



THE EFFECT OF ADOLESCENTS'S PSYCHOLOGICAL STRESS ON THE MENSTRUAL CYCLE IN STUDENTS AT SMK MULIA HATI INSANI WARUNGGUNUNG, LEBAK REGENCY IN 2023

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Abstract

Background: Based on a preliminary study conducted at SMK Mulia Hati Insani Warunggunung, Lebak Regency, it was found that 80% (16 out of 20) female students experienced menstrual cycle disorders. **Purpose:** To determine the effect of adolescents's psychological stress on the menstrual cycle in female students at SMK Mulia Hati Insani Warunggunung, Lebak Regency. **Methods:** Cross sectional through a point time approach where samples are taken using 20% of the total population, which is as many as 70 respondents. Data analysis using chi square test. **Results:** Shows psychological stress affects the menstrual cycle (p-value 0.000). **Conclusion:** There is an affect of adolescents's psychological stress on the menstrual cycle of female students. 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 school so that the growth and development process becomes optimal and the menstrual cycle becomes regular.

Keywords: Adolescent's Psychology, Mesntrual Cycle, Stress

Introduction

Menstrual disorders themselves are quite a problem faced by women, especially in adolescence, including disorders of blood counts and menstrual duration, menstrual cycle abnormalities, bleeding outside menstruation, and pathological conditions related to menstruation. The impact that can be caused by menstrual cycle irregularities is the possibility of infertility, and can make it difficult for women to find fertile periods. The cause of changes or disorders associated with irregular menstrual cycle problems can be influenced by several factors. Stress is known as one of the causative factors (etiology) of menstrual cycle disorders. Stress will trigger the release of the hormone cortisol where the hormone cortisol is used as a benchmark to see a person's stress level. The hormone cortisol is regulated by the hypothalamus of the brain and pituitary gland, with the start of hypothalamic activity, pituitary secreting (FSH) and ovarian stimulus processes will produce estrogen.

Basic Health Research Data (Riskesdas, 2018), explains that in Indonesia, women aged 10-59 years experience irregular menstrual problems as much as 13.7% in 1 year. Irregular menstrual cycle disorders in Indonesian women aged 17-29 years and 30-34 years are quite a lot, amounting to 16.4%. The reasons stated by women who have irregular menstrual cycles are due to psychological disorders and many thoughts by 5.1% (Khoirul et al., 2020). The proportion of adolescent girls aged 10-19 years in Banten Province as much as 71% have received menstruation and those who have not received menstruation / menstruation as much as 29%, while in Lebak Regency in adolescent girls aged 10-19 years as many as 67.38% have received 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 Mulia Hati on November 9, 2023, researchers obtained data showing that the number of female students who experience menstrual disorders is as many as 16 out of 20 female students (80%) experiencing menstrual cycle disorders. As many as 14 out of 16 female students (87.5%) who experienced menstrual cycle

disorders claimed to be experiencing stress. Based on the descriptions above, researchers are interested in conducting a study entitled "The Effect of Adolescent Psychological Stress on the Menstrual Cycle in Students at SMK Mulia Hati Insani Warunggunung, Lebak Regency in 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 research was carried out at SMK Mulia Hati Insani Warunggunung, Lebak Regency in November 2023. Sampling must be carried out in such a way that a sample is obtained that can truly represent (representative) and can describe the actual state of the population, then in determining the sample must have inclusion and exclusion criteria. The following are the criteria for inclusion in this study sample: willing to be a respondent, an active student at SMK Mulia Hati Insani, and students who have menstruated. The following are the exclusion criteria for this study sample: not willing to be a participant in the study, not registered as an active student at SMK Mulia Hati Insani, and not completely fill the instrument that has been given by the researcher.

The sample of this study is 20% of the population so the number of samples is $20\% \times 349$ female students = 70 female students. The reason researchers use 20% in determining the size of the number of samples is because the number of 349 students is impossible to take all into a sample, and for all classes to be represented as a sample as for the sampling technique, using proportionate stratified random sampling technique.

1.3 Measurement and Data Collection

Data collection techniques in this study by filling out questionnaires. Researchers using the Perceived Stress Scale (PSS-10) questionnaire is one of the measuring tools in this study, and contains a collection of questions or statements that have been developed and refer to the research variables answered by this study. The Perceived Stress Scale (PSS-10) is a standardized questionnaire with a high level of validity and reliability, with a Cronbach Alpha coefficient value of 0.84 for the original PSS scale. PSS-10 is a questionnaire that can be used to determine the disorder or cause of stress, as well as to determine the severity (I. E. Indira, 2016).

However, as researchers consider that the original PSS-10 questionnaire originated in another country and will be used in Indonesia, where the language and culture are very different, the questionnaire will be tailored to the purpose of the study to determine the relationship between stress levels and menstrual cycles. Researchers used a special PSS-10 questionnaire that had been adapted from previous studies, namely by (Kartini, 2020), and for the menstrual cycle questionnaire, researchers adapted the questionnaire from (Ulum, 2016).

1.4 Data Analysis

The data were analyzed and interpreted by testing the hypothesis using the IBM SPSS Statistics 23 computer program according to the following stages of analysis: univariate analysis used to know and analyze the characteristics of the research subject, and bivariate analysis used to determine the influence of two variables, independent variables and dependent variables by testing the chi square statistical test with a meaning limit said to be meaningful when it has $p < 0.05$. Or in other words if the Chi Square value is $P < 0.05$.

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 Mulia Hati Insani Warunggunung, Lebak Regency. The research used 46 references from 2002 to 2022.

Results

3.1. Characteristics of Respondents

Table 1. Frequency Distribution of Respondents' Characteristics

Age	Amount	Percentage
14 Years	1	1,4
15 Years	16	22,9
16 Years	25	35,7
17 Years	24	34,3
18 Years	4	5,7
Total	70	100
Class	Amount	Percentage
Class X	21	30,0
Class XI	27	38,6
Class XII	22	31,4
Total	70	100
Department	Amount	Percentage
Computer and Network Engineering	26	37,1
Multimedia	27	38,6
Software Engineering	17	24,3
Total	70	100

Based on table 1 regarding the age characteristics of respondents, there were 1 respondent aged 14 years (1,4%), 16 respondents aged 15 years (22,9%), 25 respondents aged 16 years (35,7%), 24 respondents aged 17 years (34,3%), and as many as 4 respondents aged 18 years (5,7%).

Regarding the characteristics of the respondent class, there were 21 respondents in class X (30,0%), 27 respondents in class XI (38,6%), and 22 respondents in class XII (31,4%).

Regarding the characteristics of respondents' department, there were 26 respondents in Computer and Network Engineering department (37.1%), 27 respondents in Multimedia department (38.6%), and 17 respondents in Software Engineering department (24.3%).

3.2. Psychological Stress

Table 2. Frequency Distribution of Pyschological Stress

Stress Level	Amount	Percentage
Mild	17	24,3
Moderate	38	54,3
Severe	15	21,4
Total	70	100

Based on table 2 on psychological stress, 17 respondents experienced mild stress (24,3%), 38 respondents experienced moderate stress (54,3%), and 15 respondents experienced severe stress (21,4%).

3.3. Menstrual Cycle

Table 3. Frequency Distribution of Menstrual Cycle

Menstrual Cycle	Amount	Percentage
Normal	27	38,6
Abnormal	43	61,4
Total	70	100

Based on table 3 about respondents menstrual cycles, 27 respondents experienced normal menstrual cycles (38,6%), and 43 respondents experienced abnormal menstrual cycles (61,4%).

3.4. The Influence of Psychological Stress on The Menstrual Cycle

Table 4. The Influence of Psychological Stress on The Menstrual Cycle

		Siklus Menstruasi		Total	p value
		Abnormal	Normal		
Psychological Stress	Mild	2 (4,7)	15 (55,6)	17 (24,3)	0,000
	Moderate	33 (76,7)	5 (18,5)	38 (54,3)	
	Severe	8 (18,6)	7 (25,9)	15 (21,4)	
Total		43 (100)	27 (100)	70 (100)	

Based on table 4 about the effect of psychological stress on the menstrual cycle, 2 respondents experienced abnormal menstrual cycles and mild stress (4,7%), 33 respondents experienced abnormal menstrual cycles and moderate stress (38,6%), and 8 respondents experienced abnormal menstrual cycles and severe stress (18,6%). While 15 respondents experienced normal menstrual cycles and mild stress (55,6%), 5 respondents experienced normal menstrual cycles and moderate stress (18,5%), and 7 respondents experienced normal menstrual cycles and severe stress (25,9%).

Discussion

In the results of processing research data on Chi Square test results, results were obtained with Asymp values. Sig. (2-sided) $0.000 < 0.05$ so that these results prove that psychological stress affects the menstrual cycle of female students at SMK Mulia Hati Insani Warunggunung, Lebak Regency 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, as a stimulus of the nervous system, is communicated through nerve transmission to the central nervous system, especially the limbic system, and then through autonomic nerves to hormonal (endocrine) glands, which secrete neurohormonal secretions that are then passed on to the pituitary. These hormones are controlled by RH (Releasing Hormone), which is channeled from the hypothalamus to the pituitary and secretes gonadotropins in the form of (FSH) Follicle Stimulating Hormone and (LH) Luteinizing Hormone, second production through the prontal system. (RH) is influenced by the mechanism of estrogen feedback to the hypothalamus.

The cause of changes or disorders associated with irregular menstrual cycle problems can be influenced by several factors. Stress is known as one of the causative factors (etiology) of menstrual cycle disorders. Stress will trigger the release of the hormone cortisol where the hormone cortisol is used as a benchmark to see a person's stress level. The hormone cortisol is regulated by the hypothalamus of the brain and pituitary gland, with the start of hypothalamic activity, pituitary secrete (FSH) and ovarian stimulus processes will produce estrogen (Carolin, 2011).

Stress suppresses gonadotropins and steroid hormones, which can disrupt the menstrual cycle. In many primate species, not just humans, mental and social stress is so severe that it can trigger the

release of reproductive hormones. These problems, which include little suppression of secretion from reproductive hormones that underpin lower fertility and even reproductive behavior, may not be obvious (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. But more work is needed to understand the mechanisms underlying the decline in the reproductive axis by psychological and social stressors, in addition to the mechanisms underlying differences in susceptibility to stress problems triggered by reproductive function in individuals. Too long stress can trigger reproductive function problems. The course of gonadotropin releasing hormone to the pituitary is reduced due to increased secretion (CRH) (R. R. K. Hutajulu, 2018).

According to researchers, stress that occurs and is felt by respondents can be caused by several factors, such as respondents who experience background stressors such as piling up tasks or even excessive parental demands and expectations such as demanding and hoping that their children will have good grades, as well as the occurrence of personal stressors caused by changes in adolescent roles such as social relationship problems with friends, for example, there is a sense of embarrassment to associate due to appearance problems, there are several gangs or groups in the class that create a lack of socialization between female students in the class, as well as bullying or even financial problems experienced by respondents, such as parents who have to lose their jobs or decreased income due to the pandemic which makes students' pocket money reduced.

The majority of respondents felt or experienced moderate stress, as a result of this stress that triggers menstrual irregularities. Stress experienced by respondents can be overcome or minimized by providing time to rest enough, joking and telling friends or family, doing fun things, doing physical activities such as exercising, so that the stress felt by respondents can be reduced so that 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 psychological stress.

Conclusion

Based on the results of research on the effect of adolescent psychological stress on the menstrual cycle in female students at SMK Mulia Hati Insani, conclusions can be drawn: There is an influence of adolescent psychological stress on the menstrual cycle in female students with p value = 0.000. The level of psychological stress in female students as many as of 17 female students (24.3%) experienced mild stress, 38 female students (54.3%) experienced moderate stress, and 15 female students (21.4%) experienced severe stress. The menstrual cycle in female students as many as 43 female students (61.4%) experienced abnormal menstrual cycles, and 27 female students (38.6%) experienced normal menstrual cycles.

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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 2.

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