

THE RELATIONSHIP BETWEEN NUTRITIONAL STATUS AND MENSTRUAL CYCLE WITH THE INCIDENCE OF DYSMENORRHEA IN ADOLESCENT GIRLS IN SOLOK VILLAGE, RUMBIO JAYA DISTRICT IN 2026

Miftahurrahmi¹, Fitri Handayani²

Universitas Pahlawan Tuanku Tambusai

Email : miftahurrahmi_407@gmail.com, fitrihandayaniup@gmail.com

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Abstract

Dysmenorrhea is one of the most common complaints experienced during menstruation by women, especially teenagers. This complaint usually occurs in the lower abdomen. Dysmenorrhea occurs because the uterine wall contracts when the hormone prostaglandin increases. The process of shedding the uterine wall is assisted by this hormone, which ultimately causes pain. This problem affects at least 60-85% of adolescent girls, resulting in high school absences. The purpose of this study was to determine the relationship between nutritional status and menstrual cycles with the incidence of dysmenorrhea in adolescent girls in Solok Village, Rumbio Jaya District. The method used in this study was a quantitative method with a cross-sectional approach. The population in this study were all adolescent girls in Solok Village, Rumbio Jaya District. So, a sample of 60 people was taken using a total sampling technique. Data collection was carried out using a questionnaire. The collected data were then processed and analyzed using the SPSS version 20 statistical program and analyzed using chi-square. The results of the study showed that there was a relationship between nutritional status and the incidence of dysmenorrhea in adolescent girls in Solok Village, Rumbio Jaya District, with the chi square test results showing a p-value of 0.000 $p < 0.05$. There was a relationship between the menstrual cycle and the incidence of dysmenorrhea in adolescent girls in Solok Village, Rumbio Jaya District, with the chi square test results showing a p-value of 0.000 $p < 0.05$.

Keywords: Nutritional Status, Menstrual Cycle, Dysmenorrhea Incidence

INTRODUCTION

Dysmenorrhea is one of the most common complaints experienced during menstruation by women, especially adolescents. This complaint usually occurs in the lower abdomen. Dysmenorrhea occurs because the uterine wall contracts when prostaglandin levels increase. This hormone aids in shedding the uterine wall, ultimately causing pain. Dysmenorrhea is divided into primary and secondary dysmenorrhea. Primary dysmenorrhea is menstrual pain that is not associated with a pathological disorder (Mouliza, 2020).

Adolescent girls are more likely to experience pain due to primary dysmenorrhea because their hormonal cycles are not yet stable. This problem affects at least 60-85% of adolescent girls, resulting in high school absences. Menstrual pain in adolescent girls is usually evident in their school absences (Jurumanna, 2021). According to the WHO in 2019, adolescents are defined as those between 12 and 24 years old. Data from several countries shows a very high incidence of dysmenorrhea. An estimated 50% of all women worldwide suffer from dysmenorrhea during their menstrual cycle. The prevalence of primary dysmenorrhea in the United States for those aged 12-17 is approximately 59.7%, with 49% having mild dysmenorrhea, 37% having moderate dysmenorrhea, and 12% having severe dysmenorrhea, resulting in 23.6% of those affected being absent from school. A longitudinal study conducted in Sweden reported that dysmenorrhea occurred in 90% of women under 19 years of age and 64% of women aged 24 years (Ulaa et al., 2022). Meanwhile, in 2020, the incidence of dysmenorrhea was 1,769,425 (90%) women suffering

from dysmenorrhea, with 10-16% suffering from severe dysmenorrhea. The incidence of dysmenorrhea worldwide is very high. On average, more than 50% of women suffer from it (Kistriyono, 2021). According to Riskesdas, in 2020, the age of menstruation in Indonesia was 13 years (20.0%), with earlier onset occurring at less than 9 years of age and even later, up to 20 years of age. There were 7.8% who had not yet started menstruating. In 2021, the national average age of menarche was 37.5% among Indonesian adolescents aged 13-14 years. In 2022, the dysmenorrhea rate was 64.25%, divided into two categories: primary dysmenorrhea (54.89%) and secondary dysmenorrhea (9.36%) (Riskesdas, 2022). A preliminary study of female adolescents in Solok Village, Rumnio Jaya District, in 2023 found that 8 out of 10 (80%) experienced dysmenorrhea. In 2024, 12 out of 20 (60%) experienced dysmenorrhea. In 2025, 15 out of 28 adolescents experienced dysmenorrhea (Solok Village Data, 2025).

There are various pharmacological and non-pharmacological methods for relieving menstrual dysmenorrhea. Analgesics and anti-inflammatory drugs, or nonsteroidal anti-inflammatory drugs (NSAIDs), such as mefenamic acid, Feminax, and ibuprofen, are commonly used pharmacological therapies. However, long-term use of pharmacological drugs can cause side effects such as stomach upset and anemia. Many non-pharmacological treatments can be used to reduce pain, such as regular exercise, warm compresses, and consuming herbal products with proven efficacy (Manalu et al., 2020).

Based on research by Matos Istinah Istinah et al. (2021), which shows a relationship between nutritional status (overweight and underweight) and the occurrence of dysmenorrhea. Furthermore, research by Huda et al. (2020) shows a relationship between nutritional status and primary dysmenorrhea. Furthermore, research by Juliana et al. (2019) shows a significant relationship between dysmenorrhea and menstrual cycle disorders in adolescents.

Based on the description, therefore the author is interested in researching "The Relationship between Nutritional Status and Menstrual Cycle with the Incidence of Dysmenorrhea in Adolescent Girls in Solok Village, Rumbio Jaya District" as a form of the author's attention and responsibility in providing thoughts to find the best solution to the problem.

METHOD

This study used a quantitative research design with a cross-sectional approach (Sugiyono, 2020). A cross-sectional approach is a study that examines the relationship between independent and dependent variables, conducted simultaneously (Anggreni, 2022).

The population in this study was all 60 female adolescents aged 15-18 in Solok Village, Rumbio Jaya District. The sampling technique used in this study was total sampling. The reason for using total sampling was that the population size was less than 100, so the entire population was used as a sample. Therefore, the sample size was 60 individuals.

The instrument used in data collection was an observation sheet to gather primary data, created by the researcher based on the required information, specifically regarding nutritional status and menstrual cycles, and the incidence of dysmenorrhea in adolescent girls. The primary data in this study consisted of demographics, age, education, and observational assessments of nutritional status and menstrual cycles.

and the incidence of dysmenorrhea in adolescent girls. This data is used to support primary information obtained from library materials, literature, previous research, books, and so on.

In this study, after the data was collected and scored, data analysis was performed using a computerized program. The analysis was conducted using univariate and bivariate methods. Univariate analysis was conducted to obtain a general overview by describing each variable used in the study, namely

by looking at its frequency distribution (Notoatmodjo, 2018). Where in this study used two variables: an independent variable that includes nutritional status and menstrual cycle and a dependent variable that includes the incidence of dysmenorrhea in adolescent girls.

Bivariate analysis is an analysis performed on two variables suspected of being related or correlated. The analysis is conducted to determine the relationship between the independent and dependent variables. The statistical test used is the chi-square test.

RESULTS AND DISCUSSION

Table 1

Frequency Distribution of Respondent Characteristics in Solok Village, Rumbio Jaya District.

Variables	Frequency (f)	Percentage (%)
Age		
15-16 Years	26	43.3
17-18 Years	34	56.7
Total	60	100.0
Class		
Grade 3 Middle School	14	23.3
Class 1 High School	10	16.7
Class 2 High School	18	30.0
Grade 3 High School	18	30.0
Total	60	100.0
Parents' job		
Farmer	37	61.7
Self-employed	21	35.0
Teacher	2	3.3
Total	60	100.0

Table 2

Frequency Distribution of Respondents Based on the Incidence of Dysmenorrhea in Solok Village, Rumbio Jaya District.

Dysmenorrhea Occurrence	Frequency (f)	Percentage (%)
Yes	30	50.0
No	30	50.0
Total	60	100.0

Source: Primary Data, 2026

Based on table 2, from 60 respondents, it can be seen that the majority of respondents were in the dysmenorrhea and non-dysmenorrhea categories with a total of 30 respondents (50.0%).

Table 3
Frequency Distribution of Respondents Based on Nutritional Status in Solok Village, Rumbio Jaya District.

Nutritional status	Frequency (f)	Percentage (%)
Thin	24	40.0
Normal	22	36.7
Fat	14	23.3
Total	60	100.0

Source: Primary Data, 2026

Based on table 3 from 60 respondents, it can be seen that the majority of respondents are in the thin nutritional status category with a total of 24 respondents (40.0%), in the normal category with a total of 22 respondents (36.7%) and in the obese category with a total of 14 respondents (23.3%).

Table 4
Frequency Distribution of Respondents Based on Menstrual Cycle in Solok Village, Rumbio Jaya District

Menstrual Cycle	Frequency (f)	Percentage (%)
Normal	29	48.3
Polymenorrhea	26	43.3
Oligomenorrhea	4	6.7
Amenorrhea	1	1.7
Total	60	100.0

Source: Primary Data, 2026

Based on table 4, from 60 respondents, it can be seen that most of the respondents are in the normal menstrual cycle category with a total of 29 respondents (48.3%), in the polymenorrhea category with a total of 26 respondents (43.3%), in the oligomenorrhea category with a total of 4 respondents (6.7%) and in the amenorrhea category with a total of 1 respondent (1.7%).

Table 5
The Relationship between Nutritional Status and the Incidence of Dysmenorrhea in Adolescent Girls in Solok Village, Rumbio Jaya District.

Nutritional status	Dismen Incident <i>orhea</i>						<i>p-value</i>
	Ya				No		
	n	%	N	%	Total		
					n	%	
Thin	24	40	0	0	24	40	0.000
Normal	0	0	22	37	22	37	
Fat	6	10	8	13	14	23	
Total	30	50	30	50	60	100	

Source: Chi Square Test Results, 2026

Based on table 5 of 60 respondents, it can be seen that the highest category of nutritional status is thin and experiencing dysmenorrhea is 24 respondents (40.0%). While the lowest category of nutritional

status is fat and experiencing dysmenorrhea is 1 respondent (3.0%). Based on the results of the chi square test, the $p\text{-value} = 0.000$ $p < 0.05$ is obtained, which means H_a is accepted and H_0 is rejected so it can be concluded that there is a relationship between nutritional status and the incidence of dysmenorrhea in adolescent girls in Solok Village, Rumbio Jaya District.

Table 6
The Relationship between Menstrual Cycle and the Incidence of Dysmenorrhea in Adolescent Girls in Solok Village, Rumbio Jaya District.

Menstrual Cycle	<u>Dysmen Incident orhea</u>						<i>p-value</i>
	<u>Yes</u>		<u>No</u>		<u>Total</u>		
	<u>n</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>n</u>	<u>%</u>	
Normal	0	0	29	48	29	48	0.000
<i>Polymenorrhea</i>	25	42	1	2	26	44	
<i>Olimenorrhea</i>	4	6	0	0	4	6	
<i>Amenorrhea</i>	1	2	0	0	1	2	
Total	30	50	30	50	60	100	

Source: Chi Square Test Results, 2026

Based on table 6 of 60 respondents, it can be seen that the highest category is in the polymenorrhea menstrual cycle and experiencing dysmenorrhea, namely 25 respondents (42.0%). While the lowest category is in the amenorrhea menstrual cycle and experiencing dysmenorrhea, namely 1 respondent (2.0%). Based on the results of the chi square test, the $p\text{-value} = 0.000$ $p < 0.05$ is obtained, which means H_a is accepted and H_0 is rejected so it can be concluded that there is a relationship between the menstrual cycle and the incidence of dysmenorrhea in adolescent girls in Solok Village, Rumbio Jaya District.

DISCUSSION

The Relationship between Nutritional Status and the Incidence of Dysmenorrhea in Adolescent Girls in Solok Village, Rumbio Jaya District

Based on the research results, it was found that the majority of respondents were in the underweight nutritional status category and experienced dysmenorrhea, namely 24 respondents (40.0%). Meanwhile, the lowest number was in the overweight nutritional status category and experienced dysmenorrhea, namely 1 respondent (3.0%). This indicates that there is a relationship between nutritional status and the incidence of dysmenorrhea. The majority of respondents who experienced dysmenorrhea were in the underweight nutritional status category, while only a small number were in the overweight nutritional status category. These data indicate that individuals with underweight nutritional status are more susceptible to dysmenorrhea than individuals with overweight nutritional status. Therefore, nutritional status is a contributing factor to the incidence of dysmenorrhea in adolescent girls, and appropriate nutritional interventions are needed to reduce the risk of dysmenorrhea among adolescents with poor nutritional status.

Menstruation, or periods, is a physiological change in a woman's body that occurs periodically and is influenced by reproductive hormones. Menstruation in adolescent girls can cause problems, one of which is dysmenorrhea, or painful menstruation. Dysmenorrhea is the most common problem experienced by women, both adolescents and adults (Oktobriani, 2020).

Nutritional status is the state of the body resulting from food consumption and nutrient utilization. Adolescent nutritional status can be determined in several ways, one of which is using the Body Mass

Index (BMI). This measurement is suitable for adolescents because they are still growing (Rully et al., 2020).

Nutritional fulfillment is crucial for adolescent girls, especially considering their future role as future mothers. Maturity is determined by one's circumstances during adolescence. Nutrition and health must be monitored throughout adolescence, as young women develop into adults capable of bearing children. The most common nutritional problem among adolescents is inadequate nutritional intake, which results in malnutrition, particularly being underweight and prone to anemia due to iron deficiency. Furthermore, nutritional problems often arise from excessive nutritional intake, which can lead to obesity (Harianti BR Ginting, 2021).

Based on the results of the chi square test, the $p\text{-value} = 0.000$ $p < 0.05$ was obtained, which means H_a is accepted and H_0 is rejected, so it can be concluded that there is a relationship between nutritional status and the incidence of dysmenorrhea in adolescent girls in Solok Village, Rumbio Jaya District.

This study aligns with research by Rully et al., 2020, which showed a significant association between nutritional status and dysmenorrhea in women of childbearing age. The strength of the association was moderate.

This study also aligns with research by Herlina et al., 2022, which showed a correlation between nutritional status and dysmenorrhea in adolescents in Pekanbaru City. The OR of 5.3 indicates that respondents with abnormal nutritional status had a fivefold increased risk of experiencing dysmenorrhea compared to those with normal nutritional status.

Researchers assume that poor nutritional status, such as being underweight, can affect hormonal function and reproductive health, thereby increasing the risk of dysmenorrhea in adolescent girls. Nutritional imbalances have the potential to disrupt the regulation of hormones involved in the menstrual cycle, leading to more intense menstrual pain. In other words, there is a significant relationship between nutritional status and the incidence of dysmenorrhea in adolescent girls. Therefore, improving nutritional status, particularly through a balanced nutritional intake, is expected to help reduce the incidence of dysmenorrhea.

The Relationship between Menstrual Cycle and the Incidence of Dysmenorrhea in Adolescent Girls in Solok Village, Rumbio Jaya District.

Based on the research results, it was found that the majority of respondents were in the polymenorrhea menstrual cycle category and experienced dysmenorrhea, namely 25 respondents (42.0%). Meanwhile, the lowest was in the amenorrhea menstrual cycle category and experienced dysmenorrhea, namely 1 respondent (2.0%). This indicates a relationship between the type of menstrual cycle and the occurrence of dysmenorrhea. The majority of respondents who experienced dysmenorrhea were in the polymenorrhea menstrual cycle category, while only a small portion were in the amenorrhea menstrual cycle category. These data indicate that individuals with polymenorrhea menstrual cycles are more susceptible to dysmenorrhea compared to individuals with amenorrhea menstrual cycles. Polymenorrhea, which is characterized by shorter than normal menstrual cycles, is associated with more frequent hormonal fluctuations, thereby increasing the risk of menstrual pain.

An abnormal menstrual cycle causes painful contractions and dysmenorrhea in adolescents. Menstrual patterns can be disrupted due to ovarian dysfunction. Dysmenorrhea and other symptoms, such as premenstrual syndrome (PMS), caused by painful contractions, can be influenced by the menstrual cycle (Kurnia Apsara et al., 2023).

The link between the menstrual cycle and dysmenorrhea is caused by a series of hormones produced by the body, namely luteinizing hormone, follicle-stimulating hormone, follicle-stimulating hormone, and estrogen. The LH (luteinizing hormone) surge, a sudden increase in LH, pushes the egg out of the ovary. The egg is usually released within 16-32 hours after the LH surge. This is why some women experience primary dysmenorrheal pain in the lower abdomen when this occurs. Prostaglandins also play a role in the onset of menstruation. Administering prostaglandins to non-pregnant women can induce menstruation. This is likely because prostaglandins cause vasoconstriction of the arterioles in the endometrium. Menstrual

blood contains many prostaglandins, and their administration can increase symptoms similar to primary dysmenorrhea, which generally occurs during normal ovulatory menstruation, initially caused by decreased progesterone levels (Wardani et al., 2021).

Based on the results of the chi square test, the $p\text{-value} = 0.000$ $p < 0.05$ was obtained, which means H_a is accepted and H_0 is rejected, so it can be concluded that there is a relationship between the menstrual cycle and the incidence of dysmenorrhea in adolescent girls in Solok Village, Rumbio Jaya District.

This study aligns with research by Wardani et al., 2021, which showed a relationship between the menstrual cycle and primary dysmenorrhea. The odds ratio was 14.880, meaning that female students with irregular menstrual cycles were 14.880 times more likely to develop primary dysmenorrhea than female students with normal menstrual cycles.

This study also aligns with research by Kurnia Apsara et al., 2023, which showed a relationship between the incidence of dysmenorrhea in adolescent girls and their menstrual cycle. This suggests that the menstrual cycle influences how often adolescent girls experience dysmenorrhea. The risk estimate test results, with an OR of 3.5, indicate that those with an abnormal menstrual cycle have a 3.5-fold increased risk of dysmenorrhea compared to those with a normal menstrual cycle.

Researchers speculate that irregular menstrual cycles, such as polymenorrhea, may affect hormonal balance, resulting in more frequent and intense uterine contractions, thus increasing the risk of dysmenorrhea. Hormonal fluctuations that occur during shorter menstrual cycles, such as those associated with polymenorrhea, likely lead to increased production of prostaglandins, which are known to exacerbate menstrual pain. Therefore, adolescents with irregular menstrual cycles are more susceptible to dysmenorrhea, and efforts to stabilize their menstrual cycles are necessary to reduce the risk of menstrual pain.

CONCLUSION

Based on the research results and discussion, it can be concluded that:

1. There is a relationship between nutritional status and the incidence of dysmenorrhea in adolescent girls in Solok Village, Rumbio Jaya District, with the results of the chi square test obtaining a $p\text{-value} = 0.000$ $p < 0.05$.
2. There is a relationship between the menstrual cycle and the incidence of dysmenorrhea in female adolescents in Solok Village, Rumbio Jaya District, with the results of the chi square test obtaining a $p\text{-value} = 0.000$ $p < 0.05$.

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