

Prevalence of premenstrual syndrome and quality of life among health science college student

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ABSTRACT

Premenstrual syndrome (PMS) is a set of affective, behavioral and physical symptoms with appear in the luteal phase that could affect productivity and quality of life. PMS in adolescents could affect academic performance, such as a decreasing in concentration, failed the exam and absenteeism in the class. The objective was to evaluate the prevalence of PMS and determine its effect on quality of life among female health science students. This cross-sectional study was conducted between July-September 2017 on nursing female students of Health Science Collage "Karya Husada Semarang", Central a Java, Indonesia. Students were enrolled 207 from first to fourth grade using WHOQOL-BREF form to determine quality of life. Inclusion criteria were having regular menstrual cycles (21-35 days) at least three period. Descriptive analysis and Mann Whitney tests were used for statistical analyses. The prevalence of PMS was found to be 60.8%. Physical health, psychological, social relationship, and environment domain were significantly higher in females with PMS (for each one $P < 0.05$).

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1. INTRODUCTION

Premenstrual syndrome (PMS) is a set of symptom that occurs repeatedly in the luteal phase of the menstrual cycle is marked by Chang of physical, psychology and behavior that may affect the relationship interpersonal [1-4]. PMS can occur several days to weeks before menstruation and subside after a menstrual period appears [5-6]. The impact of PMS also disrupts family relationships, work, social activities and difficulty in concentrating [7-9]. More than 85% of women had been experienced physical and psychological discomfort that may affect the quality of life and daily productivity [10-11]. The prevalence of PMS as much as 99.5% of adolescents had at least one premenstrual symptom [12-15]. The cause of PMS is unknown with certainty, it is estimated influencing by biological, psychological, and social environments. Biological factors include hormonal imbalance, abnormal neurotransmitter response [16, 18].

Symptom that is often complained by the teenagers is emotional symptoms such as irritability, depression, irritability, anxiety or tension, mood swings, while physical symptoms are breast tense, distended stomach, headache and fatigue [14-17]. In addition, PMS affects academic performance (60.1%), teenagers leave school at least one day (43.5%) and 22% fail in the exam [16, 19]. PMS also affects the efficiency and productivity, for instance homework (48.9%), social activities (19.45%), friends or family relationships (19.1%), and difficulty concentrating (60.4%) [18, 20]. Adolescents with PMS have lower

learning achievement than those who did not have PMS. PMS also can affect the mental health and social life of an individual. Women with PMS often fail to go to work or school, resulting in an impaired quality of life. This is due to factors just before menstruation pain and hectic atmosphere [7, 21].

Physical, emotional and behavioral problem may exacerbate menstrual cycle problem and PMS. Nausea, vomiting, irritability symptoms are reported to have an impact on menstrual cycle. Due to this negative impact on an individual's quality of life may be disrupted among adolescent women [22, 23]. The aim of this study was to evaluate the prevalence of PMS and its effect on quality of life (QOL) among students in Health Science College "Karya Husada Semarang", Central Java, Indonesia.

2. RESEARCH METHOD

This study was conducted between July-Augustus 2017 among nursing female students of Health Science College "Karya Husada Semarang", Central Java, Indonesia. The sample size was determined by using single proportion for finite population with 95% confidence interval and marginal error (d) of 5%. The questionnaire consists of four parts, the first part were asked to their socio-demographic, medical status and dysmenorrheal status and habits. The second part was The American College of Obstetrics and Gynecology (ACOG) criteria for PMS, DSM-IV for Premenstrual Dysphoric Disorder (PMDD) and WHOQOL-BREF form to measure quality of life of female students. WHOQOL-BREF consists of 26 items which provide assessment in four domains: physical, psychological, social relationships and environmental domain with values point from 1-5. The high scores obtained from the scale shows that the quality of life increases in positive ways.

2.1. Population and Sample

The populations were all female students of Health and Science College "Karya Husada Semarang", nursing faculty as many as 207 students from first until fourth grade. The sampling technique used was purposive sampling. Samples were taken based on inclusion criteria such as having regular menstrual cycles (21-35 days) at least two consecutive months, had fulfilled the questionnaires and willingness to participate. The exclusion criteria in this study were female students who have irregular menstrual cycle, had history of chronic illness, diabetes, heart disease or any other psychiatric disorder.

2.2. Study Design

This cross-sectional study was conducted between July-Augustus 2017 on nursing female students of Health Science College "Karya Husada Semarang", from first until fourth grade nursing faculty.

2.3. Data Collection

All 207 students surveyed at school completed the questionnaires and inventories during a class period. All subjects received explanation about procedural of study and how to fulfil the questionnaires. Before receiving any data, they gave their written informed consent to participate in the study. The initial screening of PMS or PMDD, students completed questionnaire by ACOG and DSMIV based on last period symptoms. Data were collected prospectively for two months using daily symptoms record which fulfilled the inclusion and exclusion criteria. Monitoring diary charging was done by sending message to the respondents in the afternoon assisted by student in charge of each class to remind each other to fill the diary. The first day of menstruation after being given a diary, they were asked to report to the person in charge of the class or researchers. Researchers examined the diary, if the students had those symptoms, so they were experienced with the criteria, then they fulfilled WHOQOL-BREF questionnaire to examine their quality of life.

2.4. Data Analysis

Statistical analyses were performed using the SPSS for windows version 16.00 (Statistical Package for Social Sciences Inc). Descriptive analytical parameters were used to summarize the socio-demographic and clinical characteristics of the study participants. The different symptoms of PMS were presented, compared, analyzed and frequency distributions of the variable were interpreted. Chi square test was used to compare categorical variable and Mann Whitney test was used to compare the data with skewed distribution. Continuous variables were presented as descriptive statistics such as mean \pm standard deviation, minimum and maximum value and percentages.

2.5. Ethical Approval

Permission for the study was obtained by making a prior petition to collecting data. This study was approved by Ethics Committee of Institute of Health and Science College of "Karya Husada Semarang"

(Ref. No 15/UP3M/STIKES.KH/III/2017). All students gave their informed consent prior to their inclusion in the study.

3. RESULTS AND DISCUSSION

Characteristics of students' average (mean) age were 19, 17 and the mean age of menarche was 12.98 years old. Mean of the long period more than 6.79 days. Majority of female students complained deal with PMS (54%), but the majority none (49,8%). There was 4.3% students received massage and 18.4% consumed medication. Characteristics of the entire population can be seen in Table 1.

Tabel 1. Characteristics of Students with premenstrual syndrome (n=126)

Characteristics	Population (n=126)			
	Mean ± SD	Range	f	%
Age (tahun)	19.17 ± 1.1180	17 - 26		
Menarche (tahun)	12.98 ± 1.490	10 - 17		
duration of periods	6.79 ± 1.852	1 - 15		
Dysmenorrhea			68	54
Type of treatments during premenstrual syndrome				
1. None			103	49.8
2. Medication			38	18.4
3. Massase			9	4.3
4. Herb medication			32	15.5

The highest premenstrual symptoms experienced by students were irritability; angry outburst and insomnia also decrease interest in usual activities. The most common physical symptom is breast tenderness and joins and muscle pain. PMS symptoms experienced by students were mostly disturbing in learning situations and relationships with friends. Another impact of these symptoms is that most students cannot learn effectively in school even though almost all of them continue to study in school. A description of the symptoms of each group can be seen in Table 2.

Table 2. Premenstrual syndrome symptoms all students

Premenstrual symptoms	PMS		PMDD		Non PMS/PMDD		P value
	n	%	n	%	n	%	
Affective							
Anxiety	28	22.2	22	33.8	1	6.2	0.043
Depression	5	4	3	4.6	3	18.8	0.044*
Had mood swing (e.g., suddenly felt sad or tearful)	20	15.9	18	27.7	7	43.8	0.015
Irritability	62	49.2	45	69.2	6	37.5	0.011
Fatigue	62	49.2	34	52.3	9	56.2	0.828
Appetite changes (food craving)	38	30.2	24	36.9	8	50	0.234
Insomnia	32	25.4	10	15.4	11	68.8	0.000
Angry Outburst	15	11.9	57	87.7	5	31.2	0.000
Poor concentration	29	23	19	29.2	1	6.2	0.147
Decrease interest in usual activities	36	28.6	22	33.8	9	56.2	0.080
Physical							
Breast tenderness	67	53.12	43	66.27	3	18.8	0.003
Headache	14	11.48	11	16.9	5	31.2	0.078
Join and muscle pain	61	48.4	31	47.7	6	37.5	0.711
Weight gain	20	15.9	2	3.1	0	0	0.009

Chi Square *Kruskal Wallis

The description of the quality of life of students differs based on the severity of premenstrual symptoms experienced. The quality of life among students has decreased in all domain, physical health, psychological, social relationships and environment. Description quality of life students can be seen in Table 3. Initial screening the prevalence of PMS were 151 (63.7%) students who fulfilled the criteria for premenstrual syndrome by ACOG. These results indicated an increase in the prevalence of PMS from previous research, which was 47.3% [24]. Post-disaster areas had a higher prevalence than non-disaster one, such Merapi eruption affected psychological, such as anxiety, sleep disorders and post-disaster trauma [25]. In Japan, the prevalence of PMS in adolescents was relatively high at 64.6% but the prevalence was increasing in the disaster area after the earthquake became 85.6% [18, 26]. Previous research, also reported

that 80.7% and 83.6% of adolescents had been experienced one or more symptoms of affective and somatic [17]. Compared with the prevalence of PMS in China that was equal to 21.1%, which was not a disaster area, the prevalence showed a threefold increase [25].

Table 3. Quality of life of students each domain

Domain	PMS (n=126)		PMDD (n=65)		Non PMS/PMDD (n=16)		P value
	Mean ± SD	min-max	Mean ± SD	min-max	Mean ± SD	min-max	
Physical health	41.38 ± 8.52	19 - 69	30.95 ± 11.43	19 - 69	68.56 ± 9.20	19 - 69	0.000
Psychological	44.22 ± 10.46	19 - 75	32.57 ± 13.05	6 - 81	73.12 ± 10.60	19 - 63	0.000
Social relationships	47.70 ± 9.94	31 - 81	33.23 ± 12.75	19 - 94	74.44 ± 10.53	25 - 56	0.000
Environment	46.25 ± 11.63	19 - 69	33.35 ± 10.52	13 - 69	75.19 ± 9.46	31 - 88	0.000

Female students of Health Science College “Karya Husada Semarang” were majority (77.2%) experienced during menstruation and had dysmenorrhea period more than 5 days (84.8%). Physiologically dysmenorrhea occurred before or during menstruation occurring at a young age and disappears after the first pregnancy [15, 22]. A long Dysmenorrhea and menstrual period were determined factors that could affect the PMS, the average student who had been experienced in PMS were more than 6 days [27]. There was a relationship between premenstrual syndrome with dysmenorrhea in adolescents, as many as 71% of adolescents experience dysmenorrhea and PMS and previous research also reported that the relatively high prevalence of dysmenorrhea was in line with PMS/PMDD [6, 23]. The prevalence of dysmenorrhea was as much as 63.7% in adolescents with low rate of PMS, 81.7% moderate PMS, and severe rate of PMS was as much as 81.7% by weight and 73.8% with PMDD.

Symptoms most commonly experienced were irritable, touchy, easily tired and anxious; while for the physical symptoms were often perceived breasts feel tight and sore muscles or joints. Previous research reported that symptoms of irritable been complained by teenagers in the amount of 58.5% [16]. The Impact of premenstrual symptoms felt by the student could interfere their daily activities, disrupt learning activities even interfere in social interaction in touch with friends or family. Results observation reported that female students reported sometimes felt uncomfortable and should take rest in the infirmary and even asked permission not to attend school. Female students were often asking how to reduce the symptoms [28].

The studies assessing the perception of quality of life in women with PMS have shown that PMS impairs quality of life [29-30]. In our study, all score in psychological, social relationship and environment were lower in cases students with PMS. The quality of life was impaired by increased the severity of dysmenorrhea [27, 30]. In another study assessed the quality of life during menstrual period, where there were complaints of PMS and during the follicular phase. It was determined that the perception of quality of life was impaired during menstrual periods [29]. In our study determined that psychological health, social relationship and environment quality of life was lower in students with PMS. The Prevalence of premenstrual syndrome in adolescents in Health Science College “Karya Husada Semarang” was 60.8%. Characteristics of respondents with premenstrual syndrome of age aspect were such as the average (mean) of 19.17 years, the mean age of menarche of 12.98 years. The majority of respondents complained of dysmenorrhea as much as 54%, yet the majority of the students consumed herbs and medicines (19.8% and 19%).

4. CONCLUSION

Premenstrual syndrome is a common health problem, having negative effects on the quality of life among female students of the health science collage. This research informs information regarding premenstrual syndrome (PMS) and its implication towards the quality life of students, thus which can give more advice about the related problem. The further researcher should take a wide sample and hold true experiment research that is needed in handling PMS among students.

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