

## Overview of Non-Pharmacological Treatment Option for Adolescent Girls with Dysmenorrhea in Cimahi, West Java, Indonesia

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### Abstract

**Background:** Dysmenorrhea is a condition of pain during menstruation that may affect daily activities. The phenomenon of dysmenorrhea in West Java has reached 54.9%. When dysmenorrhea is not treated, it can decrease productivity at school. This study aimed to find out which therapy was more widely used, the reasons for using the therapy, and to identify changes in non-pharmacological therapy as seen from the visual analog scale (VAS) assessment.

**Methods:** This research used quantitative data with a descriptive study conducted with a cross-sectional method, and the instrument used was a questionnaire. The study was conducted in July 2022 with a total sample of 457 participants, and 366 samples met the inclusion criteria. This data analysis used Statistical Package for Social Scientists (SPSS version 28) to identify changes before and after non-pharmacological therapy options and the frequency distribution of the data.

**Results:** The non-pharmacological therapy option was preferred by students (n=366), and the reasons students used this therapy were seen from various aspects. Rest was the most frequently chosen activity by students (n=329). All students felt a change in the pain scale before and after using non-pharmacological therapy with the visual analog scale (VAS).

**Conclusions:** Adolescent girls prefer non-pharmacological therapy with rest. They have various aspects of reasoning and feeling changed after using the therapy. There is a change in the pain scale after using non-pharmacological therapy.

**Keywords:** Adolescent, dysmenorrhea, non-pharmacological therapy, rest

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### Introduction

Menstruation is bleeding from the uterus that periodically occurs because fertilization does not occur.<sup>1</sup> A normal menstrual cycle usually lasts 21 to 35 days with an average volume of blood loss of 20 to 80 ml.<sup>2</sup> Some menstruating women will usually experience several complaints, such as enlarged breasts, irritability, restlessness, and pain during menstruation that can interfere with daily activities or is referred to as dysmenorrhea.<sup>3</sup> Dysmenorrhea is pain that occurs before

or during menstruation.<sup>2,4</sup> Dysmenorrhea is divided into two categories primary dysmenorrhea and secondary dysmenorrhea. Primary dysmenorrhea is a painful condition during normal menstruation that lasts 24 to 72 hours. Secondary dysmenorrhea is pain during menstruation that occurs when there is a disturbance in the pelvis.<sup>2,4</sup>

According to World Health Organization (WHO), pain during menstruation or dysmenorrhea worldwide is vast, with an average of 16.8% to 81%.<sup>5</sup> In Indonesia, dysmenorrhea peaked at 54.89%, and in West

Java, it reached 54.9%.<sup>3</sup> Dysmenorrhea could impact the quality of life (QoL), especially for adolescents. If the pain is intense, the adolescent who experiences it will ask for permission not to go to school. As a result, learning activities will be disrupted. If this continues, it will result in a decrease in achievement at school.<sup>6</sup>

Dysmenorrhea can be cured with pharmacological therapy or non-pharmacological therapy. Pharmacological therapy is a therapy that uses drugs and contains chemical ingredients like ibuprofen and mefenamic acid. The mechanism of action from ibuprofen and mefenamic acid decreased prostaglandin, causing uterine contraction can be reduced.<sup>4</sup> Non-pharmacological therapy is an alternative therapy without using drugs, like warm compress, herbs, and others. Non-pharmacological therapy is preferred over pharmacology because it has no side effects if used in the long term.<sup>7,8</sup> The study aimed to determine the reasons for using therapy, what therapy was often used, and also to identify changes in the provision of non-pharmacological therapy as seen from the visual analog scale (VAS) assessment in treating dysmenorrhea.

## Methods

This research was a quantitative study with descriptive data using a cross-sectional method. The cross-sectional method was research that takes a sample once simultaneously.<sup>9</sup> The data source used primary data obtained through filling out questionnaires to respondents. The research instrument used a questionnaire on Google Forms with a visual analog scale (VAS). This study was conducted in July 2022. From the results of pre-observations at several school health units at Cimahi High School, the most cases of dysmenorrhea were found at Public Senior High School 1 (*Sekolah Menengah Atas Negeri 1*, or SMAN 1), Cimahi, namely 17 students per the academic year 2018/2019 caused by dysmenorrhea. The inclusion criteria in this study were grade 1 and 2 girl students at SMAN 1 Cimahi, who had parental consent to participate, had their period, and were willing to participate in the study and its. This study excluded adolescent girls who used pharmacological therapy when dysmenorrhea. The population in this study was grade 1 and 2 girl students at SMAN 1 Cimahi for the 2022/2023 academic year. The population in this study was 464 girl students, seven girl students did not fill out

the questionnaire, and 92 girl students did not meet the inclusion criteria, so the total sample was 366.

The independent variables in this study were grades 1 and 2 adolescent girls at SMAN 1 Cimahi, and the dependent variable was non-pharmacological therapy for dysmenorrhea. Adolescence was divided into three stages. Early adolescence was 13–14 years old, middle adolescence was 15–16, and late adolescence was 17–18.<sup>3</sup> Dysmenorrhea often occurred in the first three years of menarche (15–16 years). Adolescents who had reached puberty would experience menstruation. Menstruation normally occurs within 1–7 days with a decrease in blood volume of 80–120 ml. Women with primary dysmenorrhea experience pain for 1–2 days, while women with secondary dysmenorrhea experience pain for more than three days or during menstruation.<sup>2,10</sup> Dysmenorrhea therapy may be given to relieve pain so it does not interfere with daily activities. They can use pharmacological or non-pharmacological therapy.<sup>5</sup> Pain that interferes with activities caused women with dysmenorrhea to seek information on relieved pain from various sources such as family, friends, the internet, social media, books, and others. The pain scale for measuring the dependent variable was a visual analog scale (VAS) with a pain scale of 1–10 and was presented as images of facial expressions of pain. A pain scale of 1–3 was categorized as mild pain, a scale of 4–6 was categorized as moderate pain, and a scale of 7–10 was categorized as severe pain.<sup>11</sup>

The sampling technique was carried out using the total sampling method; namely, the researcher used all the subjects as samples.<sup>12,13</sup> The procedure or flow of this study was divided into two stages. The first stage was sampling grades 1 and 2 adolescent girls of SMAN 1 Cimahi, and the second stage was data recap and analysis. Stage 1, this study was approved by the Research Ethics Committee of Universitas Padjadjaran, with Ethical clearance number 586/UN6.KEP/EC/2022. To conduct this research, we were required to write a letter of permission from the Faculty of Medicine Universitas Padjadjaran addressed to SMAN 1 Cimahi. We also asked for permission to collect Whatsapp numbers to create a group on Whatsapp with the selected students and distributed questionnaires in the Google form. Stage 2 included data recap and validation of results, then samples were taken according to the inclusion and exclusion criteria, and data analysis was carried out.

After all the data were collected, the data were presented in tables. This study was conducted using the cross-sectional method and the Statistical Package for Social Scientists (SPSS version 28) to identify changes before and after using non-pharmacological therapy options and the frequency distribution of the data.

## Results

Of the 370 students who had dysmenorrhea, 366 students were known according to inclusion criteria. According to the characteristics of the students, most students who experienced dysmenorrhea chose non-pharmacological therapy as a treatment, and most students chose their family as a source of information about non-pharmacological therapy to treat dysmenorrhea (Table 1).

Furthermore, based on the distribution of pain scale while dysmenorrhea before given

non-pharmacological treatment options, it was found that 148 students (40.44%) felt more on a moderate pain scale, which was a scale of 4 to 6, and on a severe pain scale of 7 to 10. The mild pain scale was on a scale of 1 to 3, which was felt by 70 students (19.13%). The pain scale they chose was each individual's perception (Table 2).

Moreover, students chose non-pharmacological therapy for dysmenorrhea based on several aspects; some chose more than one aspect as their answers. There were several aspects, such as cost, safety, effectiveness and practicality. Most students chose effectiveness, with 174 students (41.43%) (Table 3).

The distribution of non-pharmacological therapy options, showed that the total number did not match the number of students who used non-pharmacological therapy because students could choose more than one answer. Most students chose to rest as non-

**Table 1 Characteristics of Students**

Characteristics	Frequency (n)	Percentage (%)
Grade		
Grade 1	173	46.76
Grade 2	197	53.24
Age (years)		
13–14 years old	13	3.51
15–16 years old	333	90.00
17–18 years old	24	6.49
Menstrual period		
1–7 days	304	82.16
>7 days	66	17.84
Length of pain during the last menstruation		
1–2 days	334	90.27
≥3 days	36	9.73
Feel dysmenorrhea		
First three days of menstruation	345	93.24
During menstruation	25	6.76
Therapy commonly used when dysmenorrhea		
Pharmacological therapy (pharmacy drugs)	4	1.08
Non-pharmacological therapy (herbs, warm compress, ginger water, yoga, rest, and others)	366	98.92
Source of non-pharmacological therapy (can choose more than one answer)		
Family	290	38.46
Friends	129	17.11
Internet (Google, halodoc, and others)	163	21.62
Social media (Instagram, TikTok, Twitter, and others)	146	19.36
Book	14	1.86
Others	12	1.59

**Table 2 Distribution of Pain Scale while Dysmenorrhea before Given Non-pharmacological Treatment Options**

Pain Scale while Dysmenorrhea before Given Non-pharmacological Treatment Options	n	%
Mild	70	19.13
Moderate	148	40.44
Severe	148	40.44
Total	366	100

**Table 3 Reasons For Choosing Non-Pharmacological Therapy**

Aspect (can choose more than one answer)	n	%
Cost	6	1.43
Safety	32	7.62
Effectiveness	174	41.43
Practicality	122	29.05
Others	86	20.48
Total	420	100

pharmacological therapy when dysmenorrhea. Each choice of non-pharmacological therapy differed in the pain scale before and after the intervention (Table 4).

### Discussion

This study showed that 370 students had already experienced menstruation in all samples, and 366 students (98.92%) preferred non-pharmacological therapy to treat dysmenorrhea compared to pharmacological

therapy. Non-pharmacological therapy more widely used in treating dysmenorrhea was rest. From the results of previous studies, 41.7% of samples have preferred non-pharmacological therapy (10.4%).<sup>14</sup> This is similar to the results of this study, where the sample preferred non-pharmacological therapy for dysmenorrhea. However, there are differences in previous studies. This study showed that non-pharmacological therapy, when dysmenorrhea was widely used.

Non-pharmacological therapy is an

**Table 4 Distribution of Non-Pharmacological Therapy**

Non-pharmacological Therapy Option while Dysmenorrhea (can choose more than one)	n	%	Mean Pain Scale before Intervention	Mean Pain Scale after Intervention
Warm compress	282	28.75	6.23	2.53
Herbs	68	6.93	6.68	2.68
Yoga	20	2.04	5.9	2.2
Rest	329	33.54	5.85	2.43
Acupuncture/acupressure	4	0.41	6.75	2.5
Massage	110	11.21	6.14	2.52
Take a deep breath	94	9.58	5.96	2.5
Diet (mineral water, reduced sweet food, stop oily foods, and others)	64	6.52	6.44	2.25
Others	10	1.02	6	2.5

alternative therapy to pharmacological therapy.<sup>15,16</sup> Treatment using non-pharmacological therapy does not cause serious side effects. Non-pharmacological therapy has its way of working according to the choice of therapy.<sup>7</sup> In general, non-pharmacological therapy works during dysmenorrhea to reduce uterine contractions caused by increased prostaglandins.<sup>17,18</sup> Rest can reduce uterine contractions due to reduced activity to reduce pain.<sup>19</sup> In addition, warm compresses will provide a warm sensation, which will cause vasodilation in the uterus to decrease the pain sensation.<sup>20,21</sup>

Rest can be used on day 1 or 2 because the peak of menstrual pain will be felt on day 2.<sup>22</sup> During menstruation, blood will accumulate in the uterine cavity and enter through the narrow cervical canal. The narrow cervical canal in adolescents is caused by its small size  $\leq 25$  mm.<sup>23</sup> The narrow cervical canal size is accompanied by accumulated blood in the uterine cavity, increases prostaglandins, and causes pain during menstruation or dysmenorrhea. Dysmenorrhea typically disappears after two days of menstruation or primary dysmenorrhea, whereas dysmenorrhea is presented until the third day or more.<sup>4</sup>

The reason why adolescents preferred to use non-pharmacological therapy for dysmenorrhea in this study showed various reasons, which could be seen from various aspects, and students might choose more than one answer. Most students chose non-pharmacological therapy for dysmenorrhea because it was more effective in treating dysmenorrhea. A total of 174 students (41.43%) chose effectiveness as the reason for using non-pharmacological therapy. Adolescents feel non-pharmacological therapy is more effective in reducing pain when dysmenorrhea than pharmacological therapy.<sup>17,24</sup> Students also chose not only that but also the practical aspect as the reason students preferred non-pharmacological therapy. A total of 122 students (29.05%) chose practical reasons. Materials and tools for non-pharmacological therapy when dysmenorrhea was easy to obtain and used when the pain occurred. Adolescents do not need to leave the house to buy medicine because the tools and materials are available at home.<sup>8</sup>

The results showed that the safety aspect was chosen as one of the reasons for using non-pharmacological therapy. A total of 32 students (7.62%) chose this reason because students were not sure about using pharmacological

therapy. A student said that pharmacological therapy had side effects compared to non-pharmacological therapy. Besides, the cost aspect was chosen as the reason for using non-pharmacological therapy. The cost aspect was chosen by as many as six students (1.43%) because the students did not need to spend any money using non-pharmacological therapy options. Students only used tools and materials readily available at home without buying for the non-pharmacological therapy.

Some students chose other reasons for using non-pharmacological therapy options. A total of 86 students (20.48%) mentioned various reasons. Some students chose non-pharmacological therapy because of the recommendation of their mother or sister, and several other students said that using non-pharmacological therapy was more comfortable than pharmacological therapy. Some students said they could not swallow pills or capsules and were unfamiliar with pharmacological therapy.

This study is similar to the previous study. Respondents choose therapy without drugs because it saves cost and energy and is considered safer because it does not have serious side effects. Besides that, there is a difference between this study and previous studies. Previous studies do not show other reasons for choosing non-pharmacological therapy for dysmenorrhea and sampling through interviews.<sup>25</sup>

This study showed that from all students who experienced dysmenorrhea and used non-pharmacological therapy options when dysmenorrhea, there was a change in the pain scale to the provision of non-pharmacological therapy using the visual analog scale (VAS). There were differences between the pain scale before and after the intervention. The pain scale before the intervention was bigger than after the intervention. It showed a decrease in pain scale after using non-pharmacological therapy.

This study's results are similar to previous studies; warm compresses and white turmeric extract effectively reduced pain.<sup>26,27</sup> However, there are differences with the results of previous studies. They have not seen the effectiveness of various non-pharmacological therapy options nor shown the most effective therapy. This study showed that all non-pharmacological therapy options reduced the pain scale of dysmenorrhea.

The limitation of this study is not performing further observation on non-pharmacological therapy from both categories of dysmenorrhea.



Suggestions for adolescent girls in this study are expected to be useful as dysmenorrhea information on non-pharmacological therapy options. For other researchers, this study can be used as initial data for further research.

In conclusion, most respondents prefer non-pharmacological therapy as a treatment for dysmenorrhea, with various reasons for using non-pharmacological therapy. Rest is used more when adolescent girls experience dysmenorrhea and feel better.

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