RELATIONSHIP BETWEEN CHARACTERISTIC OF TEENAGE GIRLS WITH PRIMARY DISMENOREA INCIDENCE FEMALE STUDENTS IN GRADE X AND GRADE XI AT SENIOR HIGH SCHOOL 1 PADANG CITY IN 2017

Firdawati[1] Sunesni[2] Titia Febri Monica[3]

[1]Department of Public Health Faculty of Medicine UNAND, Jln Pioneer Independence No. 94 Padang, Indonesia

[23]Bachelor of Midwifery, Faculty of Medicine, Universitas Andalas, Jln. Commerce No. 56 Padang, Indonesia

firdawati@med.unand.ac.id[1]

Abstract

Primary dismenorrhea is a painful cramp in the lower abdomen that occurs before or during menstruation. In senior high school 1 Padang City, students in grade X and XI the incidence of primary dysmenorrhoea is still high. The impact of primary dysmenorrhea are decreased productivity, skipping school, and feeling disturbed during activities. The aim of this study is to determine the relationship between characteristic of teenage girls with primary dismenorrhea incidence among female students in grade X and XI at senior high school 1 Padang City in 2017.

This was quantitative with cross sectional study design conducted at senior high school 1 Padang City on November 2016– Februari 2018. Population and sample of this study are student in grade X and XI counted 106 people. Data collected by using proportional stratified random sampling. Data analysis was performed using univariate and bivariate with chi-square test, with 95% Interval confidence $\alpha = 0,05$.

The results showed 74.5% of student grade X and XI had primary dysmenorrhea. The result chi square test showed menstrual there is no relationship between menstrual period ($p = 0,094$), there was relationship between age of menarche ($p = 0,012$), nutritional status ($p = 0,001$) and sport habit ($p = 0,003$) tith incedence prymary dysmenorrhoe at grade X and XI in senior high school 1 Padang City in 2017.

There was a relationship between age of menarche, nutritional status, and sport habit with the incidence of primary dismenorrhea

Keywords : Characteristics of young women, incidence of primary dysmenorrhoea

INTRODUCTION

Adolescence is a period in which the rapid growth and development both physically, psychologically, or inteklektual (Kemenkes RI, 2015). One of the most physiological changes occur in the lives of adolescents is the onset of menarche, which is often associated with menstrual problems (Aboushady, 2016). Menstruation is the period bleeding from the uterus and cyclic accompanied by desquamation or release of the endometrium. Menstruation is estimated to occur each month during the reproductive years, starting at puberty or *menarche* and ends at menopause (Ramadhy, 2011).

At the time of the natural menstrual problems in women is discomfort or severe pain, it can be called dysmenorrhea. *Dysmenorrhea* is one of the most common problems experienced by young women is pain during menstruation. These events can be divided into *primary* and*secondary*dysmenorrhea. *Primary dysmenorrhea* is pain in the abdomen abdominal cramps often in conjunction with symptoms of gastrointestinal pain, nausea, vomiting and headache. And, *of secondary dysmenorrhea* is menstrual cramps associated with pathology, and the incidence of occurrence could be years after *menarche* (Aboushady, 2016).

According to WHO, adolescents are residents in the age range 10-19 years. Number of 10-19 years age group in Indonesia according to the 2010 population census as much as 43.5 million or approximately 18% of the population. The world's estimated 1.2 billion adolescents groups or 18% of the total world population. (WHO, 2014 in Kemenkes RI, 2015).

Half of young women in Asia who have *dysmenorrhea* have limited concentration in the classroom and social activities are also limited, as many as 21.5% of young women that can only come school, and 12.0% had poor activity in schools, this shows that *dysmenorrhea* is positively correlated with stress (Kharaghani*etal*,2014). The incidence *of dysmenorrhea* in a very large world that is on average more than 50% of women in every country experiencing menstrual pain. The incidence of *dysmenorrhea* in Indonesia amounted to 64.25% comprising 54.89% *primary dysmenorrhea* 9.36%and *secondary dysmenorrhea*.*Primary dysmenorrhea is* experienced by 60-75% of adolescents, with three-quarters of teens experience mild to severe pain and a quarter again experiencing severe pain (Alatas, 2016).

The impact of *primary dysmenorrhea* is declining productivity, absence from school, and was annoyed when on the move. Most impact is largely in the incidence of *primary dysmenorrhea* is disturbed activity (Anurogo,2011).

The study was conducted Akbarzadeh (2017) in Iran that most teenage girls withage *menarche*≤12 years of *primary*dysmenorrhea.The study was conducted Gustina (2015) in Surakarta also explain the age of *menarche* faster effect on the incidence *of primary*dysmenorrhea.The results of this study are also comparable with research Novia (2008) in Sidoarjo which states that the age of *menarche* at an early age(≤12 years) have an effect on the incidence of *primary*dysmenorrhea.If the age *of menarche* occurs at an earlier age than normal, where reproduction is not ready for the change and still the narrowing of the cervix, then there will be pain during menstruation.

Nutritional factors also play an important role in the incidence of *primary*dysmenorrhea,the majority of students of normal nutritional status suffered *of primary dysmenorrhea* a small fractiongirls with overweight status (Mulastin, 2011). Based on the results of studies done Novia (2008) in Sidoarjo students with nutritional status overweight are subjected to *primary*dysmenorrhea,while malnutrition slightly *primary*dysmenorrhea.The research described above is different from the research carried out Pebriani (2016) that the incidence of nutritional status skinny, average and chubby no correlation with the incidence of *primary dysmenorrhea* in adolescent girls.

Based on the results of studies done Novia (2008) in Sidoarjo showed that *primary dysmenorrhea* the majority of respondents who long menstrual ≤7 days. In accordance with research Gustina (2015) in Surakarta old category menstrual ≤ 7 days a lot of experience *of primarydysmenorrhea*.The research result Utami*et al* (2015) in Makassar comparable with the results Gustina, long menstrual ≤ 7 days most experienced *dysmenorrhea*

The study was conducted Fajaryati (2010) in MiritKebumen that irregular exercise habits greatly affect *primary dysmenorrhea* than regular exercise. Research above in accordance with the results of research Handayani (2014) in Rokan Hulu also explained that irregular exercise most of the respondents had *primarydysmenorrhea*.And research results Wahyuti (2015) in Papua Arso, also explained that students with irregular sport habits most experienced *primary dysmenorrhea.* It can be seen from the results of interviews with students who say that they mostly feel severe pain prior to exercise regularly.

Based on the above background, the researchers are interested in knowing more about the characteristics of the relationship teenage girls withevents *primary dysmenorrhea* in SMA 1 Padang. The reasons for the author to take SMA 1 Padang city as a test site is the location that is easily accessible and is in the center of the city and learning activities of students, in terms of age, family background of students who homogeneous, is expected to be built up communication and cooperation both in the collection data merging into consideration the author to do research in this place.

I. METHODS

This study is a quantitative research with cross sectional design, done in SMAN 1 Padang city in November 2016 - February 2018. The respondents were sisiwi class X and X were 106, *proportionallystratified random*sampling.Data obtained through questionnaires and attendance recapitulation. Data analysis Univariate and bivariate with*Chi-Square test.*

II. RESULTS

Table 1 Frequency Distribution

Characteristics of Respondents.

Variable	Frequency (n = 106)	Percent (%)
age>*menarche*		
12 years	43	40.6
<12 years	63	59.4
Nutritional Status		
Skinny	52	49.1
Normal	43	40.6
Grease	11	10 , 4
Menstrual period		
>7 days	30	28.3
<7 days	76	71.7
Sports Habits		
Not good	52	49.1
good	54	50.9
Total	**106**	100

Based on Table 1 above it can be seen that out of 106 respondents showed that more respondents withage *menarche* <12 years (59.4%), skinny (49.1%), menstrual periodof<7days (71 , 7%) and respondents with good sport habits (50.9%).

Table 2 Frequency Distribution of Respondents Incidence Prymary*Dysmenorrhea*

Primary Dysmenorrhoea	Frequency (n = 106)	Percent (%)
Yes	79	74.5
No	27	25.5
Total	**106**	**100.0**

Based on table 2 it can be seen that the majority of respondents who experienced a *primary dysmenorrhea*(74.5%).

Table 3 Relationship Age *Menarche*with Incidence *Primary Dysmenorrhea*

Age *menarche*	*Primary dysmenorrhoea*				Number		*p-value*
	Yes		not				
	f	%	f	%	f	%	
≤12yr	53	84.1	10	15.9	63	100	0.012>
12 yr	26	60.5	17	39.5	43	100	

Based on Table 3 shows that the proportion of girls with *primary dysmenorrhea* is greater at the age of *menarche*≤12 years than girls withage> *menarche* 12 years (84.1%: 60.5%). Based on statistical test obtained significant difference(*p*= 0.012), meaning that there is a relationship between the age of *menarche* withincidence*primary dysmenorrhea* on the X and XI grade student at SMAN 1 Padang as *p*<0.05.

Table 4 Relationship Nutritional Status with Incidence *Primary Dysmenorrhea*

Nutritional Status of	*Primary Dysmenorrhea*				Total		*p-value*
	Yes		No				
	f	%	f	%	f	%	
Petite	46	88.5	6	11.5	52	100	
Normal	24	55.8	19	44.2	43	100	0.001
Grease	9	81.8	2	18.2	11	100	

Based on Table 4 shows that the proportion of girls with *primary dysmenorrhea* larger than the meager nutritional status of obese and normal nutritional status (88.5%: 81.8%: 55.8%). Based on statistical test obtained significant difference(*p*= 0.001), meaning that there is a relationship between nutritional status and the incidence of *primary dysmenorrhea* the X and XI grade student at SMAN 1 Padangwith a value of *p*<0.05.

Table 5 RelationshipMenstrual Periodwith Incidence *Primary Dysmenorrhea*

Menstrual period	*Primary Dysmenorrhea*				Total		*p-value*
	Yes		No				
	f	%	f	%	F	%	
7 days	23	76.7	7	23.3	30	100	0.094
≤7 days	56	73.7	20	26.3	76	100	

Based on Table 5.3 shows that the proportion of students whose *primary dysmenorrhea* greater in the menstrual period> 7 days compared to girls with long periods of<7days (76.7%: 73.7%). Based on statistical tests obtained difference was not significant(*p*= 0.094), meaning there is no relationship between menstrual period with the incidence of *primary dysmenorrhea* the X and XI grade student at SMAN 1 Padang with *p*>0.05.

Table 6 Relationship Sports Habitswith *Primary Dysmenorrhoea*

Sports Habits	*Primary Dysmenorrea*				Total		*p-value*
	Yes		No				
	f	%	f	%	F	%	
Not good	46	88.5	6	11.5	52	100	0,003
Good	23	61.6	21	38.9	54	100	

Based on Table 5.6 shows that the proportion of girls with *primary dysmenorrhea* greater in the exercise habit is not good compared to students with good exercise habits (88.5%: 61.6%). Based on statistical test obtained significant difference*(p*= 0.003), meaning that there is a relationship between sports habits to the incidence of *primary dysmenorrhea* the X and XI grade student at SMAN 1 Padang with a value of *p*<0.05.

DISCUSSION

Relationship Age *Menarche* with Incidence *Primary Dysmenorrhea*

The results of the bivariate analysis showed that the percentage of students whose *primary dysmenorrhea* greater in the age of menarche ≤12 years (84.1%) of theage> *menarche* 12 years (60.5%). Based on statistical test obtained significant difference*(p*= 0.012), meaning that there is a relationship between the age of *menarche* withincidence *primary dysmenorrhea* on the X and XI grade student at SMAN 1 Padang with values*(p*<0.05).

The results of this study differ from Novia study (2008) in Sidoarjo who explained that there was no correlation between the age of *menarche* withincidence *primary dysmenorrhea* as *p*= 0.08. Differences occur because the sampling criteria of this research is the age of women of childbearing age (15-30 years). In Novia research, greaterage>*menarche* 12 years or within normal limits. At the age of respondents> 12 years were less likely to undergo *primary*dysmenorrhea.And, the analysis used data using logistic regression statistical test to look for the effect of age of *menarche* with *primary*dysmenorrhea.The results of this study differs also with research Akbarzadeh*et al* (2017) in Iran indicates that there is no significant relationship between age *of menarche* withincidence *primary dysmenorrhea* as obtained *p*= 0.15.

According to Shanon in Ramadhani (2014), *primary dysmenorrhea* happened atage*menarche* ≤ 12 years, resulting reproduction is not ready for the change and still narrowing of the cervix then there will be great pain when menstruating. Narrowing of the cervix caused by vasopressin is a hormone secreted by the posterior lobe of the pituitary gland (Anurogo, 2011). There was also a result of the uterine muscles tighten, causing discomfort and menstrual cramps (Akmal et al, 2010).

Distribution of response in this study, the bigger girls withage *menarche* ≤12 years of *primary*dysmenorrhea.This relates to the preparation of the students in the face of puberty. Preparation of teenagers in the face of puberty such as physical, psychological, nutrition and education. The role of the parents and teachers are also very influential on the readiness to undergo puberty, especially in the menstrual period.

Age *of menarche* is a major factor in the face of events schoolgirls *of primary*dysmenorrhea.The pain felt by young women a few days before menstruation and during menstruation usually due to increased secretion of hormones *prostaglandine.*Because the older the person, the more likely the person is experiencing menstruation.

One way to improve their knowledge with information from health professionals and the information of mass media and electronic means that there is (Bustami, 2014). Knowledge domain is very important in shaping a person's actions, because of the experience and the study was based on the knowledge of behavior will be more lasting than in behavior that is not based on a factor formation knowledge.

Knowledge behavior. A person's behavior is based on the knowledge and attitudes, behaviors that are not based knowledge will not last long (Yulizawati et al, 2016).

Relationship of Nutritional Status with Incidence *Primary dysmenorrhea*

Bivariate analysis results showed that the percentage of students whose *primary dysmenorrhea* the majority of the nutritional status of underweight as much as 88.5%. Based on test results obtained statistically significant difference *p*= 0.001, meaning that there is a relationship between nutritional status and the incidence of *primary dysmenorrhea* the X and XI grade student at SMAN 1 Padangwith a value of *p*<0.05.

The results are consistent with research Madhubala (2012) in India, shows that there is a relationship nutritional status of girls who undergo *primary dysmenorrhea p*= 0.012. The low nutritional status of this case in terms of demographics and constitutional factors. This study is consistent with research Nohara*et al* (2011) in Japan, which states that the body mass index has a significant relationship with the occurrence of *primary*dysmenorrhea.In contrast to the results of research Gustini*et al* (2017) in Bukit Tinggi STIKES Cheers Buana showed there was no correlation nutritional status of girls who undergo *primary dysmenorrhea* with *p*= 0.89. The changes which occur in the course of a study Gustini, due to the results of data analysis using *t-test.*

The results are consistent with the theory that the nutritional status of women with *overweight* or obese may increase the hormone *prostaglandine*so related complaints during menstruation as *primary dysmenorrhea* (Whitney, 2011). Improved nutritional status is a risk factorthe onset of *primary dysmenorrhea*formay result in an increase in inflammatory mediators. Inflammation can cause the myometrium hypertonus so that the onset of uterine contractions and also due level s*prostaglandine* causing *dysmenorrhea* (HongJu, 2015)

Nutritional status is an important part of a person's health. Undernourishment addition will affect the growth and function of organs will also lead to disruption of reproductive function. The nutritional status of women associated with the luteal phase of the menstrual cycle, which in this phase of the nutritional needs of a much-needed, if the needs of nutrition person less in the luteal phase occurs then this causes *dysmenorrhea* (Andriyani, 2016).

In this case the normal nutritional status showed elevated levels of *prostaglandine* (PG) excess, thus causing myometrial spasms triggered by substances in the blood of menstruation similar natural fats can be found in the muscles of the uterus. On the nutritional status of fat contained excessive fat tissue which can lead to blood vessel hyperplasia (blood vessels by fatty tissue). This is a result of the hormone *prostaglandin*E stimulates the uterine muscles which affects the blood vessels to cause vasoconstriction in the endometrium during the menstrual cycle phase secretion which so disturbed the process of menstruation and the resulting *primary dysmenorrhea* (Anurogo, 2011).

RelationshipMenstrual Period with Incidence *Primary Dysmenorrhea*

Result of bivariate analysis showed that the percentage of students whose *primary dysmenorrhea* greater long periods> 7 days as many (76.7%) of the long periods of<7days, as many (73.7%). Based on the test results are not statistically significant difference *p*= 0.094, meaning that there is no relationship between long periods with the incidence of *primary dysmenorrhea* the X and XI grade student at SMAN 1 Padang with values*(p*>0.05).

The results are consistent with the results of research Novia (2008) in Sidoarjo showed no long-standing relationship with the incidence of menstrual *dysmenorrhea* in adolescent girls with value*(p*= 0.651). Novia research results, the difference in the percentage of respondents who experienced a *primary dysmenorrhea* the various categories of long periods is not too obvious, then after testing found no statistically significant relationship. So it can be explained that long periods no effect on the incidence of *primary dysmenorrhea.* Gustina research results (2015) in Surakarta also shows there is no longer a relationship of menstruation andevents*primary dysmenorrhea* with values*(p*= 0.783). Gustina same research results with the results of this study are sampling technique with *proportional stratified random sampling* and analysis of bivariate data usingtest, *chi-square*with a 95% confidence level α = 0.05.

According to Shanon in Novia (2008) the longer menstruation occurs, the more frequent the uterus to contract, resulting in the more *prostaglandine* issued.Production due *Prostaglandine* to excessive, then the resulting pain. Increased *prostaglandine*occurring in the endometrium and decreased progesterone end of the luteal phase of the menstrual cycle. In the luteal phase or secretion of endometrial thickening of the walls of the old specify menstruation leads to increased tone and contraction of the uterine myometrium excessive (Anurogo, 2011). Continuous uterine contraction also causes the *supply* bloodto the uterus to stop temporarily so it came to pass *primary*dysmenorrhea.

Menstrual periods associated with psychological and physiological factors. Psychologically usually associated with young women emotional level unstable when new menstruate. While physiological rather the occurrence of excessive uterine muscle contraction or it can be said they are very sensitive to these hormones result in a phase of endometrialsecretion of the hormone producing *prostaglandin*e. Because the phase of menstrual secretions also determine the length of a person.

Relationship Sport Habits with Incidence *Primary dysmenorrhea*

Result of bivariate analysis showed that the percentage of students whose *primary dysmenorrhea* the majority of which is not good as exercise habits*(88.5%).* Based on the test results are statistically significant difference*(p*= 0.003), meaning that there is a relationship between exercise habits to the incidence of *primary dysmenorrhea* the X and XI grade student at SMAN 1 Padang city with values*(p*<0.05). The results are consistent with research Wahyuti (2015) in Papua Arso SMA shows that there is a relationship between sports habits and incidence of *primarydysmenorrhea*.The results of this study, comparable to the results of research Handayani (2014) in the district of RokanHulu that found a significant relationship between exercise habits to the incidence of *primary dysmenorrhea* by value*(p*= 0.028).

Based on this research, Sumudarsono in Yustianingsih (2004) in East Java *primary dysmenorrhea* greater in girls with no exercise habits better than good exercise habits. Instudent who *dysmenorrhea* with ais not good exercise habits, can lead to oxygen can not be supplied to the blood vessel vasoconstriction. When a woman regular exercise, then the woman can provide oxygen nearly 2 times per minute so that oxygen is delivered to the blood vessel vasoconstriction.

Exercise can increase the production of endorphins (the body's natural pain killers), can increase serotonin levels. Regular exercise can reduce stress and fatigue thus indirectly also reduces pain. Familiarize sport and regular physical activity as healthy walking, running, cycling, or swimming at the time before and during menstruation, it can make the blood flow in the muscles around the uterus becomes smooth, so that the pain can be resolved or reduced.

CONCLUSION

There is a relationship between the age of *menarche,*nutritional status, and exercise habits with *primarydysmenorrhea*.Department of Education in order to create additional policies carried out by health workers to the high school that should their health promotion of reproductive health, especially regarding the incidence of *primary dysmenorrhea.*all students to be able to learn about *primary*dysmenorrhea.Age *of*menarche,nutritional status, and exercise habits are the cause of *primary dysmenorrhoea,* so in this case need to do prevention by eating nutritious foods, avoiding stress, regular exercise fatigue and can also compress with warm water. For the next researcher to conduct further research is expected to do further research using other variables such as genetics, stress levels.

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Dysmenorrhea has been the most common gynecological problem worldwide. Reports of dysmenorrhea are greatest among individuals in their late teens and 20s and usually declining with age. It has also been reported that dysmenorrhea affects more than 80% of women in the reproductive age. The study objective was to examine the predictors of dysmenorrhea, its effect, and coping mechanisms among adolescents in Shai Osudoku District, Ghana. Methods . We conducted a cross-sectional study in September and November 2017 in selected schools in Shai Osudoku District, Ghana. We employed self-administered q Table 1: Sociodemographic characteristics of participant with primary dysmenorrhea and without primary dysmenorrhea Variables With Primary Without Primary Total Dysmenorrhea Dysmenorrhea (n =165) n (%) n (%) Age range (mean + SD) 18-20 32 (22.2) 6 (28.6) 38 21-23 64 (44.4) 7 (33.3) 71 24-26 28 (19.4) 1 (4.8) 29.Â Validity and of female university students. Upsala reliability of the global physical activity journal of medical sciences. 2010 May questionnaire (GPAQ). Table 1. Characteristics of included studies. https://doi.org/10.1371/journal.pone.0220103.t001. STROBE assessment on reporting quality. The results of the STROBE assessment for the 24 studies are summarised in S1 Table. Twenty-three studies clearly reported their aim. Ten studies clearly reported their eligibility criteria, in addition one study reported the exclusion criteria only and one study reported very broad criteria.Â Primary dysmenorrhea in young Western Australian women: prevalence, impact, and knowledge of treatment. J Adolesc Health. 1999;25(1):40â€“5.Â The self-care strategies of girls with primary dysmenorrhea: a focus group study in Taiwan. Health Care Women Int. 2006;27(5):418â€“27.