

## ***Body Mass Index and Warm Compress Are Associated with Severity of Dysmenorrhea in Jakarta Private High Schools***

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**Abstract:** *Dysmenorrhea is pain during menstruation that can disturb teenager's daily activities, such as studying and social activities. Dysmenorrhea has a negative impact on the quality of life. Dysmenorrhea occurs in many women, especially at school age. The purpose of this study is to determine the relationship between characteristics and non-pharmacological pain management with the severity of dysmenorrhea among female student at Yadika 2 Jakarta high school. This study used quantitative method, descriptive correlational design and cross sectional approach. The sample was 140 female students with a total sampling technique. This analysis was done by Chi Square found there is a colleration beteween characteristics menstrual cycle (pvalue=0.041), BMI (pvalue=0.001), and non-pharmacological pain management warm compress (pvalue=0.014) with the severity of dysmenorrhea. Adolescents are expected to be able to maintain a balanced nutritional diet to keep a normal BMI, and non-pharmacological treatment with warm compress can be an alternative to overcome dysmenorrhea..*

**Keywords:** *Characteristics of Dysmenorrhea, Non-Pharmacological Pain Management, Severity of Dysmenorrhea*

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### **INTRODUCTION**

The World Health Organization Quality of Life (WHOQOL, 1995) states that the quality of life is a person's perception of the status in his life. The meaning of quality of life is to distinguish between what is expected and reality. A teenager's quality of life refers to all aspects of the adolescent's life, namely, psychological, social, spiritual, and physical well-being. Disruption of the quality of life of a teenager can interfere with aspects of adolescent life such as psychological state, level of independence, social relationships, and physical health (Oleś, 2016).

According to the World Health Organization (WHO) in the Ministry of Health (Kemenkes, 2010), Reproductive health is a complete, healthy, and prosperous health physically, mentally, and socially, not only a condition where free from a disease but also free from a disability. in the function and process of reproduction. Adolescent Reproductive Health (KRR) according to the National Population and Family Planning Agency (BKKBN, 2016) is a health condition in the reproductive system of a teenager in physical, mental, spiritual, and emotional aspects. Problems that can arise in KRR according to the Indonesian Health Data and Information Center (Ministry of Health, 2015) are premarital sex which can lead to unwanted pregnancies with the potential for unsafe abortions, sexual behavior-changing partners who are at risk for sexually transmitted infections (STIs). ), including Human Immunodeficiency Virus (HIV), risky behaviors such as the use of narcotics, psychotropic substances, and addictive substances (Drugs), and poor nutritional behavior that can cause nutritional problems such as anemia. Preventive and promotive efforts have been carried out by the government to educate youth about the issue of KRR by incorporating reproductive health education into several curriculum learning materials that already exist in the world of education both intra-curriculum, extra-curriculum, and counseling guidance (Masfiah et al., 2016).

Dysmenorrhea causes disturbances in the quality of life of adolescents, namely the disruption of daily activities of adolescents such as studying, social activities, disruption of relationships with family and friends, therefore the role of health workers is urgently needed to help deal with dysmenorrhea

experienced by adolescents so that it does not interfere with the quality of life of these adolescents (Al - Jefout et al., 2015). Based on research by Ardianti and Elisanti in 2019 it was stated that 63.2% of female adolescent girls with anemia experienced dysmenorrhea. Adolescent girls who have anemia have a 20 times greater risk of experiencing dysmenorrhea. 70% -80% of women experience dysmenorrhea during their reproductive years, which has signs and symptoms such as lower abdominal cramps, back pain, headaches, and nausea, even vomiting which results in disturbances in daily activities such as studying and working (Kwame Ameade et al. al., 2018; Patton & Thibodeau, 2018). The incidence of dysmenorrhea in Indonesia is estimated to reach 60-70% of women in Indonesia with the incidence of primary dysmenorrhea at 54.89%, and 45.11% in the second type (Puspita & Novita, 2018).

According to the Ministry of Health of the Republic of Indonesia, in 2017 West Java Province it is estimated that around 30%-70% of women of reproductive age experience menstrual problems including abdominal pain or abdominal cramps, the incidence of dysmenorrhea in Central Java Province is estimated at 1,518,867 people or 55% and is estimated at 52 % in DI Yogyakarta Province, (Famimah, Margawati & Fitranti, 2017; Karim, 2019) According to previous research in the East Jakarta area, the prevalence of dysmenorrhea is estimated at 63.2% (Asma'ulludin, 2016) and in West Jakarta the incidence dysmenorrhea is estimated at 79.5% (Putri. et al., 2018). Efforts to treat dysmenorrhea can be done by maintaining a healthy diet, getting enough rest, exercising, doing warm compresses, taking analgesic drugs, doing massase, and pain distraction (Bobak, 2012). Management of dysmenorrhea according to Hockenberry, Wilson, and Rodgers (2017) can be done by giving warm compresses, doing massage on the back and rhythmic gentle massage on the abdomen, pelvic rock (pelvic rock) pain distraction with aromatherapy, meditation, and a balanced diet, and diet. low fat. Physical therapy by doing sports and warm compresses is known that there is no difference in effectiveness, handling dysmenorrhea by doing sports and warm compresses have the same effectiveness in reducing the severity of dysmenorrhea (Putri, Dewi & Yuliani, 2019). Handling dysmenorrhea has been carried out in various ways in young women at the junior high school (SMP), high school (SMA), and tertiary education levels (Kusmiyati and Merta, 2016; Pusporini, 2018; Runiari, 2019) as many as 63% of junior high school students choose to make efforts to treat dysmenorrhea with non-pharmacological measures such as pain distraction with music, warm compresses and abdominal massage, exercise, 24% treat dysmenorrheal pharmacologically and 13% do a pharmacological and non-pharmacological treatment. Efforts to treat dysmenorrhea were carried out by high school students as much as 75% were by non-pharmacological measures such as distraction, warm compresses, abdominal massage, and relaxation, and 25% of respondents chose to do the pharmacological treatment. Management of dysmenorrhea carried out by adolescent girls in universities 93.94

## **METHOD**

The research design used was cross-sectional quantitative. Researchers collect information about an existing event or symptom and then study the correlation between the independent and dependent variables of this research, information or research data using data obtained from questionnaires distributed online through a Google Form questionnaire distributed online to class X SMA Y students who following the inclusion criteria and willing to be respondents in this study. The population of class X SMA Y, Jakarta and using a total sampling of 140 people, with the inclusion criteria of students who experience dysmenorrhea and take non-pharmacological pain management actions and exclusion criteria are students who routinely consume drugs to treat dysmenorrhea and students who do not do any treatment when having dysmenorrhea. The research was conducted in July 2021. Ethical Clearance No 018/KEPPKSTIKSC/III/2021. The statistical data analysis used was based on the measuring scale of the two variables in this study, namely the Chi-Square. The results of the significance of statistical calculations used the significance of = 0.05. The results of the statistical test are said to be meaningful if they have a p-value <0.05 and are said to be meaningless if the p-value is > 0.05.

**RESULTS**

In this study, univariate and bivariate data analysis was carried out. The characteristic data was analyzed by univariate as follows.

Table 1. Characteristics of Research Respondents' Data

Characteristics	N	%
<b>Age</b>		
< 12 Y.O	64	45.7%
≥ 12 Y.O	76	54.3%
<b>BMI</b>		
Underweight (17 - 18,4)	35	25%
Normal (18,5-25)	72	51%
Overweigh (25,1->27)	33	23.6%
<b>Menstruation</b>		
<i>Polymenorrhea</i> (< 21 hari)	73	52.1%
Normal (21-35 hari)	31	22.1%
<i>Oligomenorrhea</i> (>35 hari)	36	25.7%

Based on table 1. shows the characteristics of the age of menarche in SMA Yadika 2 Jakarta the majority are aged 12 years with 76 respondents (54.3%). Based on table 1.2 above, BMI data was obtained by the majority of respondents on a normal scale (18.5-25) as many as 72 and most respondents experienced polymenorrhea by 52.1%.

Table 2. Results of Bivariate Analysis of Respondents' Characteristics of Dysmenorrhea

Characteristic		Level of Severity Dysmenorrhea						p Value
		Mild		Moderate		Severe		
		N	%	N	%	N	%	
<b>Age of Menarche</b>	< 12 Y.O	27	19.3%	25	17.9%	12	8.6%	0.761
	≥ 12 Y.O	32	22.9%	33	23.6%	11	7.9%	
<b>Mentruation Cycle</b>	<i>Polymenorrhea</i>	37	26.4%	28	20%	8	5.7%	0.041
	Normal	12	8.6%	10	7.1%	9	6.4%	
	<i>Oligomenorrhea</i>	10	7.1%	20	14.3%	6	4.3%	
<b>BMI</b>	<i>underweight</i>	7	5%	23	16.4%	5	3.6%	0.001
	Normal	40	28.6%	24	17.1%	8	5.7%	
	<i>Overweight</i>	12	8.6%	11	7.9%	10	7.1%	
<b>Warm Compress</b>	Yes	23	17%	34	24.3%	6	4.3%	0.014
	No	36	25.7%	24	17.1%	17	12.1%	
<b>Abdominal Massage</b>	Yes	17	12.1%	15	10.7%	12	8.6%	0.060
	No	42	30%	43	30.7%	11	7.9%	
<b>Distraction</b>	Yes	19	13.6%	9	6.4%	5	3.6%	0.102
	No	40	28.6%	49	35%	18	12.9%	

Table 2. Explains that the menstrual cycle, BMI and warm compresses can affect the severity of dysmenorrhea. The results show that the majority of respondents who have a normal BMI as many as 40 respondents (28.6%) experienced a mild level of dysmenorrhea severity. It was concluded that there was a relationship between BMI and the severity of dysmenorrhea in SMA Y Jakarta students in 2021.

## DISCUSSION

In this study, it was explained that the majority of 23.6% of respondents with menarche age 12 years (33 female students) experienced moderate severity of dysmenorrhea with  $p$ -value = 0.761. The results of the study are in line with research conducted by Dwihestie (2018) which explains that the age of menarche is not a factor that affects the severity of dysmenorrhea. This is because pain during menstruation is caused by the production of prostaglandins, an increase in the hormone prostaglandin can trigger hypersensitivity to the sensory nerves in the uterus, while the production of the hormone prostaglandin for each woman can be different, so it can be said that there are many factors other than the age of menarche that can affect a person experiencing menstrual pain (Ammar, 2016).

However, the results of this study are not in line with research conducted by Gustina (2015) which states that there is a significant relationship between the age of menarche and the severity of dysmenorrhea with the results that because menarche occurs too early, it can cause the risk of non-optimal function and unpreparedness of the reproductive organs in experiencing changes. which then causes dysmenorrhea (Wahyuni & Oktaviani, 2018). 26.4% of respondents with polymenorrhea menstrual cycles experienced mild dysmenorrhea severity. The results of this study are in line with research conducted by Juliana, Rompas & Onibala (2019), one of the factors that affect the severity of dysmenorrhea.

According to Jones et al., (2015) The thickness of the uterine wall or endometrium is influenced by the hormone estrogen so the hormone estrogen in the body is disturbed, and the menstrual cycle will also be disrupted. Irregular menstrual cycles can cause menstrual disorders, one of which is dysmenorrhea. This study is not in line with research conducted by Zivanna and Desak (2017) which stated that there was no relationship between the menstrual cycle and the severity of dysmenorrhea. The severity of dysmenorrhea was mild and moderate experienced by all respondents with polymenorrhea, normal, and oligomenorrhea menstrual cycles, so it can be said that dysmenorrhea took place without being influenced by the menstrual cycle itself. In this study, it was found that BMI had a significant relationship with the incidence of dysmenorrhea. Being thin or overweight can put a person at risk for health problems (Centers Disease Control and Prevention, 2020).

The results of this study are supported by other studies which state that there is a relationship between BMI and menstrual pain conducted by Temur et al., (2017) with the results, as well as research by Oktorika et al., (2020) with the results of this being because young women can have factors Other causes that make her dysmenorrhea worse, such as anemia, premature menarche, a family history of severe dysmenorrhea, stress experienced by adolescents and others so that respondents with normal or abnormal BMI can still experience dysmenorrhea. According to Ju, Jones, and Mishra (2015) The mechanism underlying the relationship between body mass index and dysmenorrhea can have a different impact on each woman, but a certain amount of body fat is thought to be important for maintaining a normal ovulatory cycle with too much and too little fat associated with reproductive health disorders. Excess fat tissue in the body can cause hyperplasia of blood vessels so that the blood vessels are pushed by fatty tissue in the female reproductive organs. Disruption of blood circulation in the menstrual process can cause pain during menstruation. Too little fat can also cause reproductive health problems because fat tissue plays a role in converting androgens into estrogen, where estrogen plays an important role in the menstrual cycle. Women who have low body mass are at risk of experiencing disturbances in the formation of the hormone estrogen which then affects the thickness of the endometrial wall and causes irregular menstrual cycles that can trigger dysmenorrhea. However, the results of this study are not in line with the research of Zivanna and Desak (2017) with the results and research of Widiyanto et al., (2020) which stated that there was no significant relationship between BMI and the level of menstrual pain. This is because there are multifactor that affect menstrual pain such as

anemia, early age of menarche, family history of severe dysmenorrhea, stress experienced by adolescents, and many more. Several ways to deal with pain during menstruation are non-pharmacological therapy. In this study, respondents used abdominal massage and distraction techniques to reduce dysmenorrhea pain. However, the results of the data analysis are not meaningful. The results of this study are not in line with the research of Zuraida and Aslim (2020) with the results of p-value = 0.0005 so the hypothesis in this study is rejected.

## CONCLUSION

Based on the results of the study, data analysis and discussion, it can be concluded that the research is as follows: The distribution of the frequency of female students of SMA Yadika 2 based on the age characteristics of menarche is 54.3% of respondents experiencing menarche at the age of 12 years and 45.7% of respondents experiencing menarche at the age of <12 years. Menstrual cycle characteristics 52.1% of respondents had polymenorrhea, 25.7% oligomenorrhea, and 22.1% had normal menstrual cycles, while based on BMI characteristics, 51.4% of respondents had normal BMI, 25.0% thin BMI, and 23.6% obese BMI.

In this study the menstrual cycle, BMI and warm compresses can affect the level of dysmenorrhea. The results show that the majority of respondents who have a normal BMI as many as 40 respondents (28.6%) experienced a mild level of dysmenorrhea severity. Educational efforts related to menstrual pain or dysmenorrhea can be given to students through physical health or biology subjects or counseling activities in collaboration with local health workers

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