

## **Factors Related to Premenstrual Syndrome in Young Women at MTsN Labuhanbatu in 2024**

**Novica Jolyarni<sup>1</sup>, Nailatun Nadrah<sup>2</sup>, Fitriyani Nasution<sup>3</sup>**  
<sup>1,2,3</sup>Ika Bina Technology Institute, Indonesia

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**Corresponding Author:**

Novica Jolyarni  
Ika Bina Technology Institute,  
Indonesia  
Email:  
[novica.dornic@gmail.com](mailto:novica.dornic@gmail.com)

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### **ABSTRACT**

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Premenstrual syndrome (PMS) is a complex and poorly understood condition consisting of one or more of a number of physical and psychological symptoms that begin in the luteal phase of the menstrual cycle. World Health Organization (WHO) in 2020 PMS has a higher prevalence in Asian countries compared to western countries. The purpose of this study was to determine the factors associated with Premenstrual syndrome in adolescent girls at MTsN 1 Labuhanbatu in 2024. This research design uses an analytic survey, namely research trying to explore how and why the phenomenon occurs. Then analyze the dynamics of the correlation between phenomena, both between related factors (Independent) and effect factors (Dependent). The approach used in this research is cross sectional. The population in this study was 291 people. The sample in this study amounted to 74 people. Data analysis used univariate analysis and bivariate analysis using the chi-square test. The results of statistical tests with stress categories obtained using the chi-square test at a confidence level of 95% are known that  $p < 0.000$  is smaller than 0.05, the results of chi-square tests with consumption patterns at a confidence level of 95% are known that  $p < 0.000$  is smaller than 0.05, the results of statistical tests with premenstrual syndrome incidence obtained using the chi-square test at a confidence level of 95% are known that  $p < 0.000$  is smaller than 0.05. In conclusion, it is known that there is a relationship between stress, consumption patterns and exercise with the incidence of premenstrual syndrome in adolescent girls at MTsN 1 Labuhanbatu in 2024. It is suggested that the results of this study can add insight, knowledge and experience about premenstrual syndrome that can occur at any time.

**Keywords:** *Premenstrual, Syndrome, Adolescent Girls*

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## **1. INTRODUCTION**

The human body undergoes various changes over time since birth which include growth and development. The most striking change occurs when girls and boys enter the age between 9-15 years at which time they not only grow taller and bigger, but also changes occur in the body that make it possible to reproduce. This period is called puberty or adolescence.

Adolescent reproductive health is a state of complete physical, mental and social health, not only free from disease or disability related to the reproductive system, functions and processes in men and women. Menstruation is regular bleeding from the uterus as a sign that the gynecological organs have matured. Adolescents experience menarche at the age of 12-16 years. This period will change behavior from several aspects, including psychological aspects. The normal menstrual cycle occurs every 22-35 days, with a duration of 2-7 days. [1]

Premenstrual syndrome (PMS) is a complex and poorly understood condition consisting of one or more of a number of physical and psychological symptoms that begin in the luteal phase of the menstrual cycle that occur to a certain degree can affect lifestyle, work and other activities, in women who experience mood or somatic disorders (or both) that occur during the menstrual cycle. Symptoms that arise in PMS include abdominal swelling, fullness in the pelvis, edema in the lower extremities, breast tenderness and weight gain. Behavioral or emotional changes, headaches, fatigue and back pain. [2]

Moderately stressed women have more risk of PMS than those who experience mild stress or no stress. Women who experience depression may have neuroendocrine abnormalities in their menstrual cycle. Endocrine changes are most in the premenstrual phase, so it is in this phase that most PMS occurs. One of the hormones that

influence the appearance of PMS is Prostaglandin. The pain experienced by women with PMS is possible due to the secretion of prostaglandin hormones that affect the uterine muscles. [3]

Consumption patterns are food arrangements that include the type and amount of foodstuffs per person per day, which are commonly consumed/eaten by the population within a certain period of time.

Decreased intake of salt and carbohydrates (rice, potatoes, bread) can prevent edema (swelling) in some women. Decreased consumption of caffeine (coffee) can also reduce tension, anxiety and insomnia (difficulty sleeping). Diet is recommended more often but in small portions because based on evidence that during the PMS period, there is impaired glucose uptake for energy. Maintain body weight, as excessive weight can increase the risk of suffering from PMS. [4]

Get into the habit of regular exercise and physical activity. Exercise such as swimming and walking. Deep breathing and relaxation can also relieve discomfort. Running is said to reduce complaints. Exercise can reduce stress by choosing a time to get out of the house and an outlet to release anger or anxiety that occurs. Some women say that when they experience PMS, they can relax and sleep at night.

Good exercise regular exercise 2 or 3 times a week yoga, aerobics, or simple stretching can reduce PMS disorders such as cramps, back pain, pain and muscle tension and stress. [5]

According to the World Health Organization (WHO) in 2020 PMS has a higher prevalence in Asian countries compared to western countries. The results of the American college of Obstetricians and Gynaecologist (ACOG) study in Sri Lanka in 2021, reported that PMS symptoms were experienced by around 65.7 adolescent girls. The results of the Mahin Delara Study in Iria in 2021, found that around 98.2% of women aged 18-27 years experienced at least 1 mild or moderate degree of PMS symptoms. The prevalence of STDs in Brazil shows 39%, and in America 34% of women experience STDs. The prevalence of PMS in Asia is specific, it is known that in Japan PMS is experienced by 34%, Hong Kong 17%, Pakistan 13% and Australia experienced by 44% of adult women. [2]

According to research conducted by Rudiyantri N & Nurchairina with the title Relationship between Nutritional Status and the Incidence of Pre Menstrual Syndrome in Midwifery Department Students of Tanjungkarang Poltekkes in 2020 In the world at least 85% of menstruating women experience at least one of the symptoms of PMS, in Indonesia the incidence of PMS is between 23-24%. The survey results show that the incidence of PMS is 70%. The cause of PMS cannot be known with certainty. However, there are several theories that PMS is caused by factors such as the nutritional status of women and stress. The problem in this study is the high incidence of STDs which is 70% in students of Midwifery Department of Poltekkes Kemenkes Tanjungkarang in 2014. The results concluded from 157 respondents, the nutritional status of students within normal limits was 54.8%, the respondents had stress which was 76.4%, respondents who experienced PMS were 68.2, about problems regarding menstrual disorders (38.45%), nutritional problems related to anemia (20.3%), learning disorders (19.7%), psychological disorders (0.7%), and obesity problems (0.5%). [6]

In Indonesia, the prevalence rate of PMS reaches 70-90% by reproductive women and 2-10% experience severe PMS symptoms, while in Yogyakarta there are 54% incidence of Premenstrual syndrome and the remaining 46% are not experiencing Premenstrual Syndrome. [7]

According to research conducted by Siti Damayanti with the title Factors Associated with Premenstrual Syndrome in Midwifery D-IV Students at Stikes U'Budiyah in 2013. Using the chi square square test, mothers who experience stress show that of the 33 respondents (100%) who experienced stress, there were 19 respondents (50.0%), with a value of ( $p = 0.023$ ), consumption patterns of 33 respondents (100%) who experienced problems with consumption patterns, namely 19 respondents (50.0%), with a value of ( $p = 0.023$ ), exercise patterns of 33 respondents (100%) who exercise regularly, namely 24 respondents (72.7%) with a value of ( $P = 0.056$ ). [4]

Based on the results of a preliminary survey conducted on July 31, 2024 at MTsN 1 Labuhanbatu in 2024, by directly interviewing about 10 people. About 7 young women who do not know and 3 young women who already know about premenstrual syndrome, 5 young women who do not understand and 5 young women who understand about stress that can cause premenstrual syndrome, 8 young women who do not understand and 2 young women who understand that consumption patterns can cause premenstrual syndrome, 8 young women who do not understand exercise patterns can cause premenstrual syndrome and 2 young women who understand exercise patterns can cause premenstrual syndrome. From the results obtained above, it can be seen that there are still many adolescents who do not know and do not understand about the factors associated with Premenstrual Syndrome.

## 2. METHOD

The research design is part of the research that contains descriptions of the description of the research flow that describes the mindset in conducting research which is commonly called the research paradigm. [8]

The research design used is an analytic survey, namely research trying to explore how and why the phenomenon occurs. Then analyze the dynamics of correlation between phenomena, both between related factors (Independent) and effect factors (Dependent). The time approach used in this research is cross sectional. In this study aims to identify the variables of related factors studied, namely adolescents with the effect factor, namely premenstrual syndrome at one time (at the same time) without any follow-up, and analyze the factors associated with adolescents with premenstrual syndrome.

Population is the whole object of research or the object to be studied is the source of all the data needed in the study. The population in this study were all adolescent girls at MTsN 1 Labuhanbatu Year 2024 as many as 291 people.

The sample is a portion taken from the overall object under study considered to represent the entire population. In sampling using the Slovin formula.

$$n = \frac{N}{1 + Ne^2} = \frac{291}{1 + 291 (0.1)^2} = \frac{291}{1 + 2.91} = 74,4 = 74$$

Furthermore, the sample used the stratified random sampling formula, the sample was taken from each class by taking into account the number of each population. After obtaining the number of respondents 74 people from each class, the determination of respondents was carried out by lottery technique or drawing members in each class. [9]

Operational definitions are the limits used to define variables or factors that affect knowledge variables.

1. Pre Menstrual Syndrome is a condition where a number of symptoms occur regularly and are associated with the menstrual cycle, symptoms usually occur 7-10 days before menstruation and disappear when menstruation begins.
2. Stress is a condition or state of the body that is disturbed by psychological pressure, usually stress is associated not because of physical illness, but rather because of someone's psychological problem.
3. Consumption Pattern are food arrangements that include the types and amounts of foodstuffs per person per day, which are commonly consumed/eaten by the population within a certain period of time. Decreased intake of salt and carbohydrates (rice, potatoes, bread) may prevent odema (swelling) in some women.
4. Exercise Pattern get into the habit of regular exercise and physical activity. Exercise such as swimming and walking. Deep breathing and relaxation can also relieve discomfort.

The types of data obtained in this study are primary data, secondary data, and tertiary data.

1. Primary Data.

Questionnaire is a data collection instrument that contains a list of questions submitted to respondents to be answered in writing.

2. Secondary Data.

Secondary data is data obtained from documentation by other parties, for example, records, value recapitulation, patient visit data, and others.

3. Tertiary data.

Data obtained from published manuscripts, for example WHO, SDKI, Riskesdas.

Data collection techniques are the means or methods used for data collection. The data collection technique used in this research is a questionnaire. Questionnaires or questionnaires submitted in this study directly, namely questionnaires directly filled in by respondents to fill them out.

Before the questionnaire was distributed to real respondents, the questionnaire was tested for validity and reliability. Validity and reliability tests were distributed to 20 respondents at MTsN 1 Labuhanbatu Year 2024 because they have the same characteristics as adolescent girls at MTsN 1 Labuhanbatu Year 2024.

## 2.1. Validity Test

The validity test aims to determine the extent of a measure or value that shows the level of reliability or validity of a measuring instrument. Test the validity by measuring the correlation between variables or items with the total score of the variable using the pearson product moment correlation formula (r), provided that if the r-count value > r-table (0.444), it is declared valid and vice versa.

Reliability is an index that shows the extent to which a measuring device can be trusted or reliable. This means indicating the extent to which the measurement results remain consistent or remain basic when measuring two or more times against the same symptoms, using the same measuring instrument.

Where the instrument is said to be reliable if the Cronchbach alpha value obtained is then compared with r product moment in the table with the provision that if r count > r table then the test is reliable.

Determining the degree of consistency of the research instrument in the form of a questionnaire. The level of reliability can be done using SPSS through the Cronchbach Alpha Test which is compared to Table r.

Cronchbach Alpha is to analyze the reliability of measuring instruments with the provisions of the Cronchbach Alpha value > from 0.600. the results of the reliability test with Cronchbach's Alpa are 0.753, 0.736, 0.767, and the limit of Cronchbach's Alpha used is 0.600 because the value of Cronchbach's Alpa > Cronchbach's Alpa value can be stated that the question is reliable.

## 2.2. Data Processing Method

The collected data is processed using the following steps:

1. Collecting. Collecting data from questionnaires, questionnaires and observations.

2. Checking. Performed by checking the completeness of the answers to the questionnaire or observation sheet with the aim that the data is processed correctly so that data processing provides valid and reliable results and avoids bias.
3. Coding. In this step the author coded the variables studied.
4. Entering. Data entry, namely the answers of each respondent which are still in the form of "codes" (numbers or letters) are entered into the computer used by the research, namely the SPSS For Windows program.
5. Data Processing. All data that has been entered into the computer application will be processed according to the needs of the research.

### 2.3. Data Analysis

The tool used to process data is a computer program or statistical test with the following data analysis steps:

#### 1. Univariate Analysis.

Univariate analysis is a data analysis technique for one variable independently, each variable is analyzed without being associated with other variables. Univariate analysis is the most basic method of analyzing data. Univariate analysis is used to analyze data conducted on each variable from the results of the study. The data is presented in a frequency distribution table.

#### 2. Bivariate Analysis.

If the research has a hypothesis, then at least bivariate analysis is needed, bivariate analysis aims to determine whether there is a relationship between the independent (x) dependent (y) variables. To prove the existence of a significant relationship between the independent variable and the dependent variable, Chi-square analysis is used, at the limit of the meaning of statistical calculation of P value (0.05). If the calculation results show a p value < p value (0.05) then it is said (Ho) is rejected and Ha is accepted, meaning that the two variables statistically have a significant relationship. Then to explain the association between the dependent variable and the independent variable, cross tabulation analysis was used.

## 3. RESULTS AND DISCUSSION

This study is about factors associated with premenstrual syndrome in adolescent girls at MTsN 1 Labuhanbatu with 74 respondents using a questionnaire with the following results.

### 3.1. Univariate Analysis

Table 1. Frequency Distribution of Factors Associated with Premenstrual Syndrome Symptoms in Adolescent Girls at MTsN 1 Labuhanbatu in 2024

No	<i>Premenstruasi syndrome</i>	f	P
1	Low	23	31,1
2	Medium	29	39,2
3	High	22	29,7
<b>Total</b>		<b>74</b>	<b>100</b>

The frequency distribution of the answers of female students based on the symptoms of PMS from 74 people, the majority who answered Yes to statement number 1 and 2 were 68 people (91.9%) who answered No to statement number 9 as many as 69 people (93.2%).

### 3.2. Stress

Table 2. Frequency Distribution of Factors Associated with Stress in Adolescent Girls at MTsN 1 Labuhanbatu in 2024.

No	Stres	F	P
1	Low	22	29,7
2	Medium	34	45,9
3	High	18	24,3
<b>Total</b>		<b>74</b>	<b>100</b>

Based on table 2 above, it can be seen that out of 74 respondents, 22 respondents (29.7%) experienced mild stress, 34 respondents (45.9%) experienced moderate stress, and 18 respondents (24.3%) experienced severe stress. It is known that the frequency distribution of the answers of female students based on the stress level of 74 people, the majority who answered Yes to statement number 2 was 73 people (98.6%) who answered No to statement number 7 as many as 67 people (90.5%).

### 3.3. Consumption Pattern

Table 3. Frequency Distribution of Factors Associated with Consumption Patterns in Adolescent Girls at MTsN 1 Labuhanbatu.

No	Consumption Pattern	F	P
1	Good	27	36,5
2	Not Good	47	63,5
<b>Total</b>		<b>74</b>	<b>100</b>

Based on table 3 above, it can be seen that of the 74 respondents with good consumption patterns, 27 respondents (36.5%), and unfavorable consumption patterns were 47 respondents (63.5%). It is known that the frequency distribution of answers of female students based on consumption patterns of 74 people, the majority who answered well on statement number 2 was 46 people (62.2%) who answered not well on statement number 1 as many as 52 people (70.3%).

### 3.4. Exercise Pattern

Table 4. Frequency Distribution of Factors Associated with Exercise Patterns in Adolescent Girls at MTsN 1 Labuhanbatu in 2024

No	Exercise Pattern	F	P
1	Organized	33	44,6
2	Not Organized	41	55,1
<b>Total</b>		<b>74</b>	<b>100</b>

Based on table 4 above, it can be seen that of the 74 respondents whose exercise patterns were regular, 33 respondents (44.6%), and irregular exercise patterns were 41 respondents (55.1%). It is known that the frequency distribution of answers of female students based on consumption patterns of 74 people, the majority who answered yes as many as 33 people (44.6%) who answered No as many as 41 people (55.4%).

### 3.5. Bivariate Analysis

The results of bivariate analysis using chi-square, which is an analysis to determine the relationship of all independent variables to the dependent variable. By using the degree of significance (degree of confidence is 95%). To find out the factors associated with premenstrual syndrome in adolescent girls at MTsN 1 Labuhanbatu Year 2024. By using chi-square as in the table.

Tabel 5. Cross tabulation of the relationship between stress and the incidence of premenstrual syndrome in adolescent girls at MTsN 1 Labuhanbatu in 2024

No	Stres	PMS								P(Sig)
		Low		Medium		High		Total		
		f	%	f	%	f	%	f	%	
1	Low	2	2,7	5	6,8	15	20,3	22	29,7	0,000
2	Medium	11	14,9	18	24,3	5	6,8	34	45,9	
3	High	10	13,5	6	8,1	2	2,7	18	24,3	
<b>Total</b>		<b>23</b>	<b>31,1</b>	<b>29</b>	<b>39,2</b>	<b>22</b>	<b>29,7</b>	<b>74</b>	<b>100</b>	

Based on table 5 above, it can be seen that out of 74 adolescent girls at MTsN 1 Labuhanbatu in 2024, it can be seen that there are 22 respondents (29.7) who experience mild stress with mild PMS incidence as many as 2 people (2.7), moderate PMS as many as 5 people (26.8), severe PMS as many as 15 people (20.3), who experience moderate stress as many as 34 respondents (45.9) with mild PMS incidence as many as 11 people (14.9), moderate PMS as many as 18 people (24.3), severe PMS as many as 5 people (6.8). And those who experienced severe stress were 18 respondents (24.3) with mild PMS incidence as many as 10 people (13.5), moderate PMS as many as 6 people (8.1), severe PMS as many as 2 people (2.7).

The results of data processing using the chi-squared test found that  $p < 0.000$  was smaller than 0.05, meaning that there was a significant relationship between stress and the occurrence of PMS in adolescent girls at MTsN 1 Labuhanbatu in 2024.

Table 6. Cross tabulation of the relationship between consumption patterns and the incidence of premenstrual syndrome in adolescent girls at MTSN 1 Rantayu Selatan Labuhanbatu Regency in 2024.

No	Consumption Pattern	PMS								P(Sig)
		Low		Medium		High		Total		
		f	%	f	%	f	%	f	%	
1	Good	3	4,1	8	10,8	16	21,6	27	36,5	0,000
2	Not Good	20	27,0	21	28,4	6	8,1	47	63,5	
<b>Total</b>		<b>23</b>	<b>31,1</b>	<b>29</b>	<b>39,2</b>	<b>22</b>	<b>29,7</b>	<b>74</b>	<b>100</b>	

Based on the table above, it can be seen that out of 74 adolescent girls at MTsN 1 Labuhanbatu in 2024, it can be seen that there are 27 respondents (36.5) who have a good consumption pattern with the incidence of mild PMS as many as 3 people (4.1), moderate PMS as many as 8 people (10.8), severe PMS as many as 16 people (21.6), who have an unfavorable consumption pattern as many as 47 respondents (63.5) with the incidence of mild PMS as many as 20 people (27.0), moderate PMS as many as 21 people (28.4), severe PMS as many as 6 people (8.1).

The results of data processing using the chi-squared test found that  $p < 0.000$  was smaller than 0.05, meaning that there was a significant relationship between consumption patterns and the occurrence of PMS in adolescent girls at MTsN 1 Labuhanbatu in 2024.

Table 7. Cross tabulation of the relationship between exercise patterns and the incidence of premenstrual syndrome in adolescent girls at MTsN 1 Labuhanbatu in 2024.

No	Exercise Pattern	PMS								P(Sig)
		Low		Medium		High		Total		
		f	%	f	%	f	%	f	%	
1	Organized	23	31,1	5	6,8	5	6,8	33	44,6	0,000
2	Not Organized	0	0	24	32,4	17	23,0	41	55,4	
<b>Total</b>		<b>23</b>	<b>31,1</b>	<b>29</b>	<b>39,2</b>	<b>22</b>	<b>29,7</b>	<b>74</b>	<b>100</b>	

Based on the table above, it can be seen that of the 74 adolescent girls at MTsN 1 Labuhanbatu Year 2024, it can be seen that there are 33 respondents (44.6) who exercise regularly with the incidence of mild PMS as many as 23 people (31.1), moderate PMS as many as 5 people (6.8), severe PMS as many as 5 people (6.8), and who exercise irregularly as many as 41 respondents (55.4) with the incidence of mild PMS as many as 0 people (0), moderate PMS as many as 24 people (32.4), severe PMS as many as 17 people (23.0).

The results of data processing using the chi-square test showed that  $p < 0.000$  was smaller than 0.05, meaning that there was a significant relationship between exercise patterns and the occurrence of PMS in adolescent girls at MTsN 1 Labuhanbatu in 2024.

### 3.6. Discussion

Discussion of the results of research conducted by researchers on factors associated with premenstrual syndrome in adolescent girls at SMTN 1 Rantau Selatan Year 2024.

Based on table 5 in the cross tabulation above, it is known that out of 74 adolescent girls at MTsN 1 Labuhanbatu in 2024, it can be seen that there are 22 respondents (29.7) female students who experience mild stress with mild PMS incidence of 2 people (2.7), moderate PMS as many as 5 people (26.8), severe PMS as many as 15 people (20.3), female students who experience moderate stress as many as 34 respondents (45.9) with mild PMS incidence as many as 11 people (14.9), moderate PMS as many as 18 people (24.3), severe PMS as many as 5 people (6.8). And female students who experienced severe stress were 18 respondents (24.3) with mild PMS as many as 10 people (13.5), moderate PMS as many as 6 people (8.1), severe PMS as many as 2 people (2.7).

The results of data processing using the chi-square test found that  $p < 0.000$  was smaller than 0.05, meaning that there was a significant relationship between stress and the occurrence of PMS in adolescent girls at MTsN 1 Labuhanbatu in 2024.

Based on the chi-square test with a confidence level of 95% with  $\alpha = 0.005$ , the  $p$ -value = 0.000 means that there is a relationship between stress and premenstrual syndrome at MTsN 1 Labuhanbatu Year 2024.

According to research conducted by Sri Wahyuni with the title Relationship between Stress Levels and the Incidence of Premenstrual Syndrome in Class Xi Adolescent Girls at SMA N 2 Klaten in 2015. this study uses descriptive correlation with a cross sectional time approach with a sample size of 53 respondents. Using primary data, namely class XI female students at SMA N 2 Klaten, including data on stress levels using the DASS42 questionnaire width and data on the incidence of premenstrual syndrome using a questionnaire in the form of a questionnaire and using the chi square test. The results showed that those who experienced normal stress levels 28 respondents (52.8%), PMS 4 respondents (7.5%), no PMS 24 respondents (45.3%); with mild stress levels 22 respondents (41.5%), PMS 13 respondents (24.5%), no PMS 9 respondents (17%); severe stress levels 3 respondents (5.7%), PMS 1 respondent (1.9%), no PMS 2 respondents (3.8%). [10]

Stress is a physical and psychological reaction to any demands that cause tension and disrupt the stability of daily life. According to WHO (2003), stress is the body's reaction/response to psychosocial stressors (mental pressure/life burdens). Stress factors will aggravate PMS disorders. This greatly affects the psyche and a person in solving problems. [11]

According to the researcher's assumption, most of the female students who experience moderate stress with premenstrual syndrome, because based on the results of the evaluation of researchers filling out questionnaires to all respondents, it turns out that they are anxious, feelings of fear increase, before menstruation and they do not understand how to handle it. Students who experience severe stress can experience mild PMS due to good consumption patterns. Adolescents who do not experience stress before facing PMS because of religious education that is prioritized to adolescents from an early age, and adolescents' obedience to worship makes adolescents calm and not experience stress.

Based on table 6 in the cross tabulation above, it is known that of the 74 adolescent girls at MTsN 1 Labuhanbatu in 2024, it can be seen that there are 27 respondents (36.5) female students who have a good consumption pattern with mild PMS incidence of 3 people (4.1), Moderate PMS as many as 8 people (10.8), severe PMS as many as 16 people (21.6), female students who have bad consumption patterns as many as 47 respondents (63.5) with mild PMS incidence as many as 20 people (27.0), moderate PMS as many as 21 people (28.4), severe PMS as many as 6 people (8.1).

The results of data processing using the chi-squared test found that  $p=0.000$  was smaller than 0.05, meaning that there was a significant relationship between consumption patterns and the occurrence of PMS in adolescent girls at MTsN 1 Labuhanbatu in 2024.

Based on the chi-square test with a confidence level of 95% with  $\alpha = 0.005$ , the  $p$ -value = 0.000 means that there is a relationship between consumption patterns and premenstrual syndrome at MTsN 1 Labuhanbatu Year 2024.

Based on the results of research conducted by Rizka Safitri, et al with the title Risk Factors for Premenstrual Syndrome in Adolescents of Darul Hijrah Puteri High School in 2016. This study is an analytic observational study with a retrospective approach (case control study). Sampling using purposive sampling technique with 32 people in the case group and 32 people in the control group at Darul Hijrah Puteri High School students. The results showed that there was a relationship between risk factors, namely sports activity ( $p=0.002$ ), body mass index ( $p=0.005$ ), consumption of salty foods ( $p=0.001$ ), consumption of sweet foods ( $p=0.045$ ) with the incidence of premenstrual syndrome. Sports activity, body mass index, salty food consumption, and sweet food consumption are associated with the incidence of premenstrual syndrome in adolescents of SMA Darul Hijrah Puteri. This study is useful as a reference for further research on premenstrual syndrome. [12]

Consumption patterns are food arrangements that include the type and amount of foodstuffs per person per day, which are commonly consumed/eaten by the population within a certain period of time.

Decreased intake of salt and carbohydrates (rice, potatoes, bread) can prevent edema (swelling) in some women. Decreased consumption of caffeine (coffee) can also reduce tension, anxiety and insomnia (difficulty sleeping). Diet is recommended more often but in small portions because based on evidence that during the PMS period, there is impaired glucose uptake for energy. Maintain weight, because excessive weight can increase the risk of suffering from PMS. Consumption of caffeine and tea can cause mood changes and decreased energy on the contrary by consuming fruits, vegetables, and oats can reduce high estrogen levels in patients with Premenstrual Syndrome. [5]

According to the researcher's assumption, based on the results of the evaluation of researchers filling out questionnaires to all respondents on the eve of menstruation, many experienced an increase or decrease in appetite, some also had no appetite, and irregular dietary habits, due to unstable hormones, namely progesterone and estrogen hormones, and irregular teenage schedules due to school activities, so that adolescents' time to consume healthy food before PMS was irregular. A good consumption pattern with the incidence of severe PMS can be caused by stress factors that interfere with the prostaglandin hormone which causes the uterine muscles to contract so that they experience pain at the time of menstruation.

Based on table 7 in the cross tabulation above, it is known that out of 74 adolescent girls at MTsN 1 Labuhanbatu in 2024, it can be seen that there are 33 respondents (44.6) female students who exercise regularly with mild PMS incidence as many as 23 people (31.1), female students who experience moderate PMS as many as 5 people (6, 8), female students who experienced severe PMS were 5 people (6.8), and female students who exercised irregularly were 41 respondents (55.4) with mild PMS as many as 0 people (0), female students who experienced moderate PMS as many as 24 people (32.4), severe PMS as many as 17 people (23.0).

The results of data processing using the chi-squared test found that  $p=0.000$  was smaller than 0.05, meaning that there was a significant relationship between exercise patterns and the occurrence of PMS in adolescent girls at MTsN 1 Labuhanbatu in 2024.

Based on the chi-square test with a confidence level of 95% with  $\alpha = 0.005$ , the  $p$ -value = 0.000 means that there is a relationship between exercise patterns and premenstrual syndrome at MTsN 1 Labuhanbatu Year 2024.

Based on research conducted by Ifana Nashruna, et al with the title of the relationship between sports activity and obesity with the incidence of premenstrual syndrome in the village of Pucangmikiran Tulung Klaten in 2013

non-experimental research with analytical methods using cross sectional design. Sampling using cluster random sampling, with a total research sample of 119 respondents, while the research instrument used scales, meters and checklists. Bivariate analysis used chi square test and multivariate analysis used logistic regression test. The results of the bivariate test prove that sports activity is associated with the incidence of premenstrual syndrome (p value 0.008), and obesity is associated with the incidence of premenstrual syndrome (p value 0.044). While the multivariate test proves that sports activity (0.004) and obesity (0.020) with the variable incidence of premenstrual syndrome  $p > p_{table}$  while the most dominant variable affecting the incidence of premenstrual syndrome is sports activity with a p value of 0.004. [13]

Lifestyle is a factor that affects the onset of symptoms of premenstrual syndrome. Exercise is an example of a good lifestyle. If women exercise regularly, the body will produce endorphin which can provide a sense of calm and be able to withstand pain. Exercise can also prevent fluid retention which is one of the symptoms of Premenstrual Syndrome. Exercise is useful in reducing various symptoms of Premenstrual Syndrome. The benefits of exercise are relieving abdominal pain during menstruation, producing a calm and comfortable feeling and controlling individual emotions during the menstrual period.

Good exercise regular exercise 2 or 3 times a week yoga, aerobics, or simple stretching can reduce PMS disorders such as cramps, back pain, pain and muscle tension and stress. [5]

According to research assumptions, on a regular basis, exercise is an important part, some students rarely do sports activities and some even never do sports activities in a week, which is caused by lazy factors, tired, busy with their activities and so on because of the many activities carried out so that they do not think about sports problems so that many during PMS experience pain. And there are some who do exercise who think it is important even if only in the morning or afternoon when PMS is not too sick or even does not feel pain, exercise can improve blood circulation, muscles become less tense and can reduce stress.

#### 4. CONCLUSION

From the results of the study entitled "Factors Associated with Premenstrual Syndrome in Adolescent Girls at MTsN 1 Labuhanbatu Year 2024. What has been presented in chapter IV can be concluded that from the results of data processing using the chi-squared test, it is known that  $\chi^2_{sig} 0.000$  is smaller than 0.05, meaning that there is a significant relationship between stress and the occurrence of PMS in adolescent girls at MTsN 1 Labuhanbatu Year 2024. From the results of data processing using the chi-squared test, it is known that  $\chi^2_{sig} 0.000$  is smaller than 0.05, meaning that there is a significant relationship between consumption patterns and the occurrence of PMS in adolescent girls at MTsN 1 Labuhanbatu Year 2024. The results of data processing using the chi-squared test found that  $\chi^2_{sig} 0.000$  is smaller than 0.05, meaning that there is a significant relationship between exercise patterns and the occurrence of STDs in adolescent girls at MTsN 1 Labuhanbatu Year 2024.

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