

Article

# An Overview of Female Students Knowledge Level at Senior High School 9 Balikpapan Regarding the Use of Analgesic Drugs for Managing Dysmenorrhea

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## Abstract

Dysmenorrhea is pain in the lower abdomen or pelvis that descends to the inner thighs and back to the feet. This study aims to determine the level of knowledge of female students at SMAN 9 North Balikpapan regarding the use of analgesic drugs in treating dysmenorrhea. The method used is descriptive analytical research with a cross-sectional approach. A total of 232 female students who experienced primary dysmenorrhea were respondents in this study, who were selected using a purposive sampling technique. Data was collected through a questionnaire that measured respondents' knowledge and behavior in using analgesic drugs. The research results showed that as many as 49% of respondents had good knowledge and 74% of respondents also had good behavior regarding dysmenorrhea and analgesic drugs, but there were still deficiencies in appropriate drug use behavior. It is hoped that this research can increase female students' awareness and understanding of the importance of treating dysmenorrhea effectively, as well as the appropriate use of analgesic drugs.

**Keywords:** Dysmonerrhea; Analgesic; Knowledge; Behaviour

## 1. INTRODUCTION

Dysmenorrhea is a common menstrual complaint among adolescent girls and may interfere with daily activities, including school attendance, learning concentration, and academic performance. Inappropriate management of dysmenorrhea,

particularly irrational analgesic use, may lead to adverse drug effects and reduced treatment effectiveness, which can further reduce quality of life among adolescents.

Analgesic drugs are commonly used to relieve menstrual pain. However, limited knowledge regarding appropriate drug selection, dosage, timing of use, and potential side effects may increase the risk of irrational self-medication behavior. In addition, environmental factors such as family habits, peer influence, and accessibility of over-the-counter medications also play an important role in shaping adolescents' medication-related behavior.

Several studies have indicated an association between knowledge level and medication behavior. Nevertheless, data describing students' knowledge and behavior toward dysmenorrhea management and analgesic use in local senior high school settings remain limited, particularly in Balikpapan. Therefore, this study aims to describe the level of knowledge and behavior of female students at SMAN 9 Balikpapan Utara regarding analgesic use for dysmenorrhea management and to analyze the relationship between these variables, as well as to provide evidence-based data to support targeted health education interventions.

## 2. MATERIALS AND METHODS

### 2.1. Material

The materials used in this study consisted of: informed consent from for research participants, Questionnaire on respondent characteristics (age, grade level, menstrual pain history, family history about dysmenorrhea, sleep pattern, and exercise habits).

### 2.2. Instrument

The instruments used in this study included structured questionnaires as the main data collection instrument, laptop used for data processing, Microsoft Excel for data processing, IBM SPSS Statistics v25 software (IBM Corp., USA) for statistical analysis including validity, reliability, normality, and chi-square tests, paper and pen to fill out the questionnaire.

### 2.3. Method

The study used a non-experimental, observational analytic method with a cross-sectional approach conducted from August to October 2024. Samples were selected using purposive sampling based on inclusion criteria (female students experiencing primary dysmenorrhea, specific medical conditions, or incomplete/invalid questionnaires). Purposive sampling was used to ensure that respondents met the specific characteristics relevant to the research objectives, particularly female students who had experienced dysmenorrhea and were therefore able to provide appropriate information regarding dysmenorrhea management and analgesic use behavior. A total of 232 eligible students from Senior High School 9 Balikpapan completed the informed consents from before data collection. This sample size was considered adequate for chi-square analysis to detect an association between knowledge and behavior. Data were collected using self-administered questionnaires in the Indonesian language, completed within approximately 15–20 minutes under supervision. Four questionnaires were administered: demographic characteristics, Numeric Rating Scale (NRS) for pain intensity, knowledge about primary dysmenorrhea, and behavior related to analgesic use. Knowledge was assessed using a Guttman scale, while behavior was measured using a five-point Likert scale. Data were processed using Microsoft Excel and IBM Statistics 25, including validity, reliability, normality, and chi-square tests.

Ethical approval: This study was approved by the Health Research Ethics Committee of the Faculty of Medicine, Universitas Mulawarman, with ethical clearance number (Approval No.097/KEPK-FFUNMUL/EC/EXE/08/2024). Prior to data collection, all participants were informed about the objectives and procedures of the study. Written informed consent was obtained from the students. Confidentiality and anonymity of respondents were maintained throughout the study.

### 2.3.1. Study Design

The study used a non-experimental, observational analytical design with a cross-sectional approach. The study was conducted from August to October 2024 at Senior High School 9 Balikpapan.

### 2.3.2 Research Population and Sample

The study population was all female students at Senior High School 9 Balikpapan who experienced primary dysmenorrhea. This population represents adolescents of reproductive age and is relevant for assessing knowledge and behavior related to analgesic medication use. A total of 232 female students were selected using a purposive sampling technique. Only students who met the inclusion criteria and completed the questionnaire were included in the analysis. Participants were included if they met the following criteria: experienced primary dysmenorrhea, willing to participate and signed informed consent, active students, completed the questionnaire. Excluded participants if they: had secondary dysmenorrhea, had medical conditions that could affect menstrual pain, submitted incomplete questionnaire, and provided invalid data.

### 2.3.4 Research Instrument

The instruments used included an informed consent form, demographic questionnaire, Numeric Rating Scale (NRS), knowledge questionnaire using the Guttman scale, and behavior questionnaire using a Likert scale. Knowledge scores were categorized as good (76–100%), moderate (56–75%), and poor (<55%) based on Bloom's cut-off points. Behavior levels were categorized into good behavior (score  $\geq 15$ ) and poor behavior (score <15) based on criteria proposed by Arikunto, (2013).

### 2.3.5 Data Analysis

Data were collected by distributing questionnaires to eligible students. Participants first completed informed consent, followed by four questionnaires: characteristics, NRS pain scale, knowledge, and behavior. Data analysis was performed using SPSS version 25, including validity testing, reliability testing, normality testing (Kolmogorov-Smirnov), and chi-square analysis. The strength of association was assessed with a significance level of  $p < 0.05$ . The chi-square test was used to examine the association between knowledge level and analgesic use behavior because both variables were categorical. Normality testing was not required, as the chi-square test does not assume normal data distribution.

Data entry, coding, and statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) version 25. Descriptive statistics were used to summarize respondent characteristics, knowledge levels, and analgesic use behavior. The chi-square test was applied to examine the association between knowledge level and analgesic use behavior because both variables were categorical. A p-value of less than 0.05 was considered statistically significant. Normality testing was not required because the chi-square test does not assume normally distributed data.

#### a. Analysis of Female Students' Knowledge Levels

Knowledge levels were measured using the Guttman scale of "true" and "false" statements. A "true" statement was given a score of 1 and a "false" statement was given a score of 0. Knowledge levels were divided into three categories: good (76–100%), adequate (56–75%), and poor (55% or less) [5]. The data obtained were then subjected to several statistical tests using SPSS version 25, including validity, reliability, normality, and chi-square tests.

##### 1) Validity Tests

The r-table value for the validity test was 0.128. This test criterion was based on comparing the calculated r value  $> r$ -table and a significance value  $< 0.05$  using Pearson Correlation Coefficient analysis, which indicated that each question item in this study was valid because its significance value was  $< 0.05$  [6]. Based on the validity test results in the table above, each question item at the knowledge level was declared valid. This is because the calculated r value  $> r$ -table, where the r-table value is 0.128.

**Table 1.1** Validity Tests

No.	r count	r table	Description
1.	0.425	0.128	Valid
2.	0.503	0.128	Valid
3.	0.424	0.128	Valid
4.	0.372	0.128	Valid
5.	0.401	0.128	Valid
6.	0.426	0.128	Valid
7.	0.316	0.128	Valid
8.	0.471	0.128	Valid
9.	0.410	0.128	Valid
10.	0.323	0.128	Valid
11.	0.318	0.128	Valid
12.	0.688	0.128	Valid
13.	0.565	0.128	Valid
14.	0.639	0.128	Valid
15.	0.483	0.128	Valid

## 2) Reliability Tests

Based on the results obtained, it is known that the value of Cronbach's Alpha is 0.706, which means that the instrument is reliable or consistent, because the significance level used can be 0.6 to 0.7.

## 3) Kolmogorov-Smirnov Normality Test

The Kolmogorov-Smirnov Normality Test and the data were normally distributed in this study because the histogram graph formed a bell curve that met the assumption of data normality [7], and the P-Plot value showed that the points were scattered around the diagonal line and followed the direction of the diagonal line, indicating a normal distribution pattern [8].

## 4) Bivariate Chi-square Test

Next, a bivariate chi-square test was conducted to determine the relationship between a person's level of knowledge and their behavior. The results of this test yielded a p-value of 0.047. This indicates a significant relationship between the respondent's level of knowledge and their behavior, as this value is less than the significance level of 0.05. Conversely, there is no significant correlation between the two variables if the p-value is greater than 0.05 [9].

## b. Analysis of Female Student Behavior Levels

Behavior levels were measured using a Likert scale with ratings of never (1), rarely (2), sometimes (3), often (4), and always (5). A person's behavior scale was divided into two categories based on the total score obtained: good or positive behavior if the total score was ( $\geq 15$ ), and bad or negative behavior if the total score was ( $< 15$ ) [5]. The data obtained were then subjected to several statistical tests using SPSS version 25, including validity tests, reliability tests, normality tests, and chi-square tests.

### 1) Validity Tests

The r table value for the validity test obtained a result of 0.128. The criteria for this test were by comparing the calculated r value  $>$  r table and a significance value  $< 0.05$  using the Pearson Correlation Coefficient analysis which showed that each question item in this study was valid because its significance value was  $< 0.05$  [6].

**Table 1.2** Validity Tests

No.	r count	r table	Description
1.	0.416	0.128	Valid
2.	0.638	0.128	Valid
3.	0.807	0.128	Valid

4.	0.525	0.128	Valid
5.	0.706	0.128	Valid
6.	0.699	0.128	Valid
7.	0.794	0.128	Valid
8.	0.487	0.128	Valid
9.	0.542	0.128	Valid

## 2) Reliability Test

The reliability test in this study yielded a Cronbach's Alpha value of 0.815, with a significance level of 0.6 to 0.7, indicating the reliability of the data [6].

## 3) Kolmogorov-Smirnov Normality Test

A Kolmogorov-Smirnov Normality Test was then conducted, and the data were normally distributed. The histogram graph formed a bell curve, meeting the assumption of data normality [7]. The P-plot showed that the points were scattered around the diagonal line and followed the direction of the diagonal line, indicating a normal distribution pattern [8].

## 4) Bivariate Chi-Square Test

Next, a bivariate chi-square test was conducted to determine the relationship between a person's level of knowledge and their behavior. The results of this test yielded a p-value of 0.047. This indicates a significant relationship between respondents' level of knowledge and their behavior, as this value is less than the significance limit of 0.05. On the other hand, there is no significant correlation between the two variables, if the p-value is greater than 0.05 [9].

# 3. RESULT AND DISCUSSION

## 3.1. Respondent Characteristics

The results of the characteristic data collection in this study included age (Table 1.1), education level (Table 1.2), whether or not menstrual pain was present (Table 1.3), family history (Table 1.4), age at first menstruation (Table 1.5), nighttime sleep patterns (Table 1.6), late-night habits (Table 1.7), and exercise habits (Table 1.8) from 232 female students at Senior High School 9 Balikpapan. This data aims to obtain a general overview of respondents' knowledge and behavior regarding the use of analgesics in treating dysmenorrhea.

### 3.1.1. Age

Table 1.3 shows that the highest percentage, 32.8% or 76 respondents, were aged 17 years, followed by 32.3% or 75 respondents aged 16 years, and 28% or 65 respondents aged 15 years.

**Table 1.3** Characteristics by Age

No.	Age	Number of Respondents	Percentage (%)
1.	14 years	3	1,3
2.	15 years	65	28,0
3.	16 years	75	32,3
4.	17 years	76	32,8
5.	18 years	12	5,2
6.	19 years	1	0,4
Total		232	100

The age of 15 to 17 is middle adolescence and a productive age characterized by physical changes accompanied by emotional and psychological development, the onset of menstruation, as well as the development of reproductive organs and significant hormonal changes [1]. This is because dysmenorrhea occurs during the productive age. Compared to adults, young people experience higher levels of pain. This is because prostaglandin secretion, menstrual frequency, and uterine

width decrease with age [10]. With age, knowledge and experience increase, impacting mental and intellectual maturity. A person's level of knowledge can be influenced by age. Older people will have broader and better learning abilities and levels of knowledge than younger people [11].

### 3.1.2. Education Level

The highest percentage based on education level was 33.6%, or 78 respondents, in Grade 11, and 33.2%, or 77 respondents, in Grades 10 and 12. Education level influences a person's ability to accept new concepts, technology, or information (Table 1.4). The higher a person's education level, the easier it is for female students to acquire knowledge and have a better level of knowledge [13]. In this study, there were more female students in Grade 11 than in Grade 12. Fewer female students in Grade 12 participated because their focus and time were presumably prioritized on concentrating on preparing for final exams. This may impact the level of knowledge in this group. Those with higher education levels do not necessarily experience dysmenorrhea more frequently, but they do have slightly better knowledge to manage it.

**Table 1.4** Frequency Distribution of Respondents by Education Level

No.	Education Level	Number of Respondents	Percentage (%)
1.	Grade 10	77	33,2
2.	Grade 11	78	33,6
3.	Grade 12	77	33,2
Total		232	100

### 3.1.3. Condition During Menstruation

Based on Table 1.5, it shows that the highest percentage of female students based on their menstrual conditions, namely 74.6% or 173 respondents, experienced pain during menstruation, then as many as 25.4% or 59 respondents did not experience pain during menstruation. Often, the painful conditions experienced by someone during dysmenorrhea encourage them to learn how to overcome it, such as understanding the causes and choosing the right treatment. Individuals who experience pain during dysmenorrhea will be more active in seeking information to increase their knowledge about dysmenorrhea, so that good knowledge helps them manage dysmenorrhea properly [13].

**Table 1.5** Condition During Menstruation

No.	Conditions during menstruation	Respondents	Percentage (%)
1.	Pain	173	74,6
2.	No Pain	59	25,4
Total		232	100

### 3.1.4. Family History

Furthermore, the highest percentage of female students based on family history, 51.7%, or 120 respondents, had a family history of menstrual pain. According to Sadiman [14], a family history of dysmenorrhea increases the risk of developing dysmenorrhea because it is associated with genetic factors that are passed down to the next generation. The sources of information received by female students, including those closest to them, communication media, and their place of study, influence their knowledge about dysmenorrhea management and the use of analgesic medications. Families with a history of dysmenorrhea typically pass down information about how to manage menstrual pain. Information provided by close family members helps them adopt a more positive attitude toward dysmenorrhea treatment and thus enhances their knowledge [15].

**Table 1.6** Frequency Distribution of Respondents Based on Family History

No.	Family History	Respondents	Percentage (%)
1.	History of menstrual pain	120	51,7
2.	No history of menstrual pain	112	48,3
Total		232	100

### 3.1.5 First Menstruation

The table 1.7 shows that the highest percentage based on age at first menstruation, 37.1% of respondents, experienced their first menstruation at age 12. According to (Riskekdas, 2010), [16], the average age of menarche for 37.5% of children in Indonesia occurs between the ages of 12 and 14, which is considered normal. According to Gunawati and Nisman [17], menarche at a young age causes an increase in estrogen and progesterone levels. High levels of progesterone can increase prostaglandin synthesis in the endometrium, resulting in severe menstrual pain. Within the menarche age range of 10 and 16, 12 is considered normal. This experience allows them to seek more information about dysmenorrhea. As their education level and age increase, the knowledge they gain helps them understand and manage dysmenorrhea effectively, including analgesic medications [13].

**Table 1.7** Frequency Distribution of Respondents Based on First Menstruation

No.	First Menstruation	Respondents	Percentage (%)
1.	8 years	2	0,9
2.	9 years	4	1,7
3.	10 years	19	8,2
4.	11 years	59	25,4
5.	12 years	86	37,1
6.	13 years	56	24,1
7.	≥14 years	6	2,6
Total		232	100

### 3.1.6 Nighttime Sleep Patterns and Staying Up Late

The highest percentage of respondents had a night sleep pattern of 6–8 hours, at 64.7%, or 150. Menstrual pain can be reduced by getting enough sleep, between 6–8 hours, and this can maintain hormonal balance during the menstrual cycle. Conversely, irregular or insufficient sleep patterns can increase pain mediators such as prostaglandins, which help uterine muscle contractions, making pain worse [18]. Poor sleep quality impairs focus, alertness, reasoning, and problem-solving [20]. Sleep quality impacts memory and the ability to process information. A 6–8 hour sleep pattern supports physical and psychological health, improving memory, thinking skills, and recalling information better. Therefore, adequate sleep quality is associated with increased good knowledge [21].

**Table 1.8** Frequency Distribution of Respondents Based on Night Sleep Pattern

No.	Night Sleep Pattern	Respondents	Percentage (%)
1.	<6 hours	52	22,4
2.	6–8 hours	150	64,7
3.	>8 hours	30	12,9
Total		232	100

The highest percentage of female students, based on their staying up late patterns, was 62.5%, or 145 respondents, who had the habit of staying up late once or twice a week. Poor sleep quality and frequent staying up late can trigger stress. The body produces more prostaglandins, estrogen, progesterone, and adrenaline when under stress. Estrogen can cause excessive contractions.

**Table 1.9** Frequency Distribution of Respondents Based on Staying Up Late Patterns

No.	Staying Up Late Pattern	Respondents	Percentage (%)
1.	1. Often (≥3 times a week)	76	32,8
2.	2. Sometimes (1–2 times a week)	145	62,5
3.	3. Never	11	4,7
Total		232	100

These increased contractions trigger pain [19]. Excessive sleep or irregular sleep patterns can lead to a decreased quality of life and can affect concentration. Frequent staying up late can disrupt memory and learning processes in the brain. As a

result, people who frequently stay up late will feel tired, sleepy, less enthusiastic about daytime activities, and less focused. Adequate sleep patterns help physical and psychological health, improve memory, thinking skills, and can better recall information. Therefore, adequate sleep quality is associated with increased knowledge [21].

### 3.1.7 Exercise Habits

The highest percentage of female students based on exercise habits (Table 2), at 78.9% or 183 respondents, exercised 1–3 times a week. According to research by Hastuti & Widiyaningsih [22], exercising twice a week with an intensity of 20–30 minutes can cause blood vessel dilation and increase blood flow, which carries oxygen and endorphins to all organs, including the reproductive organs, especially the uterus, thereby reducing menstrual pain. Physical activity helps the brain become more creative, improves concentration, and maintains memory. Female students who exercise regularly tend to have better knowledge, which helps them understand, analyze, and evaluate information better, thus improving their knowledge levels. Conversely, a lack of physical activity can negatively impact cognitive function. Blood and oxygen circulation to the brain is reduced, which impacts memory, concentration, and thinking ability [23]. This study showed that respondents had a habit of exercising 1–3 times a week, yet many still experienced menstrual pain. Several factors, such as genetics, sleep patterns, age at menarche, and hormone levels, can influence the occurrence of dysmenorrhea. Therefore, exercise alone is not necessarily sufficient to prevent menstrual pain [24].

**Table 2** Frequency Distribution of Respondents Based on Exercise Habits

No.	Exercise Habits	Respondents	Percentage (%)
1.	Often ( $\geq 4$ times a week)	22	9,5
2.	Sometimes (1–3 times a week)	183	78,9
3.	Never	27	11,6
Total		232	100

### 3.2 Pain Intensity Scale (NRS)

Based on Table 2.1, the highest percentage, 32% (74 respondents), experienced pain at score 4, indicating mild but quite bothersome pain. Then, 23% (53 respondents) experienced pain at score 3, indicating mild pain and still able to carry out activities. Furthermore, 9% (22 respondents) experienced pain at score 1, indicating very mild pain. Several factors associated with primary dysmenorrhea can influence the intensity of menstrual pain.

**Table 2.1** Pain Intensity Scale

No.	Skala Intensitas Nyeri	Respondents	Percentage (%)
1.	Score 0	17	7
2.	Score 1	22	9
3.	Score 2	8	3
4.	Score 3	53	23
5.	Score 4	74	32
6.	Score 5	11	5
7.	Score 6	18	8
8.	Score 7	10	4
9.	Score 8	10	4
10.	Score 9	9	4
11.	Score 10	0	0

Note: Score 0: No complaints of abdominal pain or cramps; Score 1: Very mild pain; Score 2: Mild pain; Score 3: Mild pain and still able to carry out activities; Score 4: Mild but quite bothersome pain; Score 5: Pain that is bothersome and unbearable; Score 6: Pain that is bothersome to the point of loss of appetite; Score 7: Pain that is severe and prevents activities; Score 8: Pain that is bothersome, causing loss of concentration and behavioral changes; Score 9: Pain that is bothersome to the point of screaming in pain; and Score 10: Pain that is so intense that you don't recognize yourself or even faint

Age of menarche less than 12 years can cause more severe pain. Furthermore, not exercising at all can worsen pain symptoms. Sleep patterns of less than 6 hours a night can disrupt the hormonal balance needed to reduce pain. Family history and frequent late-night sleep habits can also worsen pain symptoms [24]. This shows that 32% of respondents who reported pain at level 4, which indicates mild but quite disturbing pain, and 23% of respondents who experienced pain at level 3, which indicates mild pain and can still carry out activities, predominantly tended not to experience a combination of these factors and therefore did not experience more severe pain.

### 3.3 Female Students Knowledge Level

Overall, the data in table 2.2 shows that the majority of respondents who answered showed a good understanding of the aspects of dysmenorrhea, including its definition, symptoms, prevention, and treatment. As many as 63% or 147 respondents answered that they knew that dysmenorrhea is pain in the lower abdomen, this is in accordance with the definition by Karout et al [2], namely dysmenorrhea is lower abdominal pain during menstruation. As many as 69% or 161 respondents understood that menstrual pain is not a disease, but a common condition that occurs during menstruation [25]. The majority of respondents, 81% or 188 respondents, understood the symptoms of dysmenorrhea such as pain in the stomach, back, thighs, headaches, and muscle pain. As many as 85% or 197 respondents answered correctly and 15% or 35 respondents answered incorrectly to the question of menstrual pain (dysmenorrhea) conditions can be experienced by various age groups, both married and unmarried. So as long as they have not reached menopause, menstrual pain will definitely occur in some women, especially those of productive age.

**Table 2.2** Respondents Knowledge Level

No.	Question	True	False	Total
1.	Menstrual pain (dysmenorrhea) is pain in the lower abdomen during menstruation.	147 (63%)	85 (37%)	232 (100%)
2.	Menstrual pain (dysmenorrhea) is not a disease.	161 (69%)	71 (31%)	232 (100%)
3.	Symptoms of menstrual pain (dysmenorrhea) include severe abdominal pain, constipation, headaches, breast tenderness, muscle pain, and back pain (one or more symptoms may occur).	188 (81%)	44 (19%)	232 (100%)
4.	Menstrual pain (dysmenorrhea) can be experienced by people of all ages, both married and single.	197 (85%)	35 (15%)	232 (100%)
5.	Menstrual pain (dysmenorrhea) is considered normal if it occurs for 2 or 3 days to less than 2 weeks before menstruation.	52 (22%)	180 (78%)	232 (100%)
6.	Prevent menstrual pain (dysmenorrhea) by avoiding stress, eating a regular diet with good nutrition, getting enough rest, and exercising regularly.	195 (84%)	37 (16%)	232 (100%)
7.	Getting enough rest to reduce tension and increasing the consumption of nutritious foods are some ways to manage menstrual pain (dysmenorrhea).	212 (91%)	20 (9%)	232 (100%)
8.	Herbal remedies such as turmeric and tamarind drinks can be used to relieve menstrual pain (dysmenorrhea).	181 (78%)	51 (22%)	232 (100%)
9.	Self-medication is the practice of managing menstrual pain (dysmenorrhea) on one's own without the assistance of healthcare professionals or facilities.	175 (75%)	57 (25%)	232 (100%)
10.	The recommended dosage for adults is one tablet (500 mg) three to four times daily.	112 (48%)	120 (52%)	232 (100%)
11.	If you forget to take your pain medication, you can take two tablets at once.	135 (58%)	97 (42%)	232 (100%)
12.	In general, a side effect of pain medication is irritation of the digestive tract, so it should be taken after meals.	166 (72%)	66 (28%)	232 (100%)
13.	Pain medication should only be taken when in pain (not for continuous use).	208 (90%)	24 (10%)	232 (100%)
14.	Medications should be stored at home out of direct sunlight.	204 (88%)	28 (12%)	232 (100%)
15.	Painkillers that have changed color should not be consumed.	178 (77%)	54 (23%)	232 (100%)

According to WHO [26], the age of menopause for women is between 45 and 55 years. This shows that the majority of respondents are aware that dysmenorrhea can be experienced by anyone, especially women, regardless of social status. However, 22% or 52 respondents who answered question number 5 correctly indicate that many respondents still do not know when menstrual pain is considered normal. In fact, dysmenorrhea occurs during menstruation or a few days before

menstruation, and does not last for 2 weeks before menstruation. While Premenstrual Syndrome (PMS) is usually felt one week before menstruation [27], but as many as 78% or 180 respondents already understand when menstrual pain is considered normal. As many as 84% or 195 respondents understand how to prevent it. Knowledge about treatment such as the use of herbal medicines and analgesics is quite good. However, there are still misunderstandings regarding the understanding of the dosage of analgesic drugs and knowledge about this still needs to be improved. As many as 90% or 208 respondents know that analgesic drugs are only consumed when there is pain and as many as 88% or 204 respondents understand that storing drugs at home must be stored in a place that is not exposed to direct sunlight, must pay attention to the temperature, light, humidity and oxygen of the storage area, this is done to avoid the acceleration of drug damage due to heat or extreme temperature changes and readjust the stability of each drug [28]. The majority of respondents, namely 77% or as many as 178 respondents, have quite good knowledge regarding changes in the color of painkillers that should not be consumed, because this color change is usually a characteristic of damaged or expired drugs. expired and can reduce the effectiveness of the drug or can cause health problems if consumed [29], but there are still 23% or 54 respondents who are not aware of this danger.

### 3.3.1 Percentage of Knowledge Level

Based on Table 2.3, it can be concluded that the majority of respondents (49%, or 113 respondents) had a high/good level of knowledge. Meanwhile, 37%, or 85 respondents, had a moderate/sufficient level of knowledge, and 15%, or 34 respondents, had a low/poor level of knowledge. In this study, the low level of knowledge of some respondents refers to aspects of analgesic medication use, specifically regarding the rules and timing of medication use, dosage, and side effects. Some respondents still didn't understand that analgesic medication should be used according to the recommended dosage and only taken when needed, not finished once symptoms have subsided. This indicates a lack of information and education among female students regarding rational medication use among adolescents. Therefore, educational efforts are needed in schools, such as providing counseling on the proper and correct use of medications to female students, involving teachers and health workers when necessary.

**Table 2.3** Percentage of Knowledge Levels

No.	Knowledge Level	Respondents	Percentage (%)
1.	High/Good	113	49
2.	Moderate/Sufficient	85	37
3.	Low/Poor	34	15
Total		232	100

### 3.4. Female Student Behavior Level

Most respondents (Table 2.4) stated that they did not seek medical advice or instructions for using painkillers during dysmenorrhea. Even though menstrual pain lasted for 3 days, 72% (167 respondents) reported never consulting a doctor, and 64% (148 respondents) reported relying solely on the instructions on the medication packaging and not consulting a pharmacist. Consulting with a pharmacist can provide accurate information about dosages, contraindications, and help ensure that the medication is being used correctly and safely, even without a prescription. Thirty-eight percent of respondents did not stop taking their medication when symptoms subsided, even though painkillers should be stopped when pain subsides. Sixty-nine percent (160 respondents) reported always checking medication information and expiration dates, indicating good medication safety habits. Thirty-six percent (86 respondents) did not stop taking their medication or contact a doctor if they experienced side effects. If respondents experience side effects, they should immediately stop taking the medication and consult a doctor or pharmacist for appropriate treatment. Furthermore, 44% (101) of respondents did not take painkillers after meals, even though this is one way to prevent side effects on the stomach. Forty-six percent (107) of respondents chose never to use any type of painkiller, and 64% (149) of respondents never purchased menstrual pain medication from a drugstore, indicating that they prefer to purchase medications from pharmacies, thus reducing the risk of medication errors.

**Table 2.4** Respondent Behavior Level

No.	Question	Answer*					Total
		1	2	3	4	5	
1.	If menstrual pain (dysmenorrhea) doesn't go away for three days, I will see a doctor.	167 72%	31 13%	29 13%	3 1%	2 1%	232 100%
2.	I get the menstrual pain (dysmenorrhea) medication I buy from the pharmacy without asking the pharmacist; I simply read the instructions on the label or packaging.	148 64%	29 13%	26 11%	14 6%	15 6%	232 100%
3.	I stop using the painkiller once the symptoms of menstrual pain (dysmenorrhea) have subsided, even if the medication is still present.	87 38%	11 5%	34 15%	22 9%	78 34%	232 100%
4.	I always pay attention to the information and expiration date on the packaging when purchasing or using medication.	18 8%	6 3%	21 9%	27 12%	160 69%	232 100%
5.	If I experience side effects after taking painkillers, I stop taking them and consult a doctor.	86 37%	28 12%	31 13%	22 9%	65 28%	232 100%
6.	I always take my painkillers after meals.	101 44%	34 15%	36 16%	24 10%	37 16%	232 100%
7.	I only use one type of painkiller, without using other medications with the same indication.	107 46%	18 8%	34 15%	22 9%	51 22%	232 100%
8.	I always take painkillers before meals.	160 69%	31 13%	24 10%	7 3%	10 4%	232 100%
9.	I can buy menstrual pain medication at the store, by stating the name of the medication I know.	149 64%	22 9%	24 10%	11 5%	26 11%	232 100%

Note: \* = 1: Never; 2: Rarely; 3: Sometimes; 4: Often; 5: Always

### 3.4.1 Percentage of Respondents Behavior Level

Based on Table 2.5, it can be concluded that 74%, or 171 respondents, tended to have good or positive behavior. Furthermore, 26%, or 61 respondents, exhibited bad or negative behavior. Positive behavior can be understood as a result of a relatively high or good level of knowledge.

The results of this study indicate that 61 respondents exhibited bad or negative behavior. This refers to the score indicators of several respondents who answered "rarely" or "never," such as those related to medication instructions, the importance of consulting a healthcare professional before using medication, and medication side effects. This indicates a lack of understanding or awareness about the importance of rational drug use and the importance of consulting a healthcare professional when purchasing medications. Therefore, educational efforts are needed in schools, such as providing counseling on proper medication use to female students, involving teachers and healthcare professionals when necessary, and raising awareness about consulting a pharmacist before purchasing medications.

**Table 2.5** Percentage of Respondents' Behavior Levels

No.	Tingkat Perilaku	Respondents	Percentage (%)
1.	Good Behavior	171	74
2.	Bad Behavior	61	26
	Total	232	100

According to Arikunto [5]:

a. Good/Positive Behavior: Respondent Score ( $\geq 15$ )

b. Bad/Negative Behavior: Respondent Score ( $< 15$ )

This study has several strengths, including a relatively large number of respondents and the use of validated and reliable instruments. Moreover, the study provides practical insight into adolescents' knowledge and behavior regarding dysmenorrhea and analgesic use in a senior high school setting, which is relevant for health education programs. This study involved a relatively large sample size and used validated questionnaires, which enhances the reliability of the findings. In addition, ethical approval and standardized statistical analyses further strengthen the methodological quality of this study.

This study has several limitations. Confidence intervals were not reported because the primary analysis was based on chi-square testing, which focuses on association rather than risk estimation. This study did not perform multivariate analysis to control for potential confounding factors such as family influence and access to health information. Future studies are recommended to apply logistic regression analysis for more comprehensive assessment.

#### 4. CONCLUSION

Based on the research results, it can be concluded that the level of knowledge of female students regarding dysmenorrhea and the use of analgesics to treat pain is good (49%). The results of the level of behavior of female students regarding dysmenorrhea and the use of analgesics to treat pain are good (74%).

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#### REFERENCES

1. Saputra, Y.A., Kurnia, A.D., Aini, N. Pengaruh Pendidikan Kesehatan terhadap Upaya Remaja untuk Menurunkan Nyeri Saat Menstruasi (Dismenore Primer). *Jurnal Kesehatan Reproduksi*, **2021**, *7(3)*, 177–182.
2. Karout, S., Soubra, L., Rahme, D., Karout, L., Khojah, H.M., Itani, R. Prevalence, Risk Factors, and Management Practices of Primary Dysmenorrhea Among Young Females. *BMC women's health*, **2021**, *21*, 1–14.
3. Yunida, H. Evaluasi Binaan Kasus pada Remaja dengan Dismenore Melalui Pengobatan Tradisional. *Jurnal Pengabdian Mandiri*, **2022**, *1(7)*, 1231–1238.
4. Della, S., Kusumasari, V., Sari, D.N.A. Hubungan Intensitas Nyeri Dismenore dengan Aktivitas Belajar pada Remaja Putri Usia 15–18 tahun di SMAN 1 Banguntapan Yogyakarta. *Jurnal Cakrawala Promkes*, **2019**, *1(2)*, 48–56.
5. Arikunto, S. *Prosedur Penelitian: Suatu Pendekatan Praktik*. Jakarta Rineka Cipta: **2013**
6. Darma, B. *Statistika Penelitian Menggunakan SPSS (Uji Validitas, Uji Reliabilitas, Regresi Linier Sederhana, Regresi Linier Berganda, Uji t, Uji F, R<sup>2</sup>)*. *Guepedia*. **2021**
7. Devi, N., Purba, M.A. Pengaruh sosialisasi perpajakan dan sanksi perpajakan terhadap kepatuhan wajib pajak orang pribadi. *Scientia Journal: Jurnal Ilmiah Mahasiswa*, **2019**, *1(2)*.
8. Ghozali, I. *Analisis Multivariate Dengan SPSS*. Semarang: BP UNDIP. **2016**
9. Setyawan, D.A. *Buku Ajar Statistika Kesehatan Analisis Bivariat Pada Hipotesis Penelitian*. Surakarta: Tahta Media Group. **2022**.
10. Fauziah, N.A., Fara, Y.D., Handayani, R. Coklat Sebagai Penurun Nyeri Dismenore Primer pada Siswi SMK Farmasi di Bandarlampung. *Wellness and Healthy Magazine*, **2019**. *1(2)*
11. Meylawati, L.E., Anggraeni, F. Hubungan Tingkat Pengetahuan Dan Sikap Dalam Mengatasi Dismenorea Primer Pada Remaja. *Jurnal Wacana Kesehatan*, **2021**, *6(1)*, 33–38.

12. Rasfayanah, R. Hubungan Tingkat Pengetahuan tentang Dismenorea dengan Perilaku Penanganan Dismenorea pada Mahasiswi FK UMI Makassar Angkatan 2013. *UMI Medical Journal*, **2018**, *3(2)*, 37–45.
13. Sandra, G.B., Enawati, S., Ambarwati, W.N. *Gambaran Pengetahuan Remaja Putri Mengenai Penanganan Dismenore di Kelurahan Kedungwinong*. Semarang. **2015**.
14. Sadiman, S. Analisis Faktor yang Berhubungan dengan Kejadian Dismenorhea. *Jurnal Kesehatan*, **2017**, *8(1)*, 392. <https://doi.org/10.26630/jk.v8i1.392>
15. Juwita, L., Prabasari, N.A. Penatalaksanaan Dismenore berdasarkan Karakteristik Dismenore pada Remaja Putri. *Adi Husada Nursing Journal*, **2022**, *8(1)*, 1–8.
16. Kementerian Kesehatan RI. *Riset Kesehatan Dasar 2010*. **2010**;78.
17. Gunawati, A., Nisman, W.A. Faktor-faktor yang berhubungan dengan tingkat dismenorea di SMP Negeri di Yogyakarta. *Jurnal Kesehatan Reproduksi*, **2021** *8(1)*, 8–17.
18. Rachmaputri, N.R., Purwaningsih, E., Qomariyah, Q., Arifandi, F. The Effect of Dysmenorrhea on the Sleep Quality of YARSI University's Medical Student Batch 2020 According to Islamic Perspective. *Junior Medical Journal*, **2022**, *1(3)*, 343–350.
19. Saifuddin, A.B., Rachimhadhi, T., Wiknjosastro, G.H. *Ilmu Kebidanan Sarwono Prawirohardjo*. Ilmu Kebidanan Sarwono Prawirohardjo. **2016**.
20. Haryatno, P. Hubungan Intensitas Olahraga dan Pola Tidur dengan Tingkat Stres Pada Mahasiswa Tingkat Satu Poltekkes Surakarta. Surakarta. **2014**.
21. Kewuta, E.S.K. Dampak Keteraturan Tidur Malam terhadap Prestasi Belajar pada Siswa Kelas VI di SD Katolik ST. Yakobus Mariso Makassar. STIK Stella Maris. **2018**.
22. Hastuti, W., Widiyaningsih, W. Senam Aerobic Untuk Mengatasi Nyeri Menstruasi Pada Remaja Putri Di Pondok Pesantren Al Ishlah Semarang. *Jurnal Kesehatan Kusuma Husada*, **2020**, *86–90*.
23. Resita, C. Pengaruh Pendidikan Jasmani Terhadap Fungsi Kognitif dan Capaian Belajar Peserta Didik. *JPKO Jurnal Pendidikan dan Kepeleatihan Olahraga*, **2023**, *1(2)*, 46–52.
24. Tari, T.M., Suprida, S., Amalia, R., Yunola, S. Faktor-Faktor Yang Berhubungan Dengan Dismenore Pada Remaja Putri. *Jurnal Aisyiyah Medika*, **2023**, *8(2)*.
25. Dolang, M.W., Djarami, J., Dusra, E., Simanjuntak, Y.F. Edukasi Penanganan Dismenore Pada Remaja Putri. *Jurnal Masyarakat Mandiri*, **2023**, *7(1)*, 23–29.
26. World Health Organization. Menopause. **2024**.
27. Novita, R. Hubungan Status Gizi dengan Gangguan Menstruasi pada Remaja Putri di SMA Al-Azhar Surabaya. *Amerta Nutrition*, **2018**, *2(2)*, 172–181.
28. Octavia, D.R., Susanti, I., Negara, S.B.M.K. Peningkatan Pengetahuan Masyarakat tentang Penggunaan dan Pengelolaan Obat yang Rasional Melalui Penyuluhan Dagusibu. *GEMASSIKA: Jurnal Pengabdian Kepada Masyarakat*, **2020**, *4(1)*, 23–39.
29. Tandah, M.R., Ambianti, N., Zainal, S.F. Edukasi Obat Rusak Dan Kedaluarsa Pada Masyarakat Desa Tosale, Kecamatan Banawa Selatan, Kabupaten Donggala. *Jurnal Pengabdian Farmasi dan Sains*, **2022**, *1(1)*, 8–12.