

The Relationship between Psychological Stress and the Menstrual Cycle in Eighth Grade Female Adolescents at SMP Negeri 3 Panyabungan Regency Mandailing Natal

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ABSTRACT

The menstrual cycle is the time from the first day of menstruation until the next menstrual cycle, while the length of the menstrual cycle is the distance from the start date of the previous menstruation to the start of the next menstrual cycle. A woman's menstrual cycle is usually 21-35 days, only 10-15% of women have a cycle of 28 days, 3-5 days and some have 7-8 days. Stress is an individual's response to changes in a threatening situation. This can be seen as a personal reaction to external events or demands such as doing tasks or internal states of mind such as worry. Stress tends to increase when unable to cope with unpleasant situations faced by a person. The population in this study was 47 people. The sample in this study used a Total Sampling sampling technique, namely a sampling technique where the sample size is the same as the population. The type of research used in this study is descriptive analytic with the Crosssectional method. The results of this study indicate that the p value = 0.050 ($p = 0.05$), so it is concluded that H_0 is rejected and H_a is accepted. It is recommended for female students to continue to understand how to manage stress and reproductive health and to be able to carry out activities that are expected to reduce stress levels and seek information related to stress management and reproductive health.

Keywords: Menstrual Cycle, Psychological Stress, Adolescent Girls.

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1. INTRODUCTION

Menstruation, or periods, is a physiological change in a woman's body that occurs periodically and is influenced by the reproductive hormones. Menstruation is the process of vaginal bleeding due to shedding of the uterine lining. A normal period generally lasts around 3-7 days, with a total menstrual blood loss of under 80 ml. Menstruation is caused by a sudden decrease in estrogen and progesterone levels, particularly at the end of the menstrual cycle. This causes the necrotic endometrial lining to shed, accompanied by normal bleeding.¹

According to the *World Health Organization* (WHO), the menstrual cycle is the time from the first day of menstruation until the next menstrual cycle, whereas the length of the menstrual cycle is the distance from the start date of the previous menstruation to the start of the next menstrual cycle. A woman's menstrual cycle is usually 21-35 days, only 10-15% of women have a 28-day cycle, 3-5 days and some 7-8 days². This abnormal menstrual cycle can disrupt emotional mental health (depression and anxiety) in Indonesia, affecting 9.8% of women aged 15 years and over. In Indonesia, 13.7 found of women aged 10-59 years experienced irregular menstruation. However, according to data from the 2020 Basic Health Research, as many as 11.7% of Indonesian adolescents aged 15-19 years experienced irregular menstruation³.

an internal state of mind, such as worry. Stress tends to increase when an individual is unable to cope with unpleasant situations

The results of an initial survey conducted by researchers at SMP Negeri 3 Panyabungan on 10 eighth grade female students obtained information that 7 of them experienced an abnormal menstrual cycle with symptoms of psychological stress.

Based on the background of the problem, the researcher is interested in knowing the relationship between psychological stress and the menstrual cycle in female adolescents at SMP Negeri 3 Panyabungan, Mandailing Natal Regency in 2025.

2. METHOD

This descriptive analytical study used a *cross-sectional method* to determine the relationship between psychological stress and the menstrual cycle in adolescent girls at SMP Negeri 3 Panyabungan, Mandailing Natal Regency. The sample in this study used a total sampling technique, a sampling technique where the sample size was equal to the population. Thus, the total sample size was 47.

Data analysis was conducted *univariately* and *bivariately* by looking at the percentage of collected data and presented in the form of a frequency distribution table. The results of the study are discussed using existing library theory and data analysis using frequency distribution. *Univariate analysis* was used to describe research variables to obtain an overview or characteristics before conducting bivariate analysis. *bivariate analysis is an analysis that involves an independent variable with a dependent variable. The data obtained from both variables are categorical data, so the statistical test uses the chi-square test.*

3. RESULTS AND DISCUSSION

The results of this study are about the relationship between psychological stress and the menstrual cycle in female adolescents in grade VIII at SMP Negeri 3 Panyabungan, Mandailing Natal Regency, Indonesia.

Univariate Analysis

Respondent Characteristics

Table 1
Frequency distribution of respondents at SMP Negeri 3 Panyabungan, Mandailing Regency
Christmas

Characteristics	F	%
Age (Years)		
>14	13	27.6
14	30	63.9
<14	4	8.5
Total	100	100

table 1 shows that of the 47 respondents, the highest frequency was in the 14 year age group, with 30 people (63.9%), while the lowest frequency was in the <14 year age group, with four people (8.5%).

Psychological Stress

Table 2
Frequency Distribution of Respondents Based on Psychological Stress of VIII Grade Female Students at
SMP Negeri 3 Panyabungan

Psychological Stress	F	%
Severe Stress	35	74.4
Moderate Stress	12	25.6
Mild Stress	0	0
Total	100	100

Based on Table 2, the majority of respondents experienced Severe Psychological Stress, namely, 35 respondents (74.4%).

Menstrual Cycle

Table 3
Frequency Distribution of Respondents Based on Menstrual Cycle of Grade VIII Female Students at SMP Negeri 3 Panyabungan

Menstrual Cycle	F	%
Regular	35	74.4
Irregular	12	25.6
Total	100	100

table 3 shows that of the 47 respondents, the highest frequency was 35 (74.4%) with regular menstrual cycles, while 12 (25.6%) had irregular menstrual cycles.

Bivariate Analysis

The Relationship Between Psychological Stress and the Menstrual Cycle

Table 4
The Relationship Between Psychological Stress and Menstrual Cycle in Eighth Grade Female Adolescents at SMP Negeri 3 Panyabungan, Mandailing Natal Regency

Psychological Stress	Menstrual Cycle						<i>p-value</i>
	Regular		Irregular		Amount		
	F	%	F	%	F	%	
Severe Stress	29	61.6	6	12.8	35	74.4	0.050
Moderate Stress	6	12.8	6	12.8	12	25.6	
Mild Stress	0	0	0	0	0	0	
Amount	35	74.4	12	25.6	47	100	

Table 4.4 shows that in the Severe Stress category, there are 29 people (61.7%) with regular menstrual cycles and 6 people (12.8%) with irregular menstrual cycles. In the Moderate Stress category, there are 12 people: 6 people (12.8%) with regular menstrual cycles and 6 people (12.8%) with irregular menstrual cycles.

Based on Fisher's Exact Test, a *p value* of 0.050 was obtained ($p=0.05$). This indicates that H_0 is rejected and H_a is accepted, meaning that there is a relationship between psychological stress and the menstrual cycle in female adolescents in grade VIII at SMP Negeri 3 Panyabungan in 2025.

Discussion

Stress triggers the release of cortisol, which is used as a baseline to measure a person's stress level. Cortisol is regulated by the hypothalamus and pituitary gland. When the hypothalamus is activated, the pituitary gland releases follicle-stimulating hormone (FSH), which stimulates the ovaries to produce estrogen. If there is a disruption in the (folcle-stimulating hormone FSH) and Luteinizing Hormone (LH) that affects the production of estrogen, progesterone can cause irregular menstrual cycles⁵. According to researchers, most school-aged teenagers still have difficulty controlling stress, especially teenage girls, who tend to have difficulty controlling their moods. Hurtful words are sometimes one of the triggers for teenagers to become stressed, and their heavy workload can cause teenagers to experience academic stress.

Based on the results of the questionnaire filled out by respondents, the level of stress was very severe but with a regular menstrual cycle, namely, 35 people (74.4%) experienced severe stress, 29 (61.6%) with a regular menstrual cycle and 6 (12.8%) with an irregular menstrual cycle. This is because factors that influence the regularity of the menstrual cycle in adolescents include nutritional status, nutritional intake, adequacy of macronutrient intake, Body Mass Index (BMI), (hemoglobin HB) levels, and physical activity. In addition, nutritional status is the dominant factor that causes the regularity of the menstrual cycle in adolescents is nutritional status⁶.

There are two types of stress: eustress (not stressed) and distress (stress). Eustress is defined as the ability to cope with stress without any disruption to organ function. This is in line with the research findings of Fransiska⁸. Faculty of Health Sciences, Musi Charitas Catholic University, Palembang. Based on the results, women experiencing severe stress did not find that stress affected their menstrual cycle. High stress is caused by the large number of tasks that must be completed concurrently.

Based on Fisher's Exact Test, a p value of 0.050 was obtained ($p=0.05$). This indicates that H_0 is rejected and H_a is accepted, meaning that there is a relationship between psychological stress and the menstrual cycle in female adolescents in grade VIII at SMP Negeri 3 Panyabungan in 2025.

This research is in line with the research conducted by Nova Novrianda et al. (2020) at the SMA Pondok Karya Pembangunan Jakarta Islamic School, East Jakarta. The results of the analysis of the relationship between stress levels and menstrual cycles showed that the level of stress experienced by female students during the menstrual cycle tends to be high. The majority of respondents who experienced severe stress were 38 (57.6%), and those who were normal were 28 (42.4%). The majority of respondents had a normal menstrual cycle of 21 to 35 days, with 48 respondents (72.7%). The results of the hypothesis test showed that the p -value was 0.036, which was smaller than the significance value of 0.036 < 0.05, meaning there was a relationship between psychological stress and the menstrual cycle in female students at SMA Pondok Karya Pembangunan Jakarta Islamic School in East Jakarta.

The results of the research by Amalia et al. (2023) in the RW 011 area of Pela Mampang Village, South Jakarta, showed that out of 56 respondents, the normal stress level with an abnormal menstrual cycle was 3 respondents (16.7%), with a normal menstrual cycle was 15 respondents (83.3%). The mild category with an abnormal menstrual cycle had 28 respondents (19.7%), and the normal category had 3 (9.7%). In the moderate stress level category, there were six respondents (85.7%) with abnormal menstrual cycles and one was 1 respondent (14.3%) with a normal menstrual cycle. From the results of the bivariate analysis using chi-square, the p value was =0.000. Where the p -value is smaller than the value (0.000 < 0.05), which means there is a relationship between the level of adolescent stress and the menstrual cycle.

Based on the researchers' assumptions, respondents experiencing severe stress had a very high rate of normal menstrual cycle. This is because factors influencing the regularity of adolescent menstrual cycles include nutritional status, nutritional intake, adequate macronutrient intake, Body Mass Index (BMI), hemoglobin levels, and physical activity. Furthermore, nutritional status was found to be the dominant factor influencing the regularity of adolescent menstrual cycles.

Based on the above theory, researchers assume that most respondents always maintain their nutritional status so that respondents do not experience irregular menstrual cycles

4. CONCLUSION

Based on the results of the analysis and discussion of the research, it can be concluded that there is a relationship between psychological stress and the menstrual cycle in female adolescents in grade VIII at SMP Negeri 3 Panyabungan, Mandailing Natal Regency, Indonesia.

It is hoped that female students will continue to understand how to manage stress and their reproductive health, carry out activities that are expected to reduce stress levels, and seek information related to stress management and reproductive health

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