only observed once.

1.2 Setting and Samples

This study was carried out in the Lebak Regency's SMK Mulia Insan Mandiri Al-Khairi in November 2023. Sampling must be done in a way that produces a sample that is both accurately representative of the population and able to describe its current status. The sample must also meet inclusion and exclusion criteria. Students who meet the following requirements will be included in the study sample: they must be willing to answer, engaged learners at SMK Insan Mandiri Al-Khairi, and menstruating. The exclusion criteria for this study sample are as follows: unwilling to participate in the study, be enrolled as an active student at SMK Insan Mandiri Al-Khairi, and fail to fill out the researcher's provided questionnaire in its whole.

Sampling in this study used total sampling techniques, which was 97 respondents. due to the small population of less than 100. (Sugiyono, 2018) defines census or total sampling as a sampling technique in which every member of the population is included in the sample. A census should be used for research on populations under 100, ensuring that a representative sample of the population is used for all subjects under study or as informant responders.

1.3 Measurement and Data Collection

Data collection techniques in this study by filling out questionnaires. One of the measuring instruments in this study is the Perceived Stress Scale (PSS-10), which consists of a series of statements or questions that have been created and relate to the research variables this study is addressing. The original Perceived Stress Scale (PSS-10) has a Cronbach Alpha coefficient score of 0.84, indicating that it is a highly valid and reliable standardized questionnaire. According to (I. E. Indira, 2016), the PSS-10 is a questionnaire that may be used to identify the disorder or source of stress as well as its intensity.

But since the original PSS-10 questionnaire was developed in a different nation and will be used in Indonesia, a country with a very different language and culture, the researchers have decided to

modify it specifically for the study's goal of figuring out how stress levels and menstrual cycles are related. Researchers employed a customized version of the PSS-10 questionnaire, which was taken from earlier research, specifically by (Kartini, 2020), and they modified the menstrual cycle questionnaire from (Ulum, 2016).

1.4 Data Analysis

The following stages of analysis were used to test the hypothesis and analyze the data: univariate analysis, which was used to identify and evaluate the characteristics of the research subject; bivariate analysis, which tested the chi square statistical test with a meaning limit said to be meaningful when it has $p \leq 0.05$, was used to ascertain the influence of two variables, independent variables and dependent variables. Alternatively put, if p value ≤ 0,05 is the Chi Square value.

1.5 Ethical Considerations

This research is conducted by providing an explanation to prospective respondents about the purpose and objectives of the research, if prospective respondents agree to participate in the research, prospective respondents are required to sign informed consent. This research has obtained a research permit from the head of the Institute of Health Science Abdi Nusantara Nursing Study Program which was shown to SMK Insan Mandiri Al-Khairi Warunggunung, Lebak Regency. The research used 43 references from 2006 to 2021.

Results

1.1. *Characteristics of Respondents*

Table 1. Frequency Distribution of Respondents' Characteristics

Age	**Amount**	**Percentage**
15 Years	14	14,4%
16 Years	49	50,5%
17 Years	32	33,0%
18 Years	1	1,0%
19 Years	1	1,0%
Total	97	100%
Class	**Amount**	**Percentage**
Class X	20	20,6%
Class XI	42	43,3%
Class XII	35	36,1%
Total	97	100%
Department	**Amount**	**Percentage**
Logistics Engineering	58	59,8%
Business and Management	39	40,2%
Total	97	100%

Based on table 1 regarding the age characteristics of respondents, there were 14 respondent aged 15 years (14,4%), 49 respondents aged 16 years (50,5%), 32 respondents aged 17 years (33,0%), 1 respondents aged 18 years (1,0%), and 1 respondents aged 19 years (1,0%).

Regarding the characteristics of the respondent class, there were 20 respondents in class X (20,6%), 42 respondents in class XI (43,3%), and 35 respondents in class XII (36,1%).

Regarding the characteristics of respondents' department, there were 58 respondents in Logistics Engineering department (59,8%), and 39 respondents in Business and Management department (40,2%).

1.2. *Stress Level*

Table 2. Frequency Distribution of Stress Level

Stress Level	Amount	Percentage
Mild	14	14,4%
Moderate	71	73,2%
Severe	12	12,4%
Total	97	100%

Based on table 2 on stress level, 14 respondents experienced mild stress (14,4%), 71 respondents experienced moderate stress (73,2%), and 12 respondents experienced severe stress (12,4%).

1.3. *Menstrual Cycle*

Table 3. Frequency Distribution of Menstrual Cycle

Menstrual Cycle	Amount	Percentage
Normal	56	58%
Abnormal	41	42%
Total	97	100%

Based on table 3 about respondents menstrual cycles, 56 respondents experienced normal menstrual cycles (58%), and 41 respondents experienced abnormal menstrual cycles (42%).

1.4. *Relationship of Stress Levels to Menstrual Cycles*

Table 4. Relationship of Stress Levels to Menstrual Cycles

		Stress Level			Total	*p value*
		Mild	Moderate	Severe		
Menstrual Cycle	Normal	9 (16,1%)	46 (82,1%)	1 (1,8%)	56 (100%)	0,001
	Abnormal	5 (12,2%)	25 (61,0%)	11 (26,8%)	41 (100%)	
Total		14 (14,4%)	71 (73,2%)	12 (12,4%)	97 (100%)	

Based on table 4 about the relationship of stress levels to menstrual cycles, 9 respondents had a normal menstrual cycle and mild stress (16.1%), 46 respondents experienced a normal period and moderate stress (82.1%), and 1 respondent had a regular period and severe stress (1,8%). As many as 5 respondents had abnormal menstrual cycles and mild stress (12.2%), as many as 25 respondents suffered irregular periods and moderate stress (61.0%), and as much as 11 respondents were suffering from irregular and severe stress (26.8%).

Discussion

On the results of the processing of research data on the Chi Square test results obtained results with a value of Asymp. Sig. (2-sided) 0,001 ≤ 0,05 so this result proves that the stress level is related to the menstrual cycle in the female student in SMK Insan Mandiri Al-Khairi district of Lebak in 2023.

The results of this study are in line with research conducted by (P. S. A. Putri & S. Aisa, 2018), menstrual periods can be disrupted or irregular due to stress. Stress is a neural stimulant that travels via the autonomic nerves to the hormonal (endocrine) glands, which release neurohormonal secretions that are then transmitted to the pituitary, and the central nervous system, particularly the limbic system. RH (Releasing Hormone) regulates these hormones by secreting gonadotropins, including FSH (Follicle Stimulating Hormone) and LH (Luteinizing Hormone), which are then produced again by the prontal system. This hormone is routed from the hypothalamus to the pituitary. The mechanism of estrogen feedback to the hypothalamus affects (RH).

Several factors can impact the origin of alterations or disorders linked to irregular menstrual cycle difficulties. One of the known etiologies (causes) of menstrual cycle problems is stress. The release of the hormone cortisol is a response to stress, and one can gauge one's level of stress by measuring their cortisol levels. The brain's hypothalamus and pituitary gland control the hormone cortisol. When hypothalamic activity begins, pituitary secretes free hysteric hormone (FSH), and ovarian stimulation processes create estrogen (Carolin, 2011).

Gonadotropins and steroid hormones are suppressed by stress, which might interfere with the menstrual cycle. Not only in humans but in many other primate species as well, mental and social stress can be so intense as to cause the release of reproductive hormones. It may not be evident that these issues exist, but they include little restriction of reproductive hormone secretion, which is the basis for decreased fertility and even reproductive behavior (R. R. K. Hutajulu, 2018).

The type of stress, the duration and severity of stress, one's stress thinking, one's coordinating position, the degree of violent behavior shown towards one's person, as well as artificial hobbies are all factors that contribute to the diversity of reproductive axis reactions. However, additional research is required to comprehend the mechanisms underpinning both the variations in an individual's vulnerability to stress problems brought on by reproductive function and the deterioration in the reproductive axis caused by psychological and social stresses. Problems with reproductive function may arise from prolonged stress. Increased secretion (CRH) results in a reduction in the gonadotropin-releasing hormone's route to the pituitary (R. R. K. Hutajulu, 2018).

The researchers claim that a variety of factors can contribute to the stress experienced by respondents, such as background stressors like accumulating tasks or even parents' excessive demands and expectations, like expecting their child to grow up with good values, along with the occurrence of personal stressors brought on by changes in adolescent roles, such as issues with friends' social relationships for instance, feeling ashamed to socialize because of appearance issues, there are also gangs or groups in the class that prevent students from interacting with one another. And there are even financial issues that respondents have to deal with, like parents who are forced to lose their jobs or see a decline in income due to a pandemic that lowers the student's allowance.

The majority of respondents felt or experienced moderate stress, data from the PSS-10 questionnaire that had been filled by all respondents with the question “How often are you angry because of a problem you can’t control?” was the highest score question. The results showed that when the students were stressed by the problems they were experiencing, it resulted in overwhelming emotions and a tendency to get angry. It is influenced by several factors such as minimal problem-solving ability, ineffective coping mechanisms, and fluctuating psychological conditions. It is the result of poor stress management that triggers the release of hormones that make the menstrual cycle irregular. The stress experienced by respondents can be overcome or minimized by providing time for adequate rest, joking and telling stories to friends or family, doing pleasant things, doing physical activity such as exercising, so that the stress felt by the respondent can be reduced so that their menstruation becomes regular.

Implication and Limitations

In conducting this research, the authors encountered several obstacles, including the limitations of controlling activities that could affect the level of stress.

Conclusion

Based on the results of research on the relationship of stress levels with the menstrual cycle in the pupils at SMK Insan Mandiri Al-Khairi in Lebak district in 2023 then it can be drawn the conclusion: there is a relationship between the stress level and the menstrual cycle. It is known that respondent's level of stress that as many as 14 respondents experience mild stress (14.4%), as many as 71 respondents experience moderate stress (73.2%), and as many as 12 respondents experience severe stress (12.4%). It is known that respondent's menstrual cycle that as many as 56 respondents experience normal menstrual cycles (58%), and 41 respondents experience abnormal menstrual cycles (42%).

Acknowledgments

STIKes Abdi Nusantara Jakarta, SMK Insan Mandiri Al-Khairi, and all the respondents to this research.

Author Contribution

Author 1 and Author 2 contributed to the design and implementation of the research, to the analysis of the results and to the writing of the manuscript.

Conflict of interest

The results of this research can be used as an additional literature for the development of nursing science, and to meet the requirements of obtaining Bachelor of Nursing Degree for Author 1.

References

[1] Carolin. (2011). *Overview of Stress Levels In Undergraduate Medical Education Students.* Sumatra: University of North Sumatra.

[2] Hariyati, N. (2019). *Research Methodology Course Module*. Surabaya: Surabaya Academy of Pharmacy.
[3] Hutajulu, R. R. K. (2018). *The Relationship Between the Level of Depression, Anxiety and Stress Facing the National Exam and SBMPTN with the Menstrual Cycle in Class XII Students at SMA Negeri 1 Medan*.
[4] Indira, I. E. (2016). *Stress Questionnaire*: Stress Investigation From Dermatologist Perspective.
[5] Isnania, R. S. (2020). *The Degree of Dysmenorrhea With The Level Of Stress In Adolescent Girls.* Jombang: STIKES Insan Cendekia Medika Jombang.
[6] Jannah, N. (2020). *The Effect of Routine Reading of the Qur'an on the Regularity of Menstrual Cycles at SMA Ma'had TMI Al-Amin Prenduan Sumenep Regency*. Malang: University of Muhammadiyah Malang.
[7] Kartini. (2020). *The Effect of Stress Level on the Menstrual Cycle in Final Year Students at the Faculty of Nursing, University of North Sumatra*. Sumatra: University of North Sumatra.
[8] Khusna, D. D. (2019). *The Relationship between Nutritional Status and Body Fat Percent with the Menstrual Pattern of Santri Putri at Al Mukmin Sukoharjo Islamic Boarding School*. Surakarta: Institute of Science and Health Technology PKU Muhammadiyah Surakarta.
[9] Ministry of Health of the Republic of Indonesia. (2018). *Basic Health Research*. Jakarta.
[10] Notoatmodjo. (2010). *Health Research Methodology*. Jakarta: Gramedia Main Library.
[11] Notoatmodjo. (2014). *Health Promotion and Health Behavior*. Jakarta: Rineka Cipta.
[12] Nursalam. (2012). *The Concept of Applying Nursing Research Methodology Thesis Guidelines, Thesis And Nursing Research Instruments*. Jakarta: Salemba Medika.
[13] Putri, P. S. A. &; Aisa, S. (2018). *The Relationship Between Stress Levels And Menstrual Cycles In Female Students of SMAN 5 Kendari in 2018*. Kendari: Poltekkes Kemenkes Kendari.
[14] Rumahorbo, D. B. (2021). *The Relationship of Stress to Dysmenorrhea in Female Students of the Faculty of Medicine, HKBP Nommensen University Medan*. Medan: HKBP Nommensen University Medan.
[15] Sasabila, N. P. (2021). *A Literature Study of The Relationship of Physical Activity With The Menstrual Cycle*. Malang: University of Muhammadiyah Malang.
[16] Sitepu, B. L. B. (2019). *The Relationship Between Body Mass Index and Menstrual Cycle in Adolescent Girls at SMA Negeri 1 Tigapanah Kab. Karo in 2018*.
[17] Sugiharto, B. (2018). *The Relationship Between Stress Level and the Menstrual Cycle of Class X Young Women at SMA Sandikta Kota Bekasi*. Journal of Community Health.
[18] Sugiyono. (2019). *Quantitative, Qualitative and R&D Research Methods*. Bandung: Alfabeta.
[19] Ulum, N. (2016). *The Relationship Between Stress Levels And Menstrual Cycles in Physiotherapy Students of Hasanuddin University*. Makassar: Hasanuddin University Makassar.
[20] Willibrordus, B. &; Nainggolan, M. (2021). *The Relationship Between Stress Factors and Menstrual Cycles in Students of the Faculty of Medicine, University of North Sumatra*. Sumatra: University of North Sumatra.