PREMENSTRUAL SYNDROME AND SLEEP QUALITY AMONG MEDICAL STUDENT

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ABSTRACT

Background: Premenstrual syndrome (PMS) is a collection of physical, psychological, and behavioral symptoms associated with a woman's menstrual cycle due to hormonal changes during ovulation and menstruation. Data on New Delhi shows that 75% of women of childbearing age experience mild to severe PMS symptoms. PMS harms social and work life, leading to psychological and mental health problems affecting sleep quality. The incidence of PMS in medical students is 90.3%.

Objective: To determine the relationship between PMS and sleep quality in female students of the Faculty of Medicine, Widya Mandala Surabaya Catholic University.

Methods: The method used in this study was observational-analytic, cross-sectional, and simple random sampling. Data were collected using the Shortened Premenstrual Assessment Form (SPAF) questionnaire to assess the degree of PMS and the Pittsburgh Sleep Quality Index (PSQI) questionnaire to assess sleep quality. Data were tested using Fisher Exact Test.

Results: Sixty-five female students met the inclusion criteria. Students with mild PMS or without PMS had good sleep quality, 38.3%, and 61.7% had poor sleep quality. In the moderate or severe PMS group, all (100%) experienced poor sleep quality. From the statistical analysis, the result of p = 0.103 (p>0.05) means no significant relationship exists between PMS and the sleep quality of female students of the Faculty of Medicine, Widya Mandala Surabaya Catholic University.

Conclusion: There is no relationship between PMS and sleep quality in female medical students.

Keywords: Premenstrual Syndrome, Female Medical Student, Sleep Quality

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INTRODUCTION

Premenstrual syndrome (PMS) is a group of physical, psychological, and behavioral symptoms associated with a woman's menstrual cycle due to hormonal changes during ovulation and menstruation[1]. Studies in New Delhi show that about 75% of women of childbearing age experience mild to severe PMS symptoms (Chhikara, 2019)[2]. About 20% to 40% experience PMS, while 2% to 8% experience PMDD or severe PMS[2,3]. PMS in women harms social and work life, leading to psychological and mental health problems[4]. Heryaningtyas (2020) found that 74.2% of medical students experienced PMS psychological symptoms[5].

Sleep quality can be affected by many factors, such as physical factors, such as pain, and psychological factors, such as anxiety, depression, and stress[6,7].

PMS makes sleep quality poor due to physical symptoms such as pain or psychological symptoms such as anxiety and depression that affect sleep patterns[8,9]. Research by Daniartama (2021) found that 63.6% of female students at one university in Semarang experienced moderate PMS, and 36.4% experienced severe PMS[10].

METHODS

This study used an analytic observational research design with a cross-sectional method. The population was 131 students of the Faculty of Medicine, Widya Mandala Surabaya Catholic University, with a sample size of 65. The sampling technique for this study was probability sampling using simple random sampling. Samples who have met the inclusion criteria will fill out the Shortened Premenstrual Assessment Form (SPAF) questionnaire to assess the degree of PMS and the Pittsburgh Sleep Quality Index (PSQI) questionnaire to assess sleep quality. Data processing was performed using the 26th version of the Statistical Product and Service Solution (SPSS) application. The bivariate analysis technique in this study used the Fisher Exact Test with a significance value of $p < 0.05$. The medical ethics of this study were approved and respondents were given informed consent before filling out the questionnaire. The researcher applied anonymity and confidentiality.

RESULTS

Table 1 Demographic Data Distribution of the Study Population

Variables	n(%)
Batch	
2019	37 (28,2%)
2020	40 (30,5%)
2021	54 (41,2%)
Active Student	
Yes	129 (98,5%)
No	2 (1,5)
Regular Menstrual Cycle	
Yes	102 (77,9%)
No	29 (22,1%)
Having Gynecologic Disorders	
Yes	8 (6,1%)
No	123 (93,9)
SRQ-20	
Normal	114 (87%)
Indications of mental disorders	17 (13%)

Based on Table 1, we conducted interviews by distributing questionnaires and obtained the results of 37 students from the 2019 batch, 40 from the 2020 batch, and 54 from the 2021 batch. A total of 129 respondents were active female students and Students with regular menstruation 102 respondents. There were eight respondents with gynecological disorders and 17 respondents with indications of mental disorders.

Table 2 Demographic Data of Research Samples

Variables	n(%)
Batch	
2019	15 (23,1%)
2020	20 (30,8%)
2021	30 (46,2%)
Health	65 (100%)
Smoking	0 (0%)
Consumption of Alcohol	0 (0%)
Consumption of Coffee	0 (0%)

Of 65 respondents, 65 people (100%) were in good health. No respondents smoked (0%), consumed alcohol (0%), or consumed coffee (0%).

Table 3 Sample distribution based on PMS level

Categories	n(%)
No PMS/Mild PMS	60 (92,3%)
Moderate / Severe PMS	5 (7,7%)
Total	65 (100%)

Based on Table 3 regarding the average level of PMS, it was found that 60 people (92.3%) experienced mild PMS or no PMS, and five people (7.7%) experienced moderate or severe PMS.

Table 4 Sample Distribution Based On Sleep Quality

Categories	n(%)
Good Sleep Quality	23 (35,5%)
Poor Sleep Quality	42 (64,6%)
Total	63 (100%)

Based on Table 5.4 regarding sleep quality, as measured using the PSQI sleep quality questionnaire, data obtained by 23 people (35.5%) experienced good sleep quality, and 42 people (64.6%) experienced poor sleep quality.

Table 5.5 Relationship between Premenstrual Syndrome and Sleep Quality

Variables	Sleep Quality		Significance Value
	Good Sleep Quality	Poor Sleep Quality	
No PMS/Mild PMS	23 (38,3%)	37 (61,7%)	p = 0,103
Moderate / Severe PMS	0 (0%)	5 (100%)	
Total	23 (35,4%)	42 (64,6%)	

Based on Table 4 regarding the relationship between premenstrual syndrome (PMS) with sleep quality, the data obtained from respondents with mild PMS or without PMS experiencing good sleep quality are 24 people and experiencing poor sleep quality 36 people. Respondents with moderate or severe PMS

who experienced good sleep quality were 0 people and experienced poor sleep quality five people. The results were analyzed with the Fisher Exact test. The results were not significant from the data on the PMS level and sleep quality, with a p = 0.103 (p>0.05).

DISCUSSION

The majority of respondents in this study did not experience PMS or experienced mild PMS because respondents did not consume caffeine and alcohol, did not smoke, had a regular menstrual cycle, did not experience dysmenorrhea, and had no indication of psychiatric disorders. Previous research states that caffeine consumption, alcohol, and cigarette use significantly correlate with the incidence of PMS[11,12]. Factors that influence PMS include age, age of menarche, menstrual cycle patterns, caffeine consumption, alcohol, smoking, antidepressant use, dysmenorrhea, history of psychiatric disorders, body mass index (BMI), active sexual intercourse, use of hormonal contraceptives, use of anti-pain medication[12–14].

Of the 65 respondents, 35.4% had good sleep quality, and 64.6% had poor sleep quality. Various factors affect sleep quality, including internal factors such as female gender, sleep duration, use of social media before bed, smoking, caffeine consumption, use of sleeping pills,

psychological factors, and external factors such as the sleeping room environment, noise level, light, and air temperature[15,16]. Based on interviews using the PSQI questionnaire, respondents allegedly experienced poor sleep quality due to lack of physical activity, use of devices with blue light before going to bed at night, and psychological stress factors.

Based on the analysis of the relationship between PMS and sleep quality in medical students, the p-value = 0.103 (p>0.05) illustrates that there is no significant relationship between PMS and sleep quality in medical students. The results of this study are similar to the results of research conducted by Winyuchakrit (2017) on 209 nurses in one of the hospitals in Thailand, which showed that PMS did not have a significant relationship with sleep quality in nurses in Thailand. However, physical symptoms were found to be significantly related to sleep quality[6]. In the results of this study, five respondents experienced moderate or severe PMS with poor sleep quality. This data is in line with research conducted by Erbil (2020), where PMS and sleep quality were found to have a positive correlation; namely, PMS impacts poor sleep quality[17].

Based on the results of data processing obtained with the SPAF questionnaire, medical students are more likely to experience PMS with psychological symptoms such as feeling depressed, feeling unable to overcome problems, and sadness. We suspect that medical students experience mild PMS because they have a regular menstrual cycle duration, have a habit of using non-pharmacological therapies, traditional medicine, or standardized herbal medicines in dealing with PMS symptoms, use hormonal contraceptives and the use anti-pain medications, and the assumption that PMS symptoms are usual symptoms[18,19,20].

We collected data during the luteal phase, whereas PMS data collection should be done in the late luteal phase or when the respondent has experienced spots.

CONCLUSIONS

Based on the results obtained, it can be concluded that medical students do not experience PMS or experience mild PMS 92.3%, have poor sleep quality with a percentage of 64.6%, and there is no relationship between PMS and sleep quality in medical students with a p-value = 0.103 (p>0.05).

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