

# Investigation of Premenstrual Syndrome among the Students of Medical Sciences

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## Abstract

**Introduction:** Premenstrual syndrome (PMS) is the advent of physical and psychological symptoms related to the menstrual cycle, the symptoms of this syndrome start in luteal phase and ends at the end of menstrual period. During the last decades, the patterns of PMS (PMS) have studied in a wide range. But those researches had had different methodologies and definitions and the results were not well comparable. Hence, the researchers decided to conduct a study with the aim of investigation of the prevalent of PMS among the students of the Zahedan University of Medical Sciences.

**Materials and Methods:** This descriptive–analytical study was done on 200 students of Zahedan University of Medical Sciences, Iran. A two-part questionnaire was used in order to collect data. The first part related to the demographic features and the second part was related to the PSTT standard questionnaire. After collecting data, the data was analyzed by using SPSS 19 software through the statistical descriptive tests, Chi square test, Fisher's exact test and t-test.

**Findings:** The mean age of subjects was  $21.9 \pm 2.61$ . A total of 89 subjects were diagnosed with PMS. The most percentage of moderate to severe PMS was for students of medicine and the least percentage was for students of nursing. The highest percentage of mild PMS was in nursing students while the lowest percentage was for students of medicine.

**Conclusion:** Regarded to the fact that PMS is from the common problems of premenopausal ages in women and a high percentage of them are with psychological and physical symptoms, and since this condition can cause adverse effects on the quality of women's life; hence, it is necessary to consider the supportive and therapeutic strategies in order to reduce the severity of its symptoms and adverse effects.

**Keywords:** PMS, premenstrual syndrome, students of Medical Sciences

## 1. Introduction

Premenstrual syndrome (PMS) is the advent of physical and psychological symptoms related to the menstrual cycle, the symptoms of this syndrome start in luteal phase and ends at the end of menstrual period (Haywood et al., 2007). This problem was first discovered in 1931 by Frank. But the results of his researches were forgotten. Seemingly no one cared about the women who suffered from this syndrome. The minor symptoms of this syndrome included fatigue and lack of concentration. The more important effects like seizures of epilepsy, asthma and convulsions were sometimes very severe and even sometimes forced the women to commit suicide (Speroff & Fritz, 2005). This problem not only influences the individual, but also it has a great impact on her family and appears with the cyclical changes in the physical, mental and behavioral conditions of women. This syndrome starts 6 to 12 days before monthly bleeding and usually lasts until 2 to 4 days after the beginning of bleeding (Varney et al., 2004; Speroff & Fritz, 2005). Most of the women experience at least one of the symptoms of premenstrual syndrome in their premenstrual cycle. The severity of symptoms in some of these people is to the extent that causes emotional, behavioral and physical malfunctions especially in the field of family, social and educational communications (Indusekhar et al., 2007). The other symptoms of this disease include irritability,

depression, anxiety, migraine headaches, breast tenderness and pain (Budeiri et al., 1994). Researches have indicated that the patient with this syndrome obtains scores 10% to 15% lower than the others in exams or interviews (Houston, Abraham, Huang, & D'Angelo, 2006). These people require treatment, more care and time off from work (Borenstein et al., 2003). Also some studies have indicated that the women with PMS tolerate more stress in their lives and the long-term stress influences the menstrual disorders of the people (Gordley et al., 2000).

In terms of the prevalence, in 95% of the women, the symptoms of this syndrome is reported with different severities, but only in 5% its severity is to the extent that causes serious disorder in different functions of the patient (Akhlaghi et al., 2004). The prevalence of PMS in most of the western studies has been reported between 20% and 50%; this is while according to the report of the Psychiatric Association of America, the extent of dysphoric disorder before menstrual cycle is only 3% to 5% (Teng et al., 2005; Golub & Harrington, 1981).

The study which has conducted in Tehran indicated that the prevalence of PMS has been more than 60% and 64% of it has been from the mild type, 32% moderate and 3% severe (Aghazadeh Naeini et al., 1996). Also in other investigations within the country different extents of prevalence of premenstrual syndrome in the students has been reported (between 44.5 and 82.5%) (Farhadinasab & Mani, 2006; Nourjah, 2008; Alavi et al., 2007; Basirat & Haji, 2006).

Moreover, PMS syndrome has some other consequences such as influence on the educational performance of the students, decrease in efficiency, increase in absenteeism in work and even murder (Indusekhar et al., 2007). During the last decades, the patterns of PMS have been studied in a wide range; but due to different methodologies and definitions, the results were not well comparable (Teng et al., 2005; Chaturvedi et al., 1995; Condon et al., 1995; Cox, 1983). So, the researchers intended to accomplish a study with the aim of investigation of the prevalent of the PMS among the students of the Zahedan University of Medical Sciences.

## 2. Materials and Methods

### 2.1 Implementation Method

This descriptive-analytical study was done on 200 students of Zahedan University of Medical Sciences. The students were from different fields. The participants were selected randomly. The sample size was calculated according to the study of Farrokh and based on the following formula:

$$n = \frac{z_{1-\alpha/2}^2 - p(1-p)}{d^2}$$

The sample size was estimated at least 200 subjects. The including criteria were: the age between 18 and 35, nonsmoking, No use of narcotics and Oral Contraceptive pills (OCP) that prevent pregnancy, having regular menstrual periods, consent to participate in the research and having no special diet (vegetarian, weight loss and obesity), lack of any gynecologic surgery and lack of history of ovarian cysts requiring medical or surgical treatment. The two-part questionnaire was used in order to collect information which its first part related to the demographic features (compliance, college, and educational level) and the second part related to the PSTT standard questionnaire. Its reliability (Siahbazi et al., 2011) and validity have been confirmed in Iran. But in this research calculated by using Cronbach's Alpha equal to 0.09. The premenstrual symptoms screening tool (PSST) included 19 questions and two parts.

The first part included 14 items about mood, physical and behavioral symptoms and the second part included five items which measured the impact of these symptoms on the people's life. Four criteria of never, mild, moderate and severe have been mentioned for each items which have been scored from 0 to 3. In order to detect moderate or severe, the three following conditions must be met: the first condition: from the options 1 to 4, at least one case be moderate or severe. The second condition: in addition to the previous case, there must be at least four cases moderate or severe from the questions 1 to 14; and the third condition: there must be at least one moderate or severe option in the 5 last questions. The rest of the people are from the patients with mild PMS. The method of collecting data was in the way that firstly the researcher explained the aim of doing this study and the way of completing the questionnaire for anyone who were volunteer to enter the study also they were insured that the results of the study will be published statistically and in overall conclusion, not individually, and their information will remain strictly confidential and they will be free not to participate in the study or exclude any time they want. After obtaining the verbal consent from individuals, the questionnaires were distributed and the people were asked to complete the questionnaire after the end of the menstrual cycle. Data was analyzed by SPSS 19 software and the statistical descriptive tests, Chi square test, Fisher's exact test and t-test.

## 3. Result

The mean age of people in this study estimated 21.9±2.61. A total of 89 subjects (44.5%) were diagnosed with

PMS. Regarded to the questions of PSTT questionnaire we found out that the people with PMS had chosen the options of severe and moderate in the questions related to anger and irritability (83%), depressed mood and hopelessness (60%) and insomnia (32%). These subjects had announced anger, irritability, fatigue, and not having energy as the most common symptoms of menstrual cycle.

The relationship between the faculty of education, educational degree and the adherence of the patients with PMS are orderly shown in Tables 1, 2 and 3; as it is observed, this relationship is not significant ( $P > 0.05$ ).

Table 1. The relationship between the people’s faculty of education and PMS (Chi square test)

		Field					Total	P value
		Nursing	Medical	Dental	Healthcare	Paramedical		
Moderate	Count	19	20	16	9	25	89 (44.5%)	0.87
		21.3%	22.5%	18.0%	10.1%	28.1%	100.0%	
Mild	Count	29	20	17	12	33	111 (55.5%)	
		26.1%	18.0%	15.3%	10.8%	29.7%	100.0%	
Total	Count	48	40	33	21	58	200	
		24.0%	20.0%	16.5%	10.5%	29.0%	100.0%	

Regarded to the Table 1, the most percentage of moderate to severe PMS is in the medical students and its least percentage is in nursing students; also the most percentage of mild PMS is in the nursing students and its least percentage is in medical students.

Table 2. Relationship between educational degree and PMS (Fisher's exact test)

		Educational degree		Total	P value
		B.A.	PhD		
Moderate	Count	53	36	89(44.5%)	0.135
	% within AE	59.6%	40.4%	100.0%	
Mild	Count	78	33	111(55.5%)	
	% within AE	70.3%	29.7%	100.0%	
Total	Count	131	69	200	
	% within AE	65.5%	34.5%	100.0%	

Regarded to the Table 2, the most percentage of moderate to severe PMS is in the medical students.

Table 3. Relationship between adherence and PMS (Fisher's exact test)

		Adherence		Total	P value
		Native	Non-native		
Moderate	Count	47	42	89(44.5%)	0.395
	% within AE	52.8%	47.2%	100.0%	
Mild	Count	51	60	111(55.5%)	
	% within AE	45.9%	54.1%	100.0%	
Total	Count	98	102	200	
	% within AE	49.0%	51.0%	100.0%	

In Table 3, the most percentage of moderate to severe PMS is related to the native students.

#### 4. Discussion

The results of this study indicated that 44.5% of subjects in the study had PMS. This finding is approximately

consistent with the study of Shahpourian et al. (Shahpoorian et al., 2006), which had been conducted in Iran University of Medical Sciences. But this statistic is lower than the results of the study of Alavi et al., which had been done among the students of Bandar Abbas University of Medical Sciences University. Also, this statistic is significantly higher than the results of the study of Asiabar et al., (Kiani et al., 2009) and the studies done in Thailand and Japan (Chayachinda et al., 2008; Takeda et al., 2006). These data indicated that in spite of numerous questionnaires (retrospective and prospective), the prevalence of premenstrual syndrome in Iran is almost similar and higher than the extent observed from the other countries. It can be concluded that some part of these differences relates to the cultural differences and having negative viewpoints when facing with menstrual period and consequently the restrictions imposed in the reaction of women against menstrual period among the different societies and countries. However, the real prevalence of PMS in our society is not available yet and we require more studies. The results of this study can suggest a better understanding of the menstrual realities and help us correct misconceptions in the society. However, the difference in the severity of menstrual syndrome may be the consequence of individual differences of the people, the way of their response and their understanding about the symptoms of the PMS; it is something that ultimately can be attributed to the characteristics of the individuals. The exact reasons of difference in the prevalence of PMS among the women are unknown; but we can refer to some possible causes. These reasons can be the personal type (Björn et al., 2006; Fontana & Palfai 1994), hormonal changes, disorder in regulation of serotonin, diet, drugs and lifestyle (Takeda et al., 2006) and cultural differences.

In this study, the most common symptoms of students with PMS was anger and irritability which was consistent with the research of Derman (Derman et al., 2004) and Tabasom (Tabassum et al., 2005). But in the study of Chayachinda, the most symptoms of the PMS were irritability, overeating and oversleeping or insomnia (Chayachinda et al., 2008). Also in the study of Smith, eating has been reported as the most common symptom of the premenstrual syndrome (Cleckner-Smith et al., 1998). Depression and hopelessness can be named from the other symptoms of the students with PMS. These symptoms were consistent with the study done by Shahpourian et al. (Shahpoorian et al., 2006). Also it was compatible with the study had been done on the Brazilian students (Teng et al., 2005). Other studies have also reported this obvious relationship between depression and PMS in the students (Schuckit et al., 1975).

One of the factors of high severity of depression is the food intake in premenstrual stage. Also the role of the neural mediate of serotonin is very significant (Dye & Blundell, 1997). High fat consumption may be associated with the PMS (Nagata et al., 2004). The other important issue is the attitude of girls about menstruation which is different in various countries and cultures and can influence the patient's symptoms. For example, in a study done on 120 students in Nigeria, 93% percent of them had a positive attitude on menstruation which 20% of them had consulted with a doctor and this emphasizes on the importance of training menstrual and fertility issues to the girls (Moronkola 2007). In a study done on 1017 girls in Turkey, the highest rate of training menstrual issues to the girls by mothers was reported in the group which was at the higher social and economic level. Also, in this age group, the prevalence of menarche was lower and its symptoms were more (Ersoy et al., 2004). Since the mood symptoms are most severe and common signs of PMS, in the first step, we can use the suggestive treatments like carbohydrate foods. Like the inhibitor drugs, these foods enhance the reuptake of serotonin and cause increase of serotonin in the brain (Sayegh et al., 1995).

## 5. Conclusion

Regarded to the fact that PMS is one of the most common problems of premenopausal ages in women and it has high percentage in females in puberty period. PMS is accompanied with psychological and physical symptoms, and since this condition can cause adverse effects on the quality of women's life; hence, it is necessary to consider the supportive and therapeutic strategies in order to reduce the severity of its symptoms and adverse effects.

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## Competing Interests Statement

The authors declare that there is no conflict of interests regarding the publication of this paper.

## References

- Aghazadeh Naeini, A., Tamjidi, A. & Vallaei, N. (1996). Epidemiologic study of premenstrual syndrome in 15-45 years old women in Tehran during the year 1995. *Pejouhandeh*, 1(2), 53-61.
- Akhlaghi, F., Hamed, A., Javadi, Z., & Hosseiniipoor, F. (2004). Effects of calcium supplementation on premenstrual syndrome. *Razi Journal of Medical Sciences*, 10(37), 669-675.
- Alavi, A., Salahimoghadam, A. R., Alimalayeri, N., & Ramezanpour, A. (2014). Prevalence of clinical manifestations of premenstrual syndrome and. *Bimonthly Journal of Hormozgan University of Medical Sciences*, 10(4), 335-341.
- Basirat, Z. & Haji, A. M. (2006). Evaluation of dysmenorrhea and premenstrual syndrome in high school girls in Babol.
- Björn, I., Bäckström, T., Lalos, A., & Sundströmporomaa, I. (2006). Adverse mood effects during postmenopausal hormone treatment in relation to personality traits. *Climacteric*, 9(4), 290-297. <http://dx.doi.org/10.1080/13697130600865766>
- Borenstein, J. E., Dean, B. B., Endicott, J., Wong, J., Brown, C., & Dickerson, V., et al. (2003). Health and economic impact of the premenstrual syndrome. *Journal of Reproductive Medicine*, 48(7), 515.
- Budeiri, D. J., Li, W. A. & Dornan, J. C. (1994). Clinical trials of treatments of premenstrual syndrome: entry criteria and scales for measuring treatment outcomes. *BJOG: An International Journal of Obstetrics & Gynaecology*, 101(8), 689-695. <http://dx.doi.org/10.1111/j.1471-0528.1994.tb13186.x>
- Chandra, P. S., & Gururaj, G. (1995). Suicidal ideas during premenstrual phase. *Journal of Affective Disorders*, 34(3), 193-199. [http://dx.doi.org/10.1016/0165-0327\(95\)00017-H](http://dx.doi.org/10.1016/0165-0327(95)00017-H)
- Chayachinda, C., Rattanachaiyanont, M., Phattharayuttawat, S., & Kooptiwoot, S. (2008). Premenstrual syndrome in thai nurses. *Journal of Psychosomatic Obstetrics & Gynecology*, 29(3), 203-209. <http://dx.doi.org/10.1080/01674820801970306>
- Cleckner-Smith, C. S., Doughty, A. S., & Grossman, J. A. (1998). Premenstrual symptoms: prevalence and severity in an adolescent sample. *Journal of Adolescent Health*, 22(5), 403-408. [http://dx.doi.org/10.1016/S1054-139X\(97\)00239-5](http://dx.doi.org/10.1016/S1054-139X(97)00239-5)
- Condon, J. T., Need, J. A., Fitzsimmons, D., & Lucy, S. (1995). University students' subjective experiences of oral contraceptive use. *Journal of Psychosomatic Obstetrics & Gynecology*, 16(1), 37. <http://dx.doi.org/10.3109/01674829509025655>
- Cox, D. J. (1983). Menstrual symptoms in college students: a controlled study. *Journal of behavioral medicine*, 6(3), 335-338. <http://dx.doi.org/10.1007/BF01315118>
- Derman, O., Kanbur, N. O., Tokur, T. E., & Kutluk, T. (2004). Premenstrual syndrome and associated symptoms in adolescent girls. *Digest of the World Latest Medical Information*, 116(2), 201-206. <http://dx.doi.org/10.1016/j.ejogrb.2004.04.021>
- Dye, L., & Blundell, J. E. (1997). Menstrual cycle and appetite control: implications for weight regulation. *Human reproduction*, 12(6), 1142-1151. <http://dx.doi.org/10.1093/humrep/12.6.1142>
- Ersoy, B., Balkan, C., Gunay, T., Onag, A., & Egemen, A. (2004). Effects of different socioeconomic conditions on menarche in turkish female students. *Early Human Development*, 76(2), 115-125. <http://dx.doi.org/10.1016/j.earlhumdev.2003.11.001>
- Farhadinasab, A. A., & Mani, K. K. H. (2006). *Study the prevalence of premenstrual dysphoric disorder in Hamadan high school girls in 2003*.
- Fontana, A. M., & Palfai, T. G. (1994). Psychosocial factors in premenstrual dysphoria: Stressors, appraisal, and coping processes. *Journal of psychosomatic research*, 38(6), 557-567. [http://dx.doi.org/10.1016/0022-3999\(94\)90053-1](http://dx.doi.org/10.1016/0022-3999(94)90053-1)
- Golub, S., & Harrington, D. M. (1981). Premenstrual and menstrual mood changes in adolescent women. *Journal of Personality and Social Psychology*, 41(5), 961. <http://dx.doi.org/10.1037/0022-3514.41.5.961>
- Gordley, L. B., Lemasters, G., Simpson, S. R., & Yiin, J. H. (2000). Menstrual disorders and occupational, stress, and racial factors among military personnel. *Journal of Occupational & Environmental Medicine*, 42(9), 871-881. <http://dx.doi.org/10.1097/00043764-200009000-00005>

- Haywood, A., Slade, P., & King, H. (2007). Psychosocial associates of premenstrual symptoms and the moderating role of social support in a community sample. *Journal of psychosomatic research*, 62(1), 9-13. <http://dx.doi.org/10.1016/j.jpsychores.2006.07.024>
- Houston, A. M., Abraham, A., Huang, Z., & D'Angelo, L. J. (2006). Knowledge, attitudes, and consequences of menstrual health in urban adolescent females. *Journal of Pediatric & Adolescent Gynecology*, 19(4), 271.
- Indusekhar, R., Usman, S. B., & O'Brien, S. (2007). Psychological aspects of premenstrual syndrome. *Best Practice & Research Clinical Obstetrics & Gynaecology*, 21(2), 207-220. <http://dx.doi.org/10.1016/j.bpobgyn.2006.10.002>
- Kiani, A. A. et al. (2009). *Prevalence, signs, symptoms and predisposing factors of premenstrual syndromes in employed women*.
- Moronkola, O. A. (2007). Menstruation: symptoms, management and attitude of female nursing students in Ibadan, Nigeria. *African journal of reproductive health*, 10(3), 84-89. <http://dx.doi.org/10.2307/30032474>
- Nagata, C., Hirokawa, K., Shimizu, N., & Shimizu, H. (2004). Soy, fat and other dietary factors in relation to premenstrual symptoms in Japanese women. *Bjog An International Journal of Obstetrics & Gynaecology*, 111(6), 594-599. <http://dx.doi.org/10.1111/j.1471-0528.2004.00130.x>
- Nourjah, P. (2008). Premenstrual syndrome among teacher training university students in Iran. *Anxiety*, 145, 43-45.
- Sayegh, R., Schiff, I., Wurtman, J., Spiers, P., Mcdermott, J., & Wurtman, R. (1995). The effect of a carbohydrate-rich beverage on mood, appetite, and cognitive function in women with premenstrual syndrome. *Obstetrics & Gynecology*, 86(4 Pt 1), 520-528. [http://dx.doi.org/10.1016/0029-7844\(95\)00246-N](http://dx.doi.org/10.1016/0029-7844(95)00246-N)
- Schuckit, M. A., & Daly, V. (1975). Premenstrual symptoms and depression in a university population. *Diseases of the Nervous System*, 36(9), 516.
- Shahpoorian, F. et al., (2006). Premenstrual syndrome (PMS) and the related symptoms among students of Iran University of Medical Sciences (IUMS). *Iran Journal of Nursing*, 18(44), 57-66.
- Siahbazi, S. et al. (2011). Standardization of premenstrual symptoms screening questionnaire PSST: translation and psychometric Iranian species. *J Payesh*, 10, 421-427.
- Speroff, L., & Fritz, M. A. (2005). *Clinical gynecologic endocrinology and infertility*. Lippincott Williams & Wilkins.
- Tabassum, S., Afridi, B., Aman, Z., Tabassum, W., & Durrani, R. (2005). Premenstrual syndrome: frequency and severity in young college girls. *Anxiety*, 45(27.3), 4-5.
- Takeda, T., Tasaka, K., Sakata, M., & Murata, Y. (2006). Prevalence of premenstrual syndrome and premenstrual dysphoric disorder in Japanese women. *Archives of Women's Mental Health*, 9(4), 209-212. <http://dx.doi.org/10.1007/s00737-006-0137-9>
- Teng, C. T., Filho, A. H., Artes, R., Gorenstein, C., Andrade, L. H., & Wang, Y. P. (2005). Premenstrual dysphoric symptoms amongst Brazilian college students: Factor structure and methodological appraisal. *European Archives of Psychiatry and Clinical Neuroscience*, 255(1), 51. <http://dx.doi.org/10.1007/s00406-004-0535-9>
- Varney, H., Kriebs, J. M., & Geger, C. L. (2004). *Varney's midwifery*. Jones & Bartlett Learning.

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