ANALYSIS OF FACTORS RELATED TO THE EVENT OF PRIMARY DYMENOROREA IN ADOLESCENT WOMEN IN SITINJAU LAUT DISTRICT

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ABSTRACT

Primary dysmenorrhea is menstrual pain that is found without obvious abnormalities of the genital organs. Primary dysmenorrhea often occurs in adolescent girls aged 10-14 years (early adolescence). Primary dysmenorrhea refers to pain without obvious pathological pelvic disease or menstrual pain with normal pelvic anatomy, usually beginning in adolescence after their ovulatory cycle has established. The purpose of this study was to determine the relationship between age of menarche, duration of menstruation and exercise habits in adolescent girls in Sitinjau Laut District.

This research is a quantitative research with a cross sectional design. Data collection was carried out in March-April 2021. The research population was... Young Women with a research sample of 198 young women. Sampling was done by using proportional random sampling technique. This study consisted of the independent variable "age of menarche, duration of menstruation and exercise habits" and the dependent variable "primary dysmenorrhea". Data analysis using Chi-Square test.

The incidence of primary dysmenorrhea in adolescent girls is 74.2%. Factors related to the incidence of primary dysmenorrhea in adolescent girls were age at menarche (P=0.000; 1.870; 95% CI 1.371-2.552) and length of menstruation (P=0.001; 0.720; 95% CI 0.635-0.817). And there is no relationship between exercise habits (P=0.720; 1.184 95% CI 1.012-1.835).

There is a relationship between the age of menarche with the incidence of primary dysmenorrhea and the length of menstruation in adolescent girls in the District of Sitinjau Laut.

Keywords : Primary dysmenorrhea, age of menarche, length of menstruation, exercise habits, adolescent girls.

Introduction

Adolescence is a transitional stage from childhood to adulthood. According to the World Health Organization (WHO), adolescents are people in the age range of 10 to 19 years. There are about 350 million teenagers who comprise about 22% of the population in Southeast Asian or ASEAN countries. The Indonesian Central Statistics Agency (BPS) recorded the number of teenagers by the end of 2019 as many as 45.3 million people out of a total population of 268 million people. Adolescence is also known as puberty. Puberty is a time when a child has experienced physical, physical, emotional changes and maturation of sexual function. Puberty in adolescent girls reproductive organs begin to show drastic changes, because there has been growth of ovarian primordial follicles that secrete the hormone estrogen, which is the most important hormone in women. The release of this hormone is the growth of secondary sex signs such as blood loss called Menstruation. (Sartiwi W Andika H Indah K & Dini A, 2019)

Menstruation is a sign that the fertile cycle has begun. At this time a woman's fertility level reaches its peak and is sexually ready to have children. Menstruation occurs when the inner lining of the uterine wall sheds and comes out in a form known as menstrual blood. The fastest average age for girls to experience their first menstruation or menarche is <12 or 12 years old and the latest is 16.2 years old (Sidi I et al, 2016). Menarche age who is too young (<12 years) can experience menstrual disorders due to the unpreparedness of the reproductive organs and the narrow size of the cervical canal, causing pain during menstruation (Savitri, N. P. W., Citrawathi, D. M. & Dewi, 2019). The pain experienced by young women after getting their first menstruation or menarche is called dysmenorrhea (Fajaryati N., 2012).

Dysmenorrhea is complete menstrual pain characterized by crampy pelvic pain with other symptoms such as sweating, headache, nausea, vomiting and diarrhea occurring before or during menstruation. According to the World Health Organization (WHO) in 2019, the incidence of dysmenorrhoea in adolescent girls is very high globally, between 16% and 81%. The incidence of dysmenorrhea in the world is very high. On average, more than 50% of women in each country suffer from menstrual cramps. Based on a survey conducted at Parakou School in Benin City, the prevalence of primary dysmenorrhoea was 78.35% with 95% CI [74.07% - 82.11%]. 33.3% have mild primary dysmenorrhea, 37.8% moderate dysmenorrhoea, and 28.8% severe dysmenorrhoea (Sidi I et al., 2016). In Egypt, 78.8% of adolescent girls have primary dysmenorrhea, 53.8% moderate dysmenorrhoea, and 25.0% severe dysmenorrhoea (Savitri, N. P. W., Citrawathi, D. M. & Dewi, 2019)

The degree of pain felt due to dysmenorrhea varies from mild to severe. Severe conditions can interfere with daily activities, forcing the patient to take a break or rest for a few days. Almost all women experience discomfort in the lower abdomen during menstruation (Hounkpatin B, S. I. & AAA, 2016)
Dysmenorrhea is divided into two, namely primary and secondary. Primary dysmenorrhea is menstrual pain that is found without significant abnormalities of the genital organs (Exercise, P., Based, P., Menstruation, P., Aboushady, R. M. & El-Saidy, 2016). Primary dysmenorrhea often occurs in adolescent girls aged 10-14 years (early adolescence). It is known that the prevalence of primary dysmenorrhea from around the world ranges from 34% or 45-95% in women who are menstruating and the highest rate is in adolescents (Kusumaningrum, T., Nastiti, A. A., Dewi, L. C. & Lutfiani, 2019). It is known that the prevalence of primary dysmenorrhea in adolescent girls in Indonesia is also quite high, ranging from 60-75% (Pérez, 2017), (YS, R., Ermawati, E. & Medison, 2016). clear or painful menstruation with normal pelvic anatomy, usually starting in adolescence after their ovulatory cycle is established (Al-matouq S et al., 2019).

The impact of dysmenorrhea on adolescent girls can interfere with the lives of adolescents, namely lowering the spirit of learning, lowering concentration, and even paralyzing daily activities and not attending school. The long-term impact of dysmenorrhea is thought to be the cause of endometriosis and a trigger for infertility in adolescents later. The impact that occurs if dysmenorrhea is not treated will have a negative impact on the personal life of adolescents and limit social performance and decreased academic achievement (Hailemeskel, S., Demissie, A. & Assefa, 2016).

The causes of primary dysmenorrhea vary, namely the age of menarche, the length of menstruation and exercise habits. Other researchers state that the cause of primary dysmenorrhea is excessive secretion of the hormone prostaglandin, which causes uterine muscle contractions and results in hypoxia and pain (Wuri, W., Eka, S. & Fitri, 2018). Based on these factors, the habit of exercising is a factor of healthy habits that are very useful for improving general health and reproductive health in particular (Teenagers, n.d.)

Age of menarche is one of the factors associated with the incidence of primary dysmenorrhea. The age of adolescent girls getting menarche is uncertain or varies, but there is a tendency that from year to year adolescent women get their first menstruation at a younger age, some are 8 years old and have had their first menstruation, some are 12 years old and have experienced menarche. there is also a 16-year-old who has just had their first menstruation (Kusumaningrum, T., Nastiti, A. A., Dewi, L. C. & Lutfiani, 2019). Menarche at an early age causes the reproductive organs to not function optimally and are not ready to undergo changes so that pain occurs during menstruation. The age of early menarche is < 12 years which is a risk factor for primary dysmenorrhea (Study, P., Biology, P., Biologi, J. & Ganesha, n.d.) A study found that the relationship between the age of menarche and the incidence of dysmenorrhea was p = 0.005 with an r value of 0.341 and an R value of 0.430 was obtained. There is a significant relationship between the age of menarche and the incidence of dysmenorrhea (Savitri, N. P. W., Citrawathi, D. M. & Dewi, 2019).

The duration of menstruation is also a factor in the occurrence of primary dysmenorrhea. Menstruation duration is more than normal, causing uterine contractions, if menstruation occurs longer it causes the uterus to contract more often and more prostaglandins are released (Memorisa, G. & Aminah, n.d.). Normal length of menstruation is within 3-7 days, if more than that the chance of primary dysmenorrhea is greater. The longer menstruation occurs, as a result, the more prostaglandin hormones are released. As a result of excessive prostaglandin hormones, pain occurs during menstruation (Michael Dwi Cahyono et al., 2017) A

study found a significant relationship between the length of menstruation and the incidence of dysmenorrhea with the results of the Exac Fisher Test at a confidence level of 95% (0.05) that Value = 0.043, indicating that there is a significant relationship between the length of menstruation and the incidence of dysmenorrhea. (Nurwana, Sabilu, Y. & Fachlevy, 2017)

Exercise habits are also associated with menstrual pain. When you do exercise your body will produce endorphins. When the production of endorphins decreases resulting in increased stress that causes dysmenorrhea. The incidence of primary dysmenorrhea will increase with lack of activity during menstruation and lack of exercise, this can cause blood and oxygen circulation and cause pain. In addition, exercise habits affect blood circulation to the uterus which can cause contractions that cause dysmenorrhea. (Hayati, S., Agustin, 2020) The relationship between exercise habits and the incidence of dysmenorrhea can be caused because exercise is one of the relaxation techniques that can be used to reduce pain. This is because when doing sports the body will produce endorphins produced by the brain and spinal cord. In accordance with the Endorphin Enkephalin theory regarding understanding the mechanism of pain is the discovery of opiate receptors in the synaptic membrane and dorsal horn of the spinal cord. There are three main groups of endogenous opioid peptides, namely enkephalins, beta-endorphins, and dynorphins. (Nurlaily, E. Z. & Nindya, 2016) Research by Handayani and Lasma (2014) from the analysis results also obtained an OR value = 3.484, meaning that respondents who do not exercise regularly have a 3.48 times chance of experiencing dysmenorrhea than those who exercise regularly (Ammar. U.R., 2016)

Kerinci Regency is one of the regencies in Jambi Province which consists of 16 sub-districts. Sireview Laut Sub-district is one of the sub-districts in Kerinci Regency which has a large number of young women aged 10-14 years, namely 593 Young Women. The initial survey was conducted to determine the incidence of primary dysmenorrhoea in the District of Silihat Laut by interviewing 20 young women aged 10-14 years. It is known that the results of the initial survey of 20 young women found that 75% of young women had primary dysmenorrhea.

This study aims to find out more about the relationship between age of menarche, duration of menstruation and exercise habits with the incidence of dysmenorrhea in adolescent girls in the district of Silihat Laut. This research started in March-April 2021

Method

This research is a quantitative study with a cross-sectional study design. This study aims to determine the factors associated with the incidence of primary dysmenorrhea in adolescent girls in the sub-district of Silihat Laut. The population in this study were all young women aged 10-14 years in the Silihat Laut sub-district, as many as 593 young women using the two-tailed (two tail) hypothesis test formula with a total sample of 198 respondents, using a sampling technique. proportionally random sampling.

Results

1. Analisis Univariat

Table 1.1 Age Distribution of Respondents in Silihat Laut Subdistrict in 2021

Variable	F	%
Age		
10 years	20	10,1
11 years	34	17,2
12 years	60	30,3
13 years	51	25,8
14 years	33	16,7

Based on table 1.1 above, it can be seen that most of the respondents were at the age of 12 years by 60 (30.3%), the smallest number of respondents was at the age of 10 years as many as 20 (10.1%).

Table 1.2 Distribution of respondents based on the incidence of primary dysmenorrhea in the district of Silihat Laut in 2021

Primary Dysmenorrhea	F	%
Yes	147	74,2%
No	51	25,8%

Based on table 1.2, it can be seen that the distribution of young women who experience primary dysmenorrhea in the District of Silihat Laut in 2021. Young women who experience primary dysmenorrhea are 147 (74.2%) and young women who do not experience primary dysmenorrhea are 51 (25.8%).).

Table 1.3 Distribution of respondents based on age at menarche in Silihat Laut District in 2021.

Age Menarche	F	%
<12 years	147	74,2%
12-14 years	51	25,8%

Based on table 1.3, it can be seen that the distribution of the age of menarche in adolescent girls in Silihat Laut District in 2021. The majority of respondents experienced menarche at the age of <12 years 147(74%).

Table 1.4 Distribution of respondents based on the length of menstruation in respondents in Silihat Laut District in 2021

Menstruation Length	F	%
1-2 day	78	39,4%
3-7 day	42	21,2%
>7 day	78	39,4%

Based on table 1.4, it can be seen that the distribution of Menstruation Length in young women in Silihat Laut Subdistrict in 2021. Adolescent women who experience menstruation for 1-2 days are 78 (39%), Young Women who experience menstruation for 3-7 days 42 (21%) and Young Women who experienced menstruation for more than 7 days 78 (39.4%)

Table 1.5 Distribution of respondents based on sports habits in young women in Silihat Laut District in 2021

Sports Activities	F	%
Sports	69	34,8%
No Sports	129	65,2%

Based on table 1.5, it can be seen that the distribution of exercise habits among Young Women in Silihat Laut Subdistrict in 2021. The majority of Young Women do not exercise as much as 129 (65.2%) and Young Women who exercise 69 (34.8%)

2. Analisis Bivariat

Table 1.6 The results of the analysis of the relationship between Menarche Age, Menstruation Length and Sports Habits with the incidence of primary dysmenorrhoea in adolescent girls in Silihat Laut District

Variable	History of dysmenorrhea				Total		PR	CI(95%)	P-Value
	Primary Dysmenorrhea		No Dysmenorrhea						
	N	%	N	%	n	%			
Age Menarche									
Early	124	84,4	23	15,6	147	100	1,87	1,37-2,55	0,000
Normal	23	45,1	28	54,9	51	100	1		
Menstruation Duration									
Abnormal	107	68,6	49	31,4	156	100	0,72	0,63-0,81	0,001
Normal	40	95,2	2	4,8	42	100	1		
Sports Habits									
No Sports	47	82,6	12	17,4	59	100	1,18	1,01-1,38	0,072
Sports	90	69,8	39	30,2	129	100	1		

The results of this study indicate that the proportion of primary dysmenorrhea is higher at the age of

early menarche, namely 124 (84%) compared to the normal age of 23 (45.1%). From the bivariate analysis, it was found that the age of early menarche has a risk of primary dysmenorrhea of 1.87 times compared to the age of normal menarche (PR 1.87 95% CI 1.37-2.55) and significantly proven p-value = 0.000.

The results of this study showed that the proportion of primary dysmenorrhea was higher in the length of abnormal menstruation, namely 107 (68.6%) compared to the normal period of 40 (50.2%). From the bivariate analysis, it was found that the duration of menstruation, a PR value of less than 1, could be interpreted as a protective factor for the occurrence of primary dysmenorrhea, namely that female adolescents with normal menstrual periods can reduce the risk of dysmenorrhea. (PR 0.7295% CI 0.63-0.81) and proved significantly v-value = 0.001.

The results of this study showed that the proportion of primary dysmenorrhea was higher in sports, namely 90 (69.8%) compared to not exercising 47 (82.6%).

From the bivariate analysis, it was found that no exercise had a risk of primary dysmenorrhea of 1.18 times compared to exercise respondents (PR 1.18 95% CI 1.01-1.38) and it was not proven to be significant, p-value = 0.720.

1. The Relationship between Menarche Age and Primary Dysmenorrhea Incidence in Adolescent Girls in Silihat Laut District

The results of the bivariate analysis found that there was a significant relationship between the age of menarche and the incidence of primary dysmenorrhea in adolescent girls in the District of Silihat Laut with p-value = 0.000 and and showed a prevalence ratio (PR) of 1.87, which means that respondents who were at the age of early menarche had 1.87 times greater risk of experiencing primary dysmenorrhea compared to adolescent girls who experienced normal age of menarche with a confidence interval (95% CI 1.371-2.552). The proportion of adolescent girls experiencing dysmenorrhea with early menarche age is 84.4%, while female adolescents with normal menarche age are 45.1%.

This study is in line with research by Fachlevi, et al. (2017) on the analysis of factors related to the incidence of primary dysmenorrhea in adolescent girls in Kendari. The results obtained p-value = 0.037 which indicates that there is a significant relationship between the age of menarche and the incidence of dysmenorrhea in adolescent girls with a prevalence ratio of PR 1.56 (95% CI 0.598-0.716), which means that the age of early menarche has a risk of 1.56. times the incidence of primary dysmenorrhea compared to the normal age of menarche. This study is also in line with Ariani's research (2018) on the relationship between age of menarche and the incidence of primary dysmenorrhea in adolescent girls at SMP Negeri 9 Banjarmasin. Where the results showed that the incidence of primary dysmenorrhoea was <12 years old. There is a significant relationship between the age of menarche and the incidence of primary dysmenorrhea with p-value = 0.027 or p = <0.05. This study states that respondents with early menarche have a risk of 1.14 times experiencing primary dysmenorrhea.

Menarche at an early age is the first menstrual period that occurs during a woman's puberty. The ideal age of menarche is 12 to 14 years and is said to be early menarche if the age is under 12 years. The high number of respondents with an early age (<12 years) who experience primary dysmenorrhea can be caused by the unpreparedness of the reproductive organs that have not developed optimally and the narrowing of the cervix, causing pain during menstruation. Changes in hormone levels throughout the menstrual cycle are caused by a feedback mechanism between steroid hormones and gonadotropin hormones.

Estrogen causes negative feedback to Follicle Stimulating Hormone (FSH) while to Luteinizing Hormone (LH), estrogen causes negative feedback if levels are low and positive feedback if levels are high.

2. The Relationship of Menstruation Length with Primary Dysmenorrhea Incidence in Adolescent Girls in Silihat Laut District

The results of the bivariate analysis found that there was a significant relationship between the length of menstruation and the incidence of primary dysmenorrhea in adolescent girls in Silihat Laut District with p-value = 0.001 PR = 0.72 (95% CI 0.635-0.817). And the proportion of the incidence of primary dysmenorrhea from the length of abnormal menstruation is 68.6% while the duration of normal menstruation is 95.2%.

Research conducted by Dewajanti, et al (2020). the results of his research found that there was a significant relationship between the length of menstruation and primary dysmenorrhea where the results obtained were p-value = 0.010 or p <0.05. In the study of Hayati Ridha et al (2020) about the factors associated with the incidence of dysmenorrhea in female students in Banjar Baru. The results obtained from statistical tests using chi square obtained p-value = 0.005 or p <0.05, then H0 is rejected, which means that there is a relationship between the length of menstruation and the incidence of primary dysmenorrhea in adolescent girls in Banjarbaru City. Research conducted by Dwiputri (2018) results obtained with p-value = 0.034 or p <0.05, which means there is a significant relationship.

This research is not in line with Herawati's (2019) research. The results showed that there was no significant relationship, where the p-value = 0.823 or p-value> 0.05 and the results of the analysis showed that there were 34 (22.7%) female adolescent girls who experienced normal menstrual periods and experienced primary dysmenorrhea.) and 107 (71%). According to Pebrianti and telly's research (2019). Where the results of the study showed that there was no significant relationship between the length of menstruation and the incidence of primary dysmenorrhea, where the p-value = 0.347 or p>0.05, (95% CI 0.415-15.069), it was concluded that there was no significant difference with the incidence of primary dysmenorrhea. between respondents with normal and abnormal menstrual periods.

Abnormal length of menstruation can increase the incidence of primary dysmenorrhea, this is supported by previous research which states that female adolescents who have long periods of menstruation, large amounts of bleeding and irregular menstrual cycles can be at risk of primary dysmenorrhea. For very short menstrual periods or 1-2 days can also cause heavy bleeding in a short time. At the time of menstruation women will experience bleeding from the vagina which lasts 3-7 days, the volume of blood released is about 40 ml. If menstruation is up to 15 days, the longer the uterus contracts so that more prostaglandins will be produced and eventually can cause primary dysmenorrhea.

3. **The relationship between sports habits and the incidence of primary dysmenorrhea in adolescent girls in Silihat Laut District**

The results of the bivariate analysis found that there was no significant relationship between exercise habits and the incidence of primary dysmenorrhea with p-value = 0.072 PR = 1.18. However, respondents who did not exercise had a 1.18 times greater risk of experiencing primary dysmenorrhoea compared to young women who did sports with Confidence Interval (95% CI 1.012-1.385). The proportion of the incidence of primary dysmenorrhea in adolescent girls in the sub-district of Silihat Laut in adolescent girls who do not do sports is 82.6% while in adolescent girls who do sports is 69.8%.

This study is in line with the research of Hariyadi, et al. (2017) the results of the study found that there was no significant relationship between exercise habits and the incidence of primary dysmenorrhea with p-value = 0.998 or p> 0.05. In Hadi's research (2019) the relationship between nutritional status at the age of menarche and exercise habits with the incidence of primary dysmenorrhea. found that there was no relationship between exercise habits and primary dysmenorrhea in adolescent girls with v-value=0.587 or p>0.05. Which means that there is no significant relationship between exercise habits and primary dysmenorrhea. This research is also in line with research conducted by Fhasa Adila Hastika (2017). The results of the study found that there was no significant relationship between exercise habits and the incidence of primary dysmenorrhea in adolescent girls with p-value = 0.731 or p>0.05. Which means that there is no significant relationship. 27,66,67

This study contradicts the research conducted by Maiartati et al (2020). Which shows that there is a significant relationship between exercise habits and the incidence of primary dysmenorrhea with p-value = 0.03 or P <0.05. Which means that there is a relationship between exercise habits and the incidence of primary dysmenorrhea. Research conducted by Agnia, et al (2020) on the dominant factors associated with the incidence of dysmenorrhea in adolescent girls obtained p-value = 0.0041 or p <0.05, the results of this analysis also describe PR = 2.68 (95% CI 1.130-6.357) which means that adolescents who do not exercise regularly are 2.6 times more likely to experience dysmenorrhea than adolescents who regularly exercise. 20.56

A person who does exercise regularly will produce endorphins. Endorphin is a neuropeptide, there are 3 kinds, namely alpha, beta, and gamma endorphins, all of which can bind to opioid receptors in the brain and have very strong analgesic activity. Beta endorphin is found in the adenohypophysis, hypothalamus and one of its functions is to mediate pain perception. The incidence of dysmenorrhea will increase with a lack of exercise, because oxygen is not delivered to the blood vessels in the reproductive organs, if you do exercise often, it can provide oxygen 2 times per minute so that oxygen can be delivered to the blood vessels that are experiencing vasoconstriction. Because blood flow is smooth and primary dysmenorrhea is reduced by 22

Conclusions And Recommendations

1.   The proportion of primary dysmenorrhoea and early menarche age in adolescent girls is 74.2% and non-primary dysmenorrhea with normal age of menarche is 25.8% respectively.

2.   The proportion of the length of menstruation in adolescent girls for the length of menstruation is not normal is 79.8% and the length of normal menstruation is 21.2%.

3.   The proportion of exercise habits in young women for sports is 34.8% and not sports is 65.2%.

4.   There is a relationship between Age of Menarche and the incidence of Primary Dysmenorrhea in Young Women with a P-Value = 0.000, and a PR value = 1.87 (95% CI 1.37-2.55), Adolescent girls who are at the age of early menarche have a risk 1.87 times more likely to experience primary dysmenorrhea than those with normal menarche age.

5.   There is a relationship between the duration of menstruation and the incidence of Primary Dysmenorrhea in Adolescent Girls with a P-Value = 0.001, and a PR value = 0.72 (95% C1 0.63-0.81). interpreted as a protective factor for the occurrence of primary dysmenorrhea, namely adolescent girls with normal menstrual periods can reduce the risk of dysmenorrhea.

6.   There is no relationship between exercise habits and the incidence of primary dysmenorrhea in Adolescent Girls with a PValue value = 0.072, and a PR value = 1.18 (95% CI 1.012-1.385), female adolescents who do not exercise have a 1.18 times greater risk to experience primary dysmenorrhea than adolescent girls who exercise

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