

Factors Associated with The Incidence of Primary Dysmenorrhea in Adolescent Girls

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ABSTRACT

Background: Dysmenorrhea is severe pain in the lower abdomen during menstruation. The impact on adolescent girls includes pain felt in the abdomen and back. Based on data from the Jember Regency Health Office, 69.5% mostly experienced primary dysmenorrhea. Based on the results of preliminary studies at Senior High School 2 Jember conducted by researchers on 15 young women, 9 young women (60%) experienced dysmenorrhea. This study aims to determine the Factors Associated with the Incidence of Primary Dysmenorrhea in Class X Adolescent Girls at Senior High School 2nd Jember.

Methods: This study used descriptive research design. The population in this study were all grade X adolescent girls at Senior High School 2nd Jember who experienced primary dysmenorrhea. The sample amounted to 147 respondents. Research sampling using total sampling technique. The research instrument used was a questionnaire. Data were analyzed using univariate analysis.

Results: The frequency distribution of respondents who experienced primary dysmenorrhea based on the age factor of early menarche 61.9%, abnormal menstrual duration 63.3%, there was a family history of dysmenorrhea 61.2%, and abnormal BMI 69.4%.

Conclusion: The conclusion in this research is that almost all respondents experience primary dysmenorrhea. Factors associated with the incidence of dysmenorrhea in class X adolescent girls at Senior High School 2 Jember are age of menarche, length of menstruation, family history of dysmenorrhea and Body Mass Index (BMI). Adolescent girls in class X at Senior High School 2nd Jember are advised to manage a healthy lifestyle and exercise regularly.

Keywords: *Age of Menarche; Duration of Menstruation; Family History of Dysmenorrhea; BMI; Primary Dysmenorrhea*

Introduction

Adolescence is a period of transition from puberty to adulthood or a growing process towards maturity that includes mental, emotional, social, and physical maturity. One of the changes that is marked has entered puberty when the reproductive instruments begin to function(characterized by menstruation in women). Menstruation can cause quite meaningful disturbance for women. The most common menstrual disorder in most women is dysmenorrhea(Dewi, 2020).

Dysmenorrhea is a severe pain in the lower abdomen during menstruation(Barcikowska et al, 2020). The common nature of this pain is cramps and can spread to the thighs or the lower part of the spine, this pain can also be accompanied by vomiting, headache, back pain, diarrhea(Barcikowska et al, 2020). Dysmenorrhea can lead to a decrease in activity and quality of life such as high school absence rates(Loto et al, 2008).

Globally, the incidence of disminor cases is still very high among teenage girls. According to the World Health Organization (WHO) in 2018, the number of dysmenorrhea in the world is very large, on average more than 50% of women in each country have dysmenorrea. Each country presents this dismenorrhoea differently, as in Sweden about 72%, in the United States it is estimated that almost 90% of women have dyspenorrhea and 10-15% of them have severe dysmenorea, which causes them to be unable to perform any activity. (WHO, 2018). According to data from the Association of Southeast Asian Nations (ASEAN) in 2018, the presentations of dysmenorrhea in Singapore are about 10-15%, Malaysia 35-40% and Thailand 65%. The incidence of primary dismenorrhoea in Indonesia is about 54.89% and the remaining 45.11% is secondary(Balitbangkes, 2018). According to the Adolescent Reproductive Health Survey (SKRR) of East Java Province in 2021, there were 4,653 adolescents suffering from dysmenorrhea. The prevalence of primary dysmenorrea was 4,297 (90,25%) and of secondary dysminorrhea was 365 (9,75%)(Survei Kesehatan Reproduksi Remaja Provinsi Jawa Timur, 2021). According to the Jember district health department data there are 69.5% of the majority have primary and 30.5% have secondary dysmenorrhea, the highest cases of menstrual disturbance occurred in adolescents aged 10-14 years of

age that is 1,457 cases, Summersari occupies the first place with 740 cases (Dinas Kesehatan Kabupaten Jember, 2020).

The primary cause of primary dysmenorrhea is the presence of Prostaglandin F2a (PGF2a) produced by the endometrium (Varney, 2008). Smeltzer and Bare in 2002 stated that the risk factors for primary menopause were menarche age, long periods, and family history. Dysmenorrhea is known to be one of the most disturbing causes of daily activity that will negatively impact on future quality of life.

The primary effects of dysmenorrhea in adolescent daughters include pain in the abdomen and back that causes discomfort and can interfere with daily activities, especially adolescent girls who are doing learning activities at school. Teenage girls who attend school learning activities become disturbed by dysmenorrhea so that they are not enthusiastic, their concentration becomes diminished and even can cause material delivered during learning to be unacceptable, so that it can affect the school's academic performance (Fitri, 2020).

Efforts can be made to deal with dysmenorrhea there are several ways that start from simple ways by using warm water compresses, warm drinks, sufficient rest, meditation, herbal medicine, distraction (Anugroho, 2011). Besides, the treatment of dysmenorrhea can also be done using medication. The pharmacological treatment of dysmenorrhea can be handled with the administration of pain relieving analgesics and non-steroidal anti-inflammatory drugs (NSAIDs) including asamphenamate, ibuprofen and piroxicam (Misliani, 2018).

From the problem data, researchers were interested in conducting a study entitled "Factors Associated with Primary Dysmenorrhea in X-Class Girls in 2nd Jember State High School"

Method

The design of the research used is descriptive research using the method of research survey description, i.e. research carried out to describe or describe a phenomenon occurring within a society. The population and sample in this study were 147 teenage girls of X grade at 2 Jember State High School who had primary menopause. The sampling technique used in this study is the Total Sampling Technique

carried out in May 2023-June 2023. The data collection tool for this study is a questionnaire using Univariat Analysis.

Results

Table 1. Frequency Distribution of Respondents by Age in X-Class Girls in State High School 2nd Jember 2023

No	Age	Frequency	Percentage (%)
1	Early teenagers (11-14)	0	0
2	middle-aged teenager (15-17)	147	100
3	late teenagers (18-21)	0	0
Total		147	100

Source: Primary Data, 2023

Table 1 shows that the total respondents are in the middle-aged adolescent range (15-17 years) of 147 respondents (100%).

Table 2. Frequency Distribution of Menarche Age Factor with Primary Dismenorrhea in X-Class Girls in State High School 2nd Jember 2023

No	Age of menarche	Frequency	Percentage (%)
1	12-14 yrs (normal)	56	38,1
2	< 12 yrs (too early)	91	61,9
Total		147	100

Source: Primary Data, 2023

Table 2 shows that of the 147 respondents who had primary menopause, the majority of the respondents had menarche (first-time fever) at an early age of < 12 years, which was 91 respondents (61.9%) and at the normal age of 12-14 years that was 56 respondents (38.1%).

Table 3. Distribution of the Frequency of Long Menstruation Factor with Primary Menstrual Dysmenorrhea in Teenage Girls X-Class State High School 2nd January 2023

No	length of menstruation	Frequency	Percentage (%)
1	3-7 day (normal)	54	36,7
2	<3 dayand> 7 day (Not normal)	93	63,3
Total		147	100

Source: Primary Data, 2023

Table 3 shows that of the 147 respondents who had primary menopause, the majority had menstrual periods of < 3 days and > 7 days (abnormal) that is 93 respondents (63.3%) and respondents with 3–7 days (normal), that is 54 respondents (36.7%).

Table 4. Distribution of Frequency Factors of Disminorious History in Families with Primary Dismenorrhea in Teenage Girls X-Class State High School 2nd Jember 2023

No	family history of dysmenorhea	Frequency	Percentage (%)
1	Ada	90	61,2
2	Tidak ada	57	38,8
Total		147	100

Source: Primary Data, 2023

Table 4 showed that of the 147 respondents who had primary dysmenorrhea, respondents had a family history of dysminorrhea which was 90 respondents (61.2%), and 57 respondents (38.8%) had no family history.

Table 5. Frequency Distribution of Body Mass Index Factor (BMI) with Incidence of Primary Dysmenorrhea in Teenage Girls Grade X High School State 2 Jan 2023

No	BMI	Frequency	Percentage (%)
1	Normal	45	30,6
2	Not normal	102	69,4
Total		147	100

Source: Primary Data, 2023

Table 5 shows that of 147 respondents with primary menopause with normal IMT, 45 respondents (30.6%) and 102 respondents (69.4%) with abnormal IMT.

Discussion

Menarche is the first menstrual period that usually occurs between the ages of 10-16 years or in early adolescence in the middle of puberty before entering the reproductive period. Menarche at an early age causes unprepared reproductive instruments to undergo changes that cause pain during menstruation. Women who

experience premature menstruation are caused by internal and external factors. Internal factors due to congenital hormonal imbalances. It is also related to external factors such as nutritional intake on the food consumed(Kasumayanti, 2015).

This study suggests that early menarche age has a major influence on the incidence of primary dysmenorrhea in adolescent girls, because earlier menarche ages (<12 years) cause the occurrence of dysmenorrhea because the reproductive system is not ready to undergo changes. The female reproductive system must function as it should, but if menarche occurs at an earlier than normal age, where the reproductive organ is not ready to undergo changes and there is still a narrowing of the cervix, there will be pain during menstruation. While adolescent girls with normal menarche age category (12-14 years) almost also experience primary dysmenorrhea, this is due to the age characteristics of the respondent in general in the age category of 15-17 years, which in this age range falls into the middle adolescent category and in this category is called a period of storm and stress, which is a time when emotional tension increases as a result of physical changes that cause adolescents to be highly sensitive and susceptible to stress. Stress is a physiological, psychological and behavioral response in adapting to internal and external stresses. At times of stress, the body produces excess hormones estrogen and prostaglandins. These estrogens and prostaglandins can cause excessive uterine contractions, resulting in pain during menstruation.

The length of menstrual days is an indirect factor that can lead to the onset of primary menopause. Long periods can be caused by both psychological and physiological factors. Psychological factors relate to the emotional level of a teenage girl who tends to be exposed to stress, while physical factors are associated with the production of the hormone prostaglandin. Women who have menstrual periods longer than normal will experience pain during pregnancy. This is due to excessive contraction of the uterine muscles during the secretion phase so that the production of the hormone prostaglandin becomes overproduced(Sirait, Hiswani, & Jemadi, 2014).

This study suggests that prolonged abnormal menstruation < 3 days and > 7 days will result in the uterus contracting more frequently and the more prostaglandins are excreted, excessive production of prostaglandins causes pain while continuous uterine contractions cause the blood supply to the womb to cease and dismenorrhea

occurs. Another factor that affects the long duration of menstruation is psychological disorders such as stress experienced before or during menstruation. Stress experienced by a teenage girl can affect menstruation and cause menstrual disorder, one of them is long periodic menstrual disturbance, which of these psychological factors causes physiologically the occurrence of longer menstrual days so that it can trigger increased pain at the time of menstruations.

A family history of dysmenorrhea is one of the risk factors that can increase the likelihood of occurrence of dysmenorrhoea because it relates to genetic factors that degrade characteristics to the offspring, one of which duplicates itself so that at the time of the division of the genetic cells will duplicate themselves so that the mother's characteristics can decrease to its descendants. Two out of three women who suffer from dysmenorrhea have a history of dysmenore in their family (Fatmawati dan Aliyah, 2020). So H.L. Blum's theory (1974) says that genetic factors affect the degree of one's health is related to health problems.

This study suggests that the family history of dysmenorrhea is closely linked to the incidence of primary dysmenorrhoea experienced by teenage daughters, which is due to genetic factors that lower properties to their offspring, one of which duplicates so that at the time of division of the genetic cells will duplicate themselves so that the mother's properties can decrease to their descendants. It is related because the anatomical and physiological condition of a person is generally almost the same as that of his parents and siblings. So suggests that seen from the presence of family history and genetic related to the occurrence of primary menopause in teenage daughters.

The Body Mass Index (BMI) is a simple tool or way to monitor the nutritional status of a person. This nutritional monitoring is useful to determine the nutrition status of someone including ideal, deficiency and overweight (Supariasa, 2013; Harjatmo et al, 2017). The mechanism underlying the nutritional status of IMT affects the occurrence of primary menopause is possible because the amount of body fat greatly influences the normal ovulation cycle. So when the level of fat in the body exceeds the capacity or insufficient body needs, then it can affect reproductive health (Frisch & Mcarthur, 1974; Urhoj et al, 2017). These excessive or insufficient levels of fat can affect the ovulation phase and affect the menstrual cycle. It then causes excessive secretion of

prostaglandins, which itself serves to stimulate the contraction of the uterine muscles, to remove menstrual blood, and when excessively secreted, it increases muscle contraction and causes pain during menstruation(Frisch, 1990).

This study showed that adolescents with abnormal IMT categories (<18,5 and >25) almost all adolescents have primary dysmenorrhea. This is because of low nutritional status <18,5 (underweight) can be caused by a lack of food intake, including iron. While the nutrition status above >25 (overweight), it can also lead to menopause because if there is excess fat tissue then more prostaglandins are formed, whereas an increase in the blood circulation of prostaglandins can lead to hyperplasia of blood vessels by the fatty tissue of the female reproductive organs, so that the blood that should flow during menstruation is disrupted and causes pain at the time of menstruation.

Conclusion

The conclusion of this study is the dismenorrhea factor based on the age of menarche in adolescent girls in grade X in high school 2 Jember mostly with the age category of early menarche (<12 years) as much as 91 respondents. The dysmenorrhoea factor based upon the length of menstruation in teen girls in class X in High school 2nd Jember most with the long category of abnormal menstruation (< 3 days and > 7 days) as many as 93 respondents The dismentorrhea factor based on family history of dismenorrea in adolescents in grade x in high schools 2 Junker mostly has a family history is 90 respondents. The body mass index (BMI) of adolescent daughters in Class X in secondary school 2 jember is almost entirely in the category of Abnormal IMT (<18,5 and >25) that is 102 respondents.

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