

Correlation between Mental Health and Premenstrual Syndrome in Students of Shiraz University of Medical Sciences

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Abstract

Background: Premenstrual syndrome is considered as one of the most common psychiatric disorders that greatly disrupts women's life.

Objective: The aim of this study was to investigate the correlation between mental health and premenstrual syndrome among female students of Shiraz University of Medical Sciences.

Methods: This study was conducted in 2016 on a total of 168 students residing in dormitories of Shiraz University of Medical Sciences who were selected by block randomization method. Data collection tools included demographic data, PSST & GHQ questionnaire. Data were conducted through SPSS software, version 22, using descriptive tests and Spearman correlation coefficient.

Results: Spearman correlation coefficient showed a significant correlation ($P < 0.001$) between premenstrual syndrome score, mental health and all its dimensions except for social interactions ($P = 0.525$). Moreover, anxiety and sleep disorders with a frequency of 51.2% were the most common mental disorder among the students.

Conclusion: Our study showed that there was a correlation between premenstrual syndrome score and mental health in girls. Therefore, necessary measures should be taken by counseling centers in schools and universities to improve the mental health of people with premenstrual syndrome who have a higher risk of psychological and physical disorders.

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Introduction

Premenstrual syndrome is a gynecological condition characterized by physical, mental, mood and behavioral symptoms which has a great effect on the women's daily life.¹ Premenstrual syndrome (PMS) is reported in 50-80% of women.² Given that the syndrome has severe symptoms, it can affect the students' lifestyle and health.³ Researchers have found the reduction of estrogen and progesterone levels in the luteal phase of the menstrual cycle are responsible for mood, cognitive and behavioral changes in women in this phase,⁴ while

the reduction of neurotransmitters, such as serotonin and GABA, also plays a crucial role in the appearance of premenstrual symptoms.¹ Moreover, the occurrence of emotional symptoms such as irritability, anxiety, mood swings, discomfort, depression, decreased concentration, overweight, and low sleep is due to these hormonal fluctuations during the luteal phase of the menstrual cycle.⁵ Therefore, this syndrome can be considered in the category of mental health problems related to sex. Therefore, considering that many of the symptoms of premenstrual syndrome are of psychiatric origin¹ and given the impact this syndrome can have on

the social, occupational and daily activities of women,⁴ the study of the relationship between PMS and mental health in young girls seems to be necessary. This study was conducted with the aim of investigating the relationship between mental health and PMS in female students residing in dormitories of Shiraz University of Medical Sciences. If needed, the study strategies can be applied to adapt and manage the problem of premenstrual syndrome in women.

Materials and Methods

This study was conducted on students residing in dormitories of Shiraz University of Medical Sciences during 2 months starting from April to June in 2016. The sample size was estimated as 100 participants, using NCSS software with an α of 0.05, test power of 0.8 and attrition (or drop-out) of 10%. To increase the accuracy of the study, we selected 168 subjects using block randomization methods based on the characteristics of inclusion criteria after obtaining informed consent form. These subjects entered the study within 2 months. The inclusion criteria of this study were willingness to participate in the study, completion of the written informed consent, mental health questionnaire, and screening premenstrual syndrome questionnaire by students. The exclusion criterion of this study was unwillingness to participate in the study.

The data collection tool was a questionnaire consisting of three sections: demographic information, screening questionnaire for signs of premenstrual syndrome and general health questionnaire. Demographic data included age, marital status, age of menarche and Body Mass Index (BMI).

Screening questionnaire of premenstrual symptoms that shows the severity of the disease as necessary and the effect of symptoms in people's life includes two parts of symptoms and the effect of symptoms on people's life. The questionnaire consisted of 19 questions in two parts. The first part contains 14 types of mood, physical and behavioral symptoms. The second part contains 5 questions that measure the impact of symptoms on the people's life. For each question, four criteria are considered (not at all, mild, moderate, and severe) which are scored from zero to three. There must be three conditions for diagnosis of moderate to severe menstrual syndrome:

1. At least one medium to severe symptom in items 1 to 4.
2. At least 4 moderate or severe symptoms in items 1 to 14, in addition to the above option.
3. One moderate or severe item in the section on the effects of symptoms on life (5 last items)

The minimum score is zero and maximum

score is 57. The score between 0-19 is considered as mild, 20-38 moderate, and 39-57 severe. In this study, subjects with a score of 20 and above were considered as people with a history of premenstrual syndrome.⁶ The reliability of the Persian version of this questionnaire was obtained 0.93. The questionnaire's Content Validity Ratio and Content Validity Index were obtained as 0.7 and 0.8, respectively.⁷

A 28-item form of Goldberg mental health questionnaire was used to investigate the mental health. This form includes 4 scales of physical symptoms, anxiety and sleep disorders, impaired social function and severe depression. The cut-off point score of the questionnaire was obtained 23 in Iran by Nourbala et Al., based on Likert Scoring Method. According to this cutting score, the sensitivity and specificity of the test were obtained as 70.5±2.4 and 92.3±2.4, respectively.⁸

Data analysis was conducted through SPSS software, version 22, using descriptive (mean, frequency percentage) and analytic statistics methods (Spearman's Correlation Coefficient). A p-value less than 0.05 was considered as significant.

This research project was approved by the local Ethics Committee of Shiraz University of Medical Sciences and written informed consents were obtained from all the participants. The research (proposal No. 95-01-85-12834) was financially supported by maternal-fetal research center, Shiraz University of Medical Sciences.

Results

In this study, 168 female students participated; of them, 141 (83.9%) were single and 27 (16.10%) were married. The mean age of the students was 22.24±2.02 years and their mean body mass index was 21.49±3.73. The mean age of the menarche was 13.65±5.92 years. Also, the mean score of premenstrual syndrome and mental health was 29.05±99.9 and 21.49±3.73, respectively. The mean scores of physical symptoms, anxiety and sleep disturbance, social interaction disorder and depression were 6.25±2.70, 7.36±3.73, 5.62±2.49, and 3.66±3.64, respectively. The frequency of premenstrual syndrome was 151 (89.9%) and that of mental disorder was 45 (78.26%) in students. The frequency of mental disorders in students can be observed separately as follows (Table 1).

Spearman correlation coefficient showed that there was a significant relationship between premenstrual syndrome scores and mental health and all its dimensions except for social interactions. This relationship with the overall mental health score was moderate, and it was weak with the scores of the dimensions of physical symptoms, anxiety and sleep disorders and depression (Table 2).

Table 1: Frequency of mental health disorders among the students

	Frequency (n)	Percent (%)
Somatic symptom	71	42.30
Anxiety and sleep disturbance	86	51.20
Social dysfunction	31	18.50
Depression	30	17.90

Table 2: Correlation between PMS and mental health

Variable		Mental health	Somatic symptom	Anxiety	Social dysfunction	Depression
PMS	Correlation (r)	0.418	0.283	0.292	0.049	0.338
	P value	<0.001	<0.001	<0.001	0.525	<0.001

Spearman's correlation test was used. The correlation was significant at the 0.01 level (2-tailed)

Discussion

According to the results of this study, the frequency of premenstrual syndrome was high in university students, and it was close to that of premenstrual syndrome in Iran (98.2%)⁹ and Jordanian students (92.3%).⁴ However, the frequency of this study was different from that of Sadr's study on 100 medical students of Shahid Beheshti University (55%); it might be due to the fact that only interns had participated in Sadr's study.¹⁰

The frequency of mental health disorders was not too high, but the most common disorder observed in students was anxiety and sleep disorders. In the studies conducted, stress was also mentioned as one of the most common problems of medical students.¹¹ Hope's study also mentioned the prevalence of 7.7 to 5.65% of anxiety found in English-speaking students in non-American countries.¹² A study in Brazil also reported a prevalence of 65.7% stress among medical students.¹³

According to the results of this study, there was a correlation between the score of premenstrual syndrome and mental health. Several studies have shown the relationship between the severity of symptoms of premenstrual syndrome and psychological symptoms.¹⁴ According to Strine's study, the prevalence of anxiety, depression and sleep disorders was more common among women aged 18 to 55, who experienced menstrual disorders such as premenstrual syndrome.¹⁵

Fluctuation of ovarian steroids is associated with an increase in depression in women.¹⁶ Forrester's study also showed that the prevalence of major depression increased with an increase in the premenstrual syndrome,¹⁷ and the history of life-long depression in patients with this syndrome varied between 20% and 76%.¹⁸ Jaafarnejad, in his study on 115 students, concluded that people with more stress experienced severe symptoms of premenstrual syndrome¹⁹ and that stress itself was one of the causes of this syndrome.²⁰ Therefore, most of the studies' results were similar to those of the present study, indicating a correlation

between premenstrual syndrome and mental health.

In the present study, only dimension of social interactions of the general health questionnaire had no correlation with premenstrual syndrome. This is inconsistent to the result of most studies that have indicate the effect of this syndrome on individual relationships and social functions.^{1,6}

The cause of premenstrual syndrome is unknown. However, studies have indicated that keeping fixed levels of neurotransmitters such as serotonin and GABA with anti-anxiety and anti-depressant drugs can be effective in improving the symptoms of this syndrome, and SSRIs are the first line of treatment for this syndrome. Therefore, considering the role of these neurotransmitters in improving the physical and psychological symptoms of this syndrome,¹ the relationship between the syndrome of premenstrual syndrome and mental health can be justified.

There were a number of limitations in this study. First, the small size of the study group makes it impossible to generalize the results to the entire population of female students living in dormitories of Shiraz University of Medical Sciences. Second, young women with mental health issues might present with symptoms that overlap with the symptoms of PMS.

Therefore, due to the correlation between premenstrual syndrome and mental health, the prevalence and severity of premenstrual syndrome in young girls can be reduced by improving the mental health of the youth. Therefore, it leads to reduced health costs, absenteeism from work and education, academic failure and inappropriate effects of this syndrome on their physical and mental health status. Further studies are recommended to be conducted on the relationship between other dimensions of mental health and premenstrual syndrome and the discovery of strategies to improve the mental health of young people.

Conclusion

Our study showed that there was a correlation between

premenstrual syndrome score and mental health. Given that PMS can lead to limitations in different individual and social activities, it seems that there is a need for planning through counseling centers in schools and universities for those with premenstrual syndrome who have a higher risk of psychological and physical disorders than non-patients with this syndrome in order to enhance their capabilities, cognitive capacity, and mental health.

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Conflict of Interest: None declared.

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