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Epidemiology of Dysmenorrhea among Female Adolescents in Central Jakarta

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Abstract

Dysmenorrhea is a naturally occurring condition experienced by female teenagers during menstruation, but numerous reports claimed its tendency to incur a negative impact on them. As a result, it is imperative that we are well informed of the condition in the effort to improve female teenagers' quality of life. However, data on dysmenorrhea for the area of Central Jakarta is difficult to find. The aim of this research is to illustrate the prevalence, associated factors, impact and treatment for dysmenorrhea. Data for this descriptive research was gathered through questionnaires from 240 teenagers selected by accidental sampling. Data was processed by descriptive statistics and chi-square test to examine its significance. 87.5% of the respondents reported an experience of dysmenorrhea (20.48% mild pain, 64.76% moderate pain, 14.76% severe pain). 43.75% of the respondents reported that the condition has constrained them from conducting their daily activities. Most of the participants reported self-medication for the dysmenorrhea, and 5.6% of them have consulted with a physician for pain. Mothers and friends are considered as sources of information and assistance to treat dysmenorrhea. Significant factors behind this research that are associated with dysmenorrhea are age, volume of menstrual blood and occurrence of premenstrual syndrome.

Abstrak

Epidemiologi Dismenorea pada Remaja Putri di Jakarta Pusat. Dismenorea merupakan kondisi yang wajar dialami setiap remaja putri yang mengalami menstruasi, namun banyak laporan yang mengklaim bahwa kondisi ini memberikan dampak negatif bagi remaja. Oleh karena itu, penting adanya bahwa berbagai informasi mengenai dismenorea diketahui agar kita dapat membantu meningkatkan kualitas hidup para remaja putri. Walau demikian, data mengenai dismenorea pada remaja yang tinggal di Jakarta Pusat masih jarang ditemukan. Penelitian ini bertujuan untuk mendapatkan gambaran mengenai prevalensi, faktor-faktor yang berhubungan dengan dismenorea, dampak, serta penanganan yang dilakukan untuk mengatasi dismenorea. Penelitian ini bersifat deskriptif dan datanya dikumpulkan melalui kuesioner. Sebanyak 240 remaja dipilih sebagai responden dengan menggunakan teknik sampling aksidental. Data diolah menggunakan statistik deskriptif dan uji *chi-square* dilakukan untuk menentukan signifikansi. Sebanyak 87,5% responden mengalami dismenorea (nyeri ringan sebanyak 20,48%, nyeri sedang 64,76%, dan nyeri berat 14,76%), dan sebanyak 43,75% responden menyatakan bahwa dismenorea membatasi aktifitas sehari-hari mereka. Kebanyakan partisipan menangani dismenorea sendiri dan sebanyak 5,6% partisipan pernah berkonsultasi ke dokter terkait nyeri yang dialami. Ibu dan teman dipandang sebagai sumber informasi maupun bantuan yang dapat membantu mengatasi dismenorea. Faktor yang memiliki dampak signifikan terhadap dismenorea dalam penelitian ini adalah usia, jumlah darah menstruasi, dan munculnya gejala pra-menstruasi.

Keywords: *Dysmenorrhea, menstruation, teenagers*

Introduction

Adolescence is a transition period from childhood to adulthood characterized by physical and psychological maturity.¹ At this time, individuals experience rapid and dramatic physical changes in terms of size, shape, body composition, development of reproductive organs and

developments of secondary sex characteristics which indicate physical maturity. Puberty is a phase experienced by female adolescents marked by menstruation. Menstruation is a normal biological process in women of reproductive age.² Although considered as a natural event, menstruation is often referred to cause physical and psychological discomfort

by many female adolescent. According to a study conducted in America, 75% of teenage girls are having some problems related to menstruation.³ Commonly reported problems include irregular menstruation, menstruation with heavy bleeding, and menstruation accompanied with pain. Among these issues, the problem arises most often is menstruation accompanied with pain known as dysmenorrhea.

According to Scambler (2005),⁴ there are three types of dysmenorrhea: primary dysmenorrhea, secondary dysmenorrhea, and membranous dysmenorrhea. Among the three types, primary dysmenorrhea is the most common complaint. The causes of primary dysmenorrhea usually not pathological. Primary dysmenorrhea occurred since the emergence of menarche (the first menstruation) caused by uterus intrinsic factors and it is closely linked to an imbalance of ovarian sex steroid hormones, namely because of excess production of prostaglandin hormone on secretion phase which causes stimulation of the smooth muscles of the endometrium.⁵ Secondary dysmenorrhea is due to abnormalities in the organs in the pelvic cavity genitalia. This kind of dysmenorrhea is also known as organic dysmenorrhea. Secondary dysmenorrhea usually experienced by women with endometriosis or pelvic inflammatory disease, women who use intrauterine device posted in the womb, and women who have tumors or polyps in the uterus.⁵ Membranous dysmenorrhea is a rare case which is caused by expulsion of a large part of endometrium during menstruation.⁶

Research conducted in various countries have shown that the incidence of dysmenorrhea in adolescents is quite high. As many as 72% of female adolescent in Sweden reported experiencing dysmenorrhea and 15% of them were classified as having severe dysmenorrhea.⁷ In America, it is estimated as many as 90% of women experience dysmenorrhea with 10% to 15% of them reported having severe dysmenorrhea.⁸ The incidence of dysmenorrhea in Indonesia alone is estimated at 54.89% with severity ranged from mild to severe.⁸

Studies have shown that a lot of teens reported negative impacts of dysmenorrhea on their lives. Dysmenorrhea can cause physical or psychological problems that lead to decreasing quality of life which associated with functional status or daily activities, psychological functioning, and physical status of adolescents.⁹ Dysmenorrhea is also reported as main reason for school absenteeism in female adolescents.³ As many as 14% to 52% of school absenteeism among female adolescents in the United States are due to dysmenorrhea.⁷ While as many as 53% of adolescent girls in Australia reported limitations in school activities, sports, and social activities due to dysmenorrhea.⁷ Such condition can certainly obstruct

teens in reaching their optimal academic achievement. Additionally, dysmenorrhea often hampers female adolescents in participating in social activities.¹⁰ As a result, teenagers also have social problems. Though socializing is one of the things that are important to a teenager.

Therefore, it is important to know as many as information regarding dysmenorrhea to improve the quality of life for young women. Various studies in the United States, Europe, and some Asian countries have been conducted to determine the prevalence, determinants, impact, and treatment should be done to cope with dysmenorrhea. However, data on the epidemiology of dysmenorrhea in Indonesia, especially Jakarta is still rare to find so research needs to be done to obtain data on dysmenorrhea. The purpose of this study was to obtain an overview of the epidemiology of dysmenorrhea, the prevalence, determinants, impact, and treatment done to overcome dysmenorrhea in adolescent girls in Central Jakarta.

Methods

This research is using quantitative research design. The sampling technique used in this study is accidental sampling with a total sample of 250 adolescent from junior and senior high school, and also freshmen year college students in the area of Central Jakarta. Data collection tool used was a questionnaire consisting of two parts. The first part contains questions about demographic data such as age, ethnic origin, occupation of parents, as well as monthly pocket money. The second part contains question of menstruation which consisted of age of menarche (first menstruation), menstrual cycle, pain experienced during menstruation, pain severity (mild, moderate, or severe, were assessed subjectively), duration of pain, other accompanying symptoms, impact on daily activities, social environment's role in addressing dysmenorrhea, and how to cope with the condition of dysmenorrhea. Things that are asked in the questionnaire was adapted from the study of dysmenorrhea undertaken by El-Gilany AH *et al.* (2005) in adolescents in Egypt, and Lee, LK *et al.* (2006) in adolescents in Malaysia.^{3,10} Data was analyzed using descriptive analysis and Chi-square tests were calculated with SPSS to test the significance of each group of factors such as age, economic strata, and others against dysmenorrhea. SPSS software version 20 was used for the data analysis. $p < 0.05$ was considered to be statistically significant.

Result and Discussion

A total of 250 girls participated in the study but there were 10 participants whose data should be eliminated because their answer in the questionnaire were incomplete. Therefore there are 240 data to be analyzed.

Sociodemographic characteristics of the participants are presented in Table 1. Age of participants ranged from 11 to 22 years to cover the range of early, middle, and late adolescence with the largest percentage (65.42%) are in the middle teenagers. The majority of participants came from lower economic strata (70.83%), while 4, 58% of the participants came from upper economic group. Participant's ethnic group in this study are Javanese (43.75%), Sundanese (22.08%), Betawinese (18.75%), Minangnese (8.75%), and others as much as 6.67% (consisting of Aceh, Dayak, Madurese, Bugis, Batak, Malay, Papua, and Arabic). The mean age of menarche among participants was 12.2 years old.

A total of 87.5% participants experienced dysmenorrhea with the composition of mild pain (20.48%), moderate pain (64.76%), and severe pain (14.76%). Late adolescents within the range of age 19-22 years experienced dysmenorrhea the most (96.43%). Dysmenorrhea is also experienced more by adolescents who have irregular menstrual cycles, heavy menstrual blood, not doing exercise, and having premenstrual syndroms. Age, bleeding amount, and premenstrual syndrom are significantly associated with dysmenorrhea. Presentation of data on the prevalence and determinants of dysmenorrhea can be seen in Table 2.

Teens who experience dysmenorrhea usually experience pain during the first two days in their menstruation duration. 43.75% of adolescents who experience dysmenorrhea feel disturbed or restricted in their daily activities. Impaired activity include outdoor activities, concentration, ability to restrict homework and make teens not attending school. At the time of dysmenorrhea,

adolescents also reported a change in their mood. They feel more emotional and felt unable to perform daily tasks due to the pain they feel.

A total of 72.5% of participants reported experiencing premenstrual syndrome. The common symptoms experienced by participants are feeling of tiredness, back pain, headaches, and cramps or stiffness in the area of legs, hips, stomach, and breast. The majority of participants chose to overcome their dysmenorrhea naturally, including by taking a break and drinking herbal ingredients. However, there are teens who choose not to do anything to overcome dysmenorrhea. Only 5.6% of participants had consulted to doctor related to pain they felt during menstruation. There are 50.42% of participants who felt that social environment has part in helping them cope with dysmenorrhea. Social environment in this research refer to mother and friend. Mother is considered as source of affection and resources on things that can be done to address adolescent menstrual pain. Friend is seen as a figure who can help teenager to deal with dysmenorrhea by giving emotional support and sense of humor.

The prevalence of dysmenorrhea in adolescent in Central Jakarta (87.5%) did not differ from the prevalence of dysmenorrhea in adolescent in industrialized countries and other developing countries where reported that the prevalence of dysmenorrhea in adolescents in industrialized and developing countries ranged from 20% to 93%.¹⁰ In terms of pain level on dysmenorrhea, various studies have reported that it is varied in different geographic locations. The results reveal that in some countries the prevalence of dysmenorrhea with severe levels of pain ranged from 15% to 53% of adolescents.¹⁰ In Central Jakarta, severe pain at the time of dysmenorrhea experienced by 14.76% of respondents. This is similar to the prevalence of severe dysmenorrhea pain in Mansoura, Egypt, which is a 14.8%.¹⁰ While the prevalence of severe pain in Malaysia was 6.8%.³ According to El-Gilany (2005),¹⁰ the difference is probably related to cultural differences in the perception of pain, as well as the diversity of the pain threshold for each individual. The average duration of pain experienced by adolescents in this study are similar to results of studies in other countries which is two days to three days at the beginning of menstruation. In this study, factors that have significant associations with dysmenorrhea are age, blood flow during menstruation, and premenstrual syndrome. Girls who are at the age of late adolescence (19 years-22 years) were significantly more likely to have dysmenorrhea than girls who are in the age of early or middle adolescence. This is consistent with the results of research by Tu *et al.* (2007)¹¹ which states that cases of dysmenorrhea generally occurs in individuals who are entering their 20s. Teens who experience premenstrual syndrome were also significantly more likely to have

Table 1. Socio demographic Characteristics of Participants

Variable	Number	%
Age (years)		
11-14	55	22.92
15-18	157	65.42
19-22	28	11.67
Social class		
Low	170	70.83
Middle	59	24.58
High	11	4.58
Ethnic group		
Javanese	105	43.75
Sundanese	53	22.08
Betawinese	45	18.75
Minangnese	21	8.75
Others	16	6.67
Age at menarche (years)		
<12	67	27.92
12	81	33.75

Table 2. Prevalence and Determinants of Dysmenorrhea

Variable	Total	%	Dysmenorrhea		p value Chi-square
			Number	%	
Age (years)					
11-14	55	22.92	42	76.36	9.042; p=0.011*
15-18	157	65.42	141	89.81	
19-22	28	11.67	27	96.43	
Social class					
Low	170	70.83	149	87.65	1.984; p=0.371
Middle	59	24.58	50	84.75	
High	11	4.58	11	100	
Age at menarche (years)					
<12	67	27.92	59	88.06	0.421; p=0.936
12	81	33.75	71	87.65	
13	54	22.50	46	85.19	
≥14	38	15.83	34	89.47	
Cycle regularity					
Regular	102	42.50	88	86.28	0.244; p=0.622
Irregular	138	57.50	122	88.41	
Bleeding amount					
Drops	5	2.08	3	60	27.939; p<0.001*
Average	141	58.75	124	87.94	
Heavy	94	39.17	83	88.3	
Bleeding duration (days)					
≤ 4	14	5.83	13	92.86	0.761; p=0.859
5-6	82	34.17	72	87.81	
≥ 7	142	59.17	123	86.62	
Uncertain	2	0.83	2	100	
Premenstrual syndrome					
Yes	174	72.5	162	93.1	18.164; p<0.001*
No	66	27.5	48	72.73	
Sports activity					
Active	74	30.83	62	83.78	1.351; p=0.245
Passive	166	69.17	148	89.16	

dysmenorrhea than teens who do not experience symptoms of premenstrual syndrome. The findings of other studies have suggested that there are other things that are significantly associated with dysmenorrhea in addition to age, blood flow during menstruation, and premenstrual syndrome, namely socio-economic class, regularity of menstrual cycle.^{2,11-14} In this study, dysmenorrhea found in teenagers who are come from lower, middle, and high social economic class, with 100% of participants from high socio-economic class experience dysmenorrhea. This finding is quite different from many other research results which confirm that prevalence of dysmenorrhea is increased in lower socioeconomic classes. This is likely occurred because the number of participants who came from high socio-economic class in this study are not proportional to the number of participants who come from lower socio-economic class that is still under-represent the number of teenagers who come from upper socio-economic. Associated with the menstrual cycle regularity, although in this study this factors did not significantly influence the

emergence of dysmenorrhea, the number of participants who experience dysmenorrhea were found more in those with irregular menstrual cycles compared with adolescents who had regular menstrual cycles. Data in this study also showed that most participants experienced dysmenorrhea two to three days at the beginning of the menstrual period when the blood flow is heavy.

One of the negative impacts of dysmenorrhea often reported is the increased student absenteeism in school. Study results reveal that student absenteeism in school in Central Jakarta due to dysmenorrhea is smaller than the results in various other places. In general, the range of school absenteeism due to dysmenorrhea is between 12.5% to 25.8%.¹³ However perceived impact of dysmenorrhea among adolescent is not different from findings in other countries. Teenagers have reported that beside interfere or restrict their activities, dysmenorrhea also caused mood changes. They feel more emotional and felt unable to perform daily tasks due to the pain they feel.

Table 3. Clinical Presentation and Treatment of Dysmenorrhea

Characteristic	Number	%
Severity		
Mild	55	22.92
Moderate	157	65.42
Severe	28	11.67
Duration of pain (hours)		
<24	170	70.83
24-48	59	24.58
>48	11	4.58
Impact on activity		
Disrupted	105	43.75
Not disrupted	53	22.08
Disrupted activity*		
Outdoor activity	63	32.31
Domestic chores	62	31.79
Concentration	52	26.67
School tasks	45	23.08
Sport	27	13.85
School absenteeism	23	11.79
Premenstrual syndrome*		
Fatigue	102	54.84
Back pain	73	39.25
Headache	38	20.43
Cramps	29	15.59
Migraine	6	3.23
Treatment*		
Rest	106	54.36
Herbs	42	22.05
None	32	16.41
Moderate exercise	14	7.18
Take medication	12	6.15
Others	16	8.21
Social support		
Help	121	50.42
Not helping	119	49.58

*Participants can choose more than one option

Various methods are used by adolescents to cope with dysmenorrhea. Teens who experience mild to moderate pain generally overcome it with medication such as paracetamol. According to research conducted by Chen et al. (2006),¹⁴ adolescents in Taiwan do several things in attempt to overcome dysmenorrhea, which are reducing physical activity, adjusting diet, using medications, including herbal remedies, acupuncture therapy, paying attention to symptoms that cause discomfort, and express emotions. Same attempt is also done by teenagers in Central Jakarta. The teenagers reduce physical activity by way of taking a break, either by just lay down or take a nap. Participants also use herbs that are believed to help reduce the pain they feel.

The results also revealed that mother and friend are considered as figure who can help adolescents cope with dysmenorrhea. Mother is seen as a source of information about things to do to overcome dysmenorrhea, such as giving advise on herbal ingredients that can be used, drug that can be taken, as well as specific treatments such as abdominal compress using warm water, etc. In addition to providing information, mother was also seen as a figure who gives affection in the form of attention, make herbal potions, and sometimes give light massage to respondents so that they feel more comfortable in dealing with dysmenorrhea. Friends is seen more as a source of support in the form of attention, providing a place for resting, and as a figure who can help to reducing the pain they felt because when hanging out with friends respondents felt happy so it divert them from pain. This condition is consistent with the results of research conducted by Alonso (2001)¹² which revealed that one of the factors that associated with the emergence of dysmenorrhea is social support. The less social support gained by an individual then the individual is more likely to be at risk of dysmenorrhea. Despite suffering pain that resulted in disruption of daily activities, the majority of respondents still consider that it is a common experience in every women. Therefore the majority of respondents felt no need to consult to a doctor. Respondents who decided to consult to a doctor, usually those who experience severe pain.

Conclusions

The prevalence of dysmenorrhea among adolescent in Central Jakarta is in line with the prevalence of dysmenorrhea among adolescent in other countries. Significant risk factors for the emergence of dysmenorrhea in this study were age, blood flow during menstruation, and pre-menstrual syndrome. As teenagers in other countries who experience dysmenorrhea, adolescents in Central Jakarta also felt that dysmenorrhea restrict their activities. However, the teens think that menstrual pain is very common that they choose to handle it by their own and are reluctant to consult to doctor. Education on reproductive health and how to overcome dysmenorrhea is needed to increase awareness of youth, helping their productivity, and improving their quality of life. Information about ways that can be used to deal with dysmenorrhea should be informed also to teens and parents, especially mothers, given they are considered as figures that can help deal with dysmenorrhea.

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