



Original Research Article

Relationship of Sport Habits with Primary Dysmenorrhea among Students of Senior High School 1 Arso, Keerom District, Jayapura

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ABSTRACT

Dysmenorrhea is pain that occurs at the time of menstruation is caused by uterine muscle spasms, usually results in symptoms such as nausea; pain is typical on the lower abdomen felt during menstruation. To address the risk factors or Dysmenorrhea, a woman should take a routine exercise to decrease the pain. This research aims to identify the relationships of sports habit with the genesis of primary Dysmenorrhea among students of class X and XI in the Arso SMAN 1. Data collection was using primary in the form of questionnaire and implemented at SMAN 1 Arso. The population in this research totaled 228 students by respondent amounted to 170 people obtained using the formula of the sample according to Lemeshow. Research method applied a descriptive analytic with cross sectional approach. The technique of sampling was done using random sampling and sample size calculation with sample strata. Data were analyzed using a statistical test of Chi-square using program SPSS 16. Results of the research indicated that there were 62.4% of the respondents have a habit of exercise is not routine. Chi-square test results indicate there are significant variables i.e. custom sports p .value = 0.000 (p value $< \alpha = 0,05$) with a value of Ratio prevalence =2.41. To sum up, there is a significant relationship between exercise habits to the incidence of primary Dysmenorrhea among respondents in class X and XI in SMAN 1 Arso. Students who do not regularly exercise are at risk of experiencing Dysmenorrhea by 2.4 times compared with those students who regularly exercise.

Keywords: Primary Dysmenorrhea, Sport habit, Adolescent

INTRODUCTION

Adolescence is the most difficult period to pass by the individual. This period can be regarded as the most critical period for the development of the next steps. Significant changes occur when girls and boys enter adolescence. Changes that occur include changes in physical and psychological which is a characteristic of children to adulthood. Period or menstruation among female is physiological changes that occur in regularly and is

influenced by hormones such reproduction. Menstruation is marked with the circulation of the uterus accompanied by the release of the mucous membrane of the uterus that occur periodically and cyclic (Gunarti, 2013). Undergo menstrual cycle, many women experience interference from mild to severe levels. Menstrual disorders are often experienced by women is commonly referred pain or Dysmenorrhea. Dysmenorrhea is usually experienced when the first 1-2 days of menstruation.

Dysmenorrhea is lower abdominal pain that sometimes there is pain extends to the waist, lower back and thighs (Paramita, 2010)

Dysmenorrhea is a separate issue that many women experienced, so it became one of the leading cause factors that women cannot run the day-to-day activities easily. For young women who are still a student, Dysmenorrhea is one of the causes they are often absent or not enter school. In order to overcome this, a woman must pay attention to menstrual schedule, avoid stress, exercising, eating nutritious food, and pay attention to nutrition which can support relieve symptoms or menstrual syndrome (Hartati, 2012). Many women are forced to lie down because of too much pain and so cannot do anything. It is very disturbing activities everyday woman and can have an impact on the decline in labor productivity (Fajaryati, 2011).

Dysmenorrhea can be done with pharmacological and non-pharmacological therapies. Pharmacological therapy include: drug delivery analgesic, hormonal therapy, non steroidal drug prostaglandin, and dilated cervical canal. Among other non-pharmacological therapy, warm compresses, sports, mozart and relaxation therapy. Regular exercise can reduce stress and fatigue thus indirectly also reduce pain. Dysmenorrhea is reduced or absent in women who exercise regularly. Phenomena is likely induced by prostaglandin endorphin or released and circulated during exercise (Sabhinaya, 2012).

Familiarize light exercise and regular physical activity as a healthy way, running, cycling or swimming at the time before and during menstruation, it can make the blood flow in the muscles around the uterus to be smooth, so that the pain can be resolved and be reduced. Exercise at least during 30- 60 minutes with a frequency of 3-5 times a week (Gunarti, 2013). The incidence of dysmenorrhea in the world is very great. The

average of more than 50% of women in the world have it. Research of United States shows percentage incidence of dysmenorrhea approximately 60%, Sweden 72%, and 58%. Research in Malaysia from the United States said that Dysmenorrhea experienced by 30- 50% of reproductive women aged and 10-15% of them losing employment interfere with learning in school and family life (Paramita, 2010). Dysmenorrhea is a problem in the field of gynecology that many attacking young women, but Dysmenorrhea often happens is primer. Primary Dysmenorrhea often occurs in adolescents, the percentage of 40-50% (Sabhinaya, 2012).

Epidemiological studies in the adolescent population (aged 12-17 years) in the United States, Klein and Litt reported prevalence of Dysmenorrhea is 59.7%. The peak incidence of primary Dysmenorrhea in adolescents in the United States reported that about 92%. Study also reported that 14% of Dysmenorrhea caused young women often do not attend school (Anurogo 2011 and Ernawati, Hartati, Hadi, 2010). In Canada found 60% of women experience primary Dysmenorrhea, including 51% of their activity is limited, and 17% of them do not attend school or workplace. From these data can illustrate that primary Dysmenorrhea in adolescents often make them not attend school and this causes the absence of teaching and learning process will be interrupted (Sabhinaya, 2012). The incidence of primary Dysmenorrhea in Indonesia is about 54.89%, while the rest were patients with secondary type (Fajaryati, 2001). Has been studied by Nataria in 2011 about the factors associated with the incidence of Dysmenorrhea in a student of Faculty of Medicine, Veterans Jakarta, the result is that there is a significant relationship between exercise habits, anxiety levels and body mass index (BMI) on the incidence of Dysmenorrhea. Appropriate

preliminary study conducted by researchers on September 21, 2012, according to the 30 SMA Negeri 1 Arso of 3 questions a student obtained 93% of them experienced Dysmenorrhea every month, 56.6% female students cannot concentrate on learning because of Dysmenorrhea and 36.6 % female students often permits them not to follow the learning process in schools due to Dysmenorrhea.

The same preliminary study conducted by researchers at the date of October 19, 2012, according to the 30 SMA Negeri 1 Jayapura, from 3 questions can be 73% of them experienced dysmenorrhea girls every month, 60% female students cannot concentrate on learning because of Dysmenorrhea and no student who permission not to follow the learning process in schools due to Dysmenorrhea. Based on the above description of the background and preliminary studies that have been conducted, researchers are interested in knowing exercise habits relationship with the incidence of primary Dysmenorrhea in female students in class X and XI in SMAN 1 Arso. Because many young women who experience of primary Dysmenorrhea when it is presently in the process of learning in school, primary Dysmenorrhea feared would disrupt their activities. It is reason for authors to take a class X and XI, while for class XII do exams and are difficult to interview.

MATERIALS AND METHODS

This research applied descriptive analytic cross-sectional approach to describe some factors associated with the incidence of primary Dysmenorrhea among students in SMAN 1 Arso. Population is the number of female students in class X and XI in SMAN 1 Arso, amounting to 228 students. Sample is partially (subset) of the population are selected in a way that is considered to

represent the population. Sample size formula used by Lemeshow are as follows:

$$n = \frac{Z^2_{1-\alpha/2}[P_1(1-P_1)+P_2(1-P_2)]}{d^2}$$

After calculation using the formula of the sample population of class X and XI 228 with a proportion of 50% and a precision of 15%, then obtained a sample size of 170 people. In order not to deviate from the characteristics of the sample population, then before sampling is necessary to determine the criteria inclusion.

The inclusion criteria were: SMA Negeri 1 Arso students who are menstruating or through the menstrual period. SMA Negeri 1 Arso class X and XI and willing to become respondents. The independent variable is the variable that affects or is the cause of the change or the emergence of the dependent variable (Gunarti, 2013). In this study, the independent variable is Sport. Variable habit is a variable that is affected or which become due because of the independent variable (Gunarti, 2013). Then the dependent variable is the primary Dysmenorrhea. Univariate analysis of the data used to see the presentation of the analysis of the distribution of the frequency distribution of the dependent variable and the variable independent, such as age of menarche, BMI, exercise, stress and girls who have Dysmenorrhea primer. Bivariate data analysis is used to examine the relationship between independent and dependent variables. Example is determine whether there is a relationship between exercise habits to the incidence of primary Dysmenorrhea using 2 x 2 tables with Chi-square test and analysis of the value interpretation prevalence ratio $(PR) = \frac{a/(a+b)}{c/(c+d)}$ (Hasmi, 2010).

RESULTS

Univariate analysis

Table 1 below describes the respondents' characteristics among students at SMAN 1 Arso Keerom. We interviewed 170 students who meet the criteria as described previously.

Table 1. Distribution of respondents based study class among students at SMAN 1 Arso Keerom in 2013.

Characteristics of Class Level	Number (n)	Percentage (%)
X1	10	5.9
X2	14	8.2
X3	12	7.1
X4	12	7.1
X5	12	7.1
X6	9	5.3
X7	11	6.5
XI IPA1	10	5.9
XI IPA 2	14	8.2
XI IPA3	22	12.9
XI IPA 4	20	11.8
XI IPS 1	8	4.7
XI IPS 2	8	4.7
XI IS 3	8	4.7
Total	170	100

Table 1 indicated that class with the highest number of student was class of XI IPA3 with 22 respondent (13%) and the lowest respondent was Class of XI IPS 1, XI IPS 2 and XI IPS 3 with 8 respondents (4,7%).

Table 4. Relationship Habits Sports With Primary Dysmenorrhea Genesis In Young Women in SMA 1 Arso Keerom in 2013.

Sports Habit	Dysmenorrhea				Total		p value	CI (95%)		
	Dysmenorrhea		Not Dysmenorrhea		Total			RP	Lower	Upper
	n	%	n	%	n	%				
Not routine	104	98,1	2	1,9	106	100	0,000	2,415	1,794	3,251
Routine	26	40,6	38	59,4	64	100				
Total	130	76,5	40	23,5	170	100				

The results of the analysis of the relationship of exercise habits to the incidence of primary Dysmenorrhea, who coined obtained irregular exercise habits were 106 people, of those there were 104 (98.1%) of people who have Dysmenorrhea and 2 (1.9%) of people do not experience Dysmenorrhea. However, those who has a habit of regular exercise were 64 people, of which there were 26 (40.6%) of people who have Dysmenorrhea and 38 (59.4%) of people do not experience Dysmenorrhea.

The occurrence of primary Dysmenorrhea

Table 2. Distribution of primary Dysmenorrhea occurrence among students at SMA Negeri 1 Arso, Keerom regency, 2013.

Dysmenorrhea	Number (n)	Percentage (%)
Dysmenorrhea	130	76,5
Not Dysmenorrhea	40	23,5
Total	170	100

Table 2 illustrates that the distribution of respondents by the incidence of Dysmenorrhea mostly experienced Dysmenorrhea with 130 students (76.5%).

3. Sports Habit

Interview results relate to the sport habits in described in the following table 3.

Table 3. Distribution of Sports habits among students at SMA 1 Arso Keerom in 2013.

Sports habit	Number (n)	Percentage (%)
Not routine	106	62,4
Routine	64	37,6
Total	170	100

Table 3 above illustrates that exercise habits based on the highest of the respondents do not have a regular exercise activities with 106 people (62.4%).

B. Bivariate analysis

Based on Chi-square test results obtained value of p . value = 0.000 (p . value $< \alpha = 0.05$) so that there is a significant relationship between exercise habits to the incidence of primary Dysmenorrhea (H_0 is rejected and H_1 is accepted). Retrieved RP value of 2.415 (95% CI: 1.794 to 3.251) means a student who has a habit of regular exercise are not at risk of experiencing Dysmenorrhea with 2.415 times than those students who regularly exercise.

DISCUSSION

A. Univariate Analysis

1. Genesis of Primary Dysmenorrhea

Incidence of Dysmenorrhea in SMAN 1 Arso showed that of 170 samples obtained the high Dysmenorrhea occurrence with 130 people (76.5%), the symptoms often felt pain in the lower abdomen and pain increased in the first and second day, and respondents often feel tired of experiencing pain during menstruation. Primary Dysmenorrhea is a problem that is common in young women, the percentage of 40-50% in the primary school students. Dysmenorrhea often occurs in adolescence, in 2-5 years after menarche or first menstruation to occur (Sabhinaya, 2012). This study was the same as it had been done by Lestari, et al (2009). Dysmenorrhea occurs more than half of women of reproductive age with varying prevalence. A study of 202 respondents showed 199 respondents (98.5%) of them had experienced Dysmenorrhea. Dysmenorrhea or painful menstruation is normal, but can be excessive when influenced by physical and psychological factors such as stress and the influence of the hormone prostaglandin and progesterone. During Dysmenorrhea, uterine muscle contraction occurs due to the increase of prostaglandins that cause vasospasm of the uterine arterioles that causes ischemia and cramping in the lower abdomen that will stimulate pain when coming months. Prostaglandin F2 alpha spending is influenced by the hormone progesterone during the luteal phase of the menstrual cycle and reaches its peak at the time of menstruation (Suparto, 2011).

2. Sports Habit

Distribution of respondents by exercise habits in SMAN 1 Arso showed that of 170 respondents obtained frequency distribution is not a regular habit of exercise

were 106 people (62.4%). The results of this study showed that most respondents exercise less than 3 times a week with a duration of less than 30 minutes. When doing sports / exercise the body will produce endorphins. Endorphins produced in the brain and back nervous system. This hormone can serve as a natural tranquilizer produced by the brain, causing a sense of comfort (Fajaryati, 2011). Sports proven to improve endorphin level four to five times in the blood. So that more and more doing gymnastics / sports then the higher the b-endorphin levels. When a person is exercising, then b-endorphin will out and captured by receptors in the hypothalamus and limbic system that serves to regulate emotions. The increase in b-endorphin shown to be associated closely with decreased pain, increased memory, improve appetite, sexual performance, blood pressure and respiratory. Then, exercise will be effective in reducing pain, especially pain of Dysmenorrhea problem (Suparto, 2011).

B. Bivariate analysis

Sports Habits relationship with Genesis Primary Dysmenorrhea.

Chi-square test results showed that there is a relationship between exercise habits to the incidence of primary Dysmenorrhea. This is indicated by the value of $\rho = 0.000$. This is in line with research conducted by Desi Nataria "Factors related to the incidence of Dysmenorrhea in students of the Faculty of Medicine, University of National Development Veteran Jakarta" stated that there is a significant relationship between exercise habits to the incidence of primary Dysmenorrhea ($\rho = 0.000$). Exercise habits relationship with the incidence of primary Dysmenorrhea can be caused because no regular exercise. Sport is one of the relaxation techniques that can be used to reduce pain. This is caused when exercising the body will produce endorphins. Endorphins produced in the brain and spinal

nervous system. In accordance with the theory of endorphins-encephalin on understanding the mechanisms of pain is the discovery of opiate receptors are mainly opiate in membrane of synapse. Receptor in nucleus medial raphe and dorsal horn of the medulla spinalis. There are three main classes of endogenous opioid peptides, namely class enkephalin, beta-endorphin and dynorphin. Beta-endorphin produced during exercise is an analgesic that is more potent than enkephalin. Hormone can serve as a natural sedative that is produced by the brain, causing a favor sense. Dysmenorrhea less frequent in sportswomen in comparison to women who do not do sports / gymnastics (Nataria 2011).

Based on the interviews most of the respondents said they only do sports activities at school every hour gym and exercise together every Friday at school. Respondents do not regularly exercise because they are so dense activities in schools, because there are some classes that time his return until late afternoon. So they do not have time to exercise at home, although they do sports just do less than the 30 minutes. Sports such as jogging, cycling, playing volley ball, and gymnastics. However, there are some respondents who frequently perform martial arts (karate).

According to Tjokronegoro (2004) in Fajaryati (2011), the incidence of primary Dysmenorrhea will increase with lack of exercise, so that when it happens Dysmenorrhea, oxygen cannot be channeled into the blood vessels in the reproductive organs that when it happens vasoconstriction thus causing pain but if someone regular exercise, then he can provide oxygen nearly 2 times per minute so that oxygen is delivered to the blood vessel vasoconstriction. This will lead to a decrease in Dysmenorrhea. Sumosardjuno (1988) in Fajaryati (2011), primary Dysmenorrhea can be reduced by regular exercise in the open

air. This may occur because the sport only works to increase blood flow such as drug adrenoceptor stimulatory mechanism of primary Dysmenorrhea or increase in blood volume is not enough leads to reduced primary Dysmenorrhea, still required a certain type of exercise such as walking, jogging, aerobics, cycling and swimming are carried out regularly 3-5 times a week with a duration of 30-60 minutes can reduce the occurrence of factors of primary Dysmenorrhea or able to bring people with psychological or somatic state at a normal level.

CONCLUSION

Respondents' habit exercise in class X and XI in SMAN 1 Arso showed that of 170 respondents there were 106 people (62.4%) not regularly having an exercise habits. There is a significant relationship between exercise habits to the incidence of primary Dysmenorrhea among respondents in class X and XI in SMAN 1 Arso. (p value = 0.000), obtained by RP of 2.4 (95% CI: 1.794 to 3.251), meaning that students who do not regularly exercise are at risk of experiencing Dysmenorrhea by 2.4 times compared with those students who regularly exercise.

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