



# Investigation of Self-Esteem in High School Students with Premenstrual Syndrome

Fatemeh Ghodrati,<sup>1</sup> Mansureh Dehghani,<sup>2</sup> Poursan Tavakoli,<sup>3</sup> and Marzieh Akbarzadeh<sup>4,\*</sup>

<sup>1</sup>PHD, Department of Theology, Faculty of Humanities Science College, Yasouj University, Yasouj, Iran

<sup>2</sup>Community Based Psychiatric Care Research Center, Department of Midwifery, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

<sup>3</sup>M.Sc. of Nursing, Department of Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

<sup>4</sup>Maternal-Fetal Medicine Research Center, Department of Midwifery, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

\*Corresponding author: Marzieh Akbarzadeh, Maternal-fetal medicine Research Center, Department of Midwifery, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran. E-mail: akbarzadm@sums.ac.ir

Received 2017 January 29; Accepted 2017 November 14.

## Abstract

**Background:** Premenstrual syndrome (PMS) is one of the most common disorders of reproductive age, and it is reported that 90% - 85% of the people are suffering from this disorder. Among the multiple symptoms of mental premenstrual syndrome, dysphoria, irritability, tension, anxiety and physical symptoms of bloating and breast pain are more common symptoms that can interfere with personal, family and community relationships.

**Objectives:** This study aimed to evaluate the frequency of the symptoms of PMS (physical, psychological and social) and the level of self-esteem in girls with PMS in 2013.

**Methods:** A cross-sectional study was performed on 200 girl high-school students of Shiraz city who had PMS. The study tools included demographic questionnaire, premenstrual symptoms, screening tool (PSST), (completed in two consecutive months) and Cooper Smith questionnaire. Data was analyzed by applying SPSS (version 16) and descriptive statistics.

**Results:** The mean age of the study population was  $16.34 \pm 1.06$ . About 50.5 percent were within 14-16 years old.  $11.43 \pm 3.89$ ,  $12.87 \pm 4.49$ , and  $39.28 \pm 16.2$  were the mean scores of physical, mental and total symptoms in girls with PMS, respectively. Moderate and high levels of self-esteem were reported 53% and 47% respectively among the patients with PMS.

**Conclusions:** The results showed that high self-esteem is decreased in patients with premenstrual syndrome. Due to the mood disorders, the subjects may avoid their perfection tendency and intensify their negative self-concept leading to low self-esteem. Different treatments, particularly psychological remedies, are required for those suffering from PMS.

**Keywords:** Premenstrual Syndrome, Self-Esteem, Psychotic

## 1. Background

According to many researchers, premenstrual syndrome (PMS) is one of the most common psychosomatic disorders, which can significantly affect women's life (1, 2). Premenstrual syndrome includes a set of predictable physical, behavioral and mood related changes, which start a week before menstruation till a week after it (3). This syndrome is one of the most controversial issues about women (4). It is difficult to estimate its prevalence due to its diverse symptoms. However, its incidence is estimated between 5 to 95% in different populations (5). Many factors can affect its prevalence such as culture, attitude, age, exercise, nutrition, and contextual disease (2). According to Lee et al., about 58% of women had PMS in Korea. The most common symptoms were severe fatigue and anger. About 32% had irregular menstruation (6). As to prevalence, symptom severity is so widespread that it can inter-

fere with their daily activity and social interactions in 5% (7). Studies in Iran showed that more than 90 teenagers experienced PMS in their early reproductive years, and at least one of the premenstrual symptoms was moderate to severe (8, 9). Mood disorder is one of the major problems in PMS, which can impact the individual's feeling about himself, the world in which he/she lives and those who have interaction with him/her. Depression is of the major problems in those suffering from PMS (10, 11). In addition, symptoms like aggression, nervousness, and irritability are more common symptoms in this population, which are the leading cause of fights, divorces, murders, and suicides (12). Stress and its related consequences are another problem in women with PMS. Stress, regardless of its origin, will make women much more prone to suffering from this syndrome (2). On the other hand, some deep and rapid physical, cognitive, socio-emotional changes oc-

cur in this period. Due to these changes, the person will face with enormous needs. The need for self-esteem is the most typical one, and its satisfaction will positively affect other needs (13). According to a study, more than 150 physical and mental symptoms will emerge by PMS (14).

Stress, anxiety, and depression, as mental health factors, can lead to academic failure and role dysfunction, which is the responsible factor for one's health in future. Therefore, prevention of stress, anxiety and depression and reduced mental distress caused by this syndrome will lead to increased job interest, teamwork cooperation and responsibility (15).

On the other hand, self-esteem is one of the human life necessities, and most experts consider it as the main factor in social-emotional adaptation. Student's low self-esteem leads to educational failure, loneliness, substance abuse, reality avoidance, and self-destructive behavior (16). Self-esteem reflects a person's overall subjective emotional evaluation of his or her own values which refers to self-confidence in his thinking skills (17). So, some scholars consider it as a cultural protection against anxiety. High self-esteem causes high expectations. Studies show that people with high self-esteem are much more confident than those with lower self-esteem, thus they easily reach their goals and self-actualization (18).

Therefore, premenstrual syndrome as the periodical recurrence of a set of annoying physical, mental, and behavioral disorders in the luteal phase of menstrual cycle is a burden on quality of life in adolescents (19, 20). Especially, increased severity in PMS symptoms results in decreased quality of mental health, reduced work productivity and more workdays missed for health reasons (21). Due to the changes in the quality of life, self-esteem might be affected. Besides, Akbarzadeh et al. revealed that "In Iran, it has been estimated that 98.2% of female university students averagely or severely experience at least one of the PMS symptoms at the age 18 - 27 years" (20).

The importance of self-concept and self-esteem in adolescence and also the leading impression of stress, anxiety, and depression on their individual and academic life prompted us to do this study. This study aimed to evaluate the PMS symptoms and the level of self-esteem among women with this syndrome. The results of this study can be helpful to plan for adolescents who are responsible for the future of community.

## 2. Methods

This is a descriptive, analytical and cross-sectional study performed on 200 students selected out of 800 high school students from four regions of Shiraz city who had PMS in 2013. Self-esteem was evaluated among high school

female students with premenstrual syndrome in Shiraz schools. A sample size of 800 girls was determined by using 55% of prevalence rate in a pilot study (60 people) and using the formula

$$n = \frac{Z_{1-\frac{\alpha}{2}}^2 \times p(1-p)}{d^2} \quad (1)$$

While considering these parameters  $z = 1.96$ ,  $p = 55\%$ ,  $d = 0.036$ ,  $\alpha = 0.05$ .

The study population consisted of the high school students from four regions who met the inclusion criteria and were randomly selected by clusters method.

The inclusion criteria were the subject's willingness to participate in research, studying in one of four high school grades, being selected from high schools in each of four regions, giving approved consent, and confirmed PMS diagnosis by premenstrual syndrome screening questionnaire within two months. Exclusion criteria were the subjects' unwillingness to participate at any stage and parents' request to withdraw. There were several steps for determining the sample size:

In the first stage, four high schools were selected randomly as a cluster ( $n: 800$ ). In the second stage in each cluster, the girls were selected through simple purposive sampling. In third stage, both students and parents completed the written consent forms, demographic questionnaire and Psst questionnaire were completed in two consecutive months. Finally, in this stage, 200 students who suffered from PMS were selected out of 800 students according to PSST questionnaire.

In the fourth stage; Cooper Smith self-esteem questionnaire was distributed among 200 students with PMS. Finally, after collecting data, the frequency of PMS symptoms and the level of self-esteem in girls with premenstrual syndrome were evaluated.

### 2.1. Instruments

The Cooper Smith self-esteem questionnaire has 58 items among which 8 were polygraph. Scoring was in 0 - 1 method. The minimum and maximum scores were 0 and 50, respectively. The scores above 26 were considered as high self-esteem, while the scores below that were considered as low self-esteem. Cooper Smith prepared self-esteem inventory with revisions on Diamond and Rogers's scale (22) in 1967 (23). The total Cronbach's alpha coefficient was 0.88 in Gullon and Herz's study, and five-week test-retest correlation was reported 0.88 as its reliability (24, 25). The reliability and validity of the Persian version of CSSEI were obtained 0.84 and 0.85, respectively (26). The level of self-esteem was calculated using Chi-square after data collection.

PSST questionnaire includes 19 items in two parts. The first part includes 14 items related to mental, physical, and behavioral symptoms, while the second one contains 5 items and assesses the impact of these symptoms on the individuals' lives.

Each item can be responded through four options, namely none, mild, average, and severe, receiving a score from 0 to 3. Thus, the minimum and maximum scores of the questionnaire are 0 and 57, respectively, with 0 - 19, 20 - 38, and 39 - 57 representing mild, average, and severe conditions, respectively (9, 27). The reliability and validity indexes reported by Shiva Siahbazi (Cronbach's alpha of 0.93) are the basis of the present study (28). The internal consistency of the questions in the questionnaire was obtained 0.93, using Cronbach's alpha. For evaluation of validity, the ratio content validity ratio (CVR) and content validity index (CVI) were used (0.7 and 0.8, respectively), so the questionnaire had a good level of validity.

## 2.2. Data Analysis

Data analysis was done using SPSS software 16. Mean and standard deviation were calculated by using descriptive statistical method.

## 2.3. Ethical Considerations

This research project was approved by the local ethics committee of Shiraz University of Medical Sciences and written informed consents were obtained from all both students and her parents. In addition, the patient's name and records were kept confidential. The researcher respected the right of individuals to refuse participating in research and to withdraw their participation at any stage. Research centers were assured that the study data would be provided to them by their request.

## 3. Results

The mean age of the first menarche was  $11.0 \pm 0.075$ . The mean age of the study population was estimated  $16.34 \pm 1.06$ . About 50.5% were between 14 - 16 years. About 24.5 percent were studying at grade 9 and 22 percent of the population were pre-university students in terms of education (Table 1). In addition, 25% of the study population had irregular menstrual period and 47% had period duration of 24 - 35 days (Table 2).  $11.43 \pm 3.89$ ,  $12.87 \pm 4.49$ , and  $39.28 \pm 16.2$  were the mean scores of physical, spiritual and total symptoms, respectively (Table 3). It was reported that moderate and high levels of self-esteem were observed in respectively 53% and 47% of the patients with premenstrual syndrome (Table 4).

**Table 1.** The Mean Age of Menarche and Distribution of Age Groups in the Population of the Study

Variables	Mean $\pm$ SD
Age	$16.34 \pm 1.06$
Age of menarche	$11.0 \pm 0.075$
Mode of age menarche	11
Minimum and maximum	11 to 13
Marriage	No. (%)
Yes	2 (1)
No	198 (99)
Age, y	No. (%)
14 - 16	101 (50.5)
17 - 18	99 (49.5)
Total	200 (100)
Level of education	No. (%)
Class 9	49 (24.5)
Class10	55 (27.5)
Class11	52 (26)
Class12 (Pre-University)	44 (22)
Total	200 (100)

**Table 2.** Frequency of Menstrual Pattern in the Population of the Study

Variable	No. (%)
Regularity of menstruation	
Yes	150 (75)
No	50 (25)
Total	200 (100)
Duration of cycle, day	
21 - 23	27 (56)
24 - 34	94 (47)
35 $\geq$	50 (25)
Total	200 (100)

**Table 3.** The Mean of Physical, Mental and Social Symptoms in Students with Premenstrual Syndrome

Symptoms	Lower Bound	Upper Bound
Physical	$11.43 \pm 3.89$	3
Mental	$12.87 \pm 4.49$	3
Social	$10.79 \pm 3.12$	0

## 4. Discussion

The present study assessed the symptoms of premenstrual syndrome and the level of self-esteem among fe-

**Table 4.** Frequency of Self-Esteem Level in the Population of the Study

Level of Self Esteem	No. (%)
26 and less than (low)	0 (0)
27 - 43 (moderate)	106 (53)
44 and more than	94 (47)
Total	200 (100)

males studying in Shiraz. Premenstrual syndrome (PMS) is quite common in women of childbearing age, which affects their social performance, job productivity and their quality of life (29, 30). To the best of our knowledge, this study can be considered unique since self-esteem has rarely been assessed.

According to Alexander et al., the most severe effect of PMS can be found at home and within family. Therefore, about 82% and 61% of women have faced challenges in interaction with their own parents and children, respectively (31). According to a study, physical symptoms were more common. In other words, frequency of symptoms including back pain, arthralgia and myalgia, laziness, fatigability, breast swelling and tenderness, headache, and weight gain were reported as follows: 70%, 47%, 40%, 38%, 28%, 26%, and 24% (32). This result was inconsistent with our findings. The mean score of spiritual symptoms was higher than physical and social ones in our study. However, the results of some studies in terms of psychiatric symptoms (anger, anxiety, pain, depression, fatigue), as the most common ones, were consistent with our study (33, 34). Since the study population was young, they had more tolerance to physical issues rather than mental health issues; this was in accordance with the study hypotheses. In this study, about half of the study population had a moderate level of self-esteem and almost half of them had a high self-esteem. According to a study conducted on 499 students aged 16-18 in Turkey, there was a significant negative association between self-esteem and anger (35). The difference between his study and the present research is that the study population consisted of those with premenstrual syndrome, but Arslan did not define any menstruation condition for his study population. In this study, we cannot found out a relationship between low self-esteem and psychiatric symptoms. Therefore, it cannot be judged whether higher intensity of psychological symptoms leads to low self-esteem in patients with PMS or vice versa. It is because this study did not aim to evaluate the link between PMS symptoms and self-esteem level. So the prevalence of physical and mental symptoms of the syndrome varies in different communities that could be due to differences in race, culture, religion and society of different communities (36, 37). Another

issue that affects the severity of PMS is the positive or negative attitudes toward menstruation, because those with negative attitudes see menstrual process as annoying and uncomfortable issue (38).

Self-esteem is one of the human inevitable needs, which is considered as the sense of self-worth. Most scholars consider it as the main cause of socio-emotional adjustment (16, 17). Some scholars have taken it as a cultural trend in confrontation with anxiety. Studies have shown that people with high self-esteem are more confident than those with low self-esteem and their efforts will lead to success (18). (On the other hand, since PMS causes physical weakness, their perfectionism will replace with the sense of incompetence and inefficiency (39). Low self-esteem may root in PMS physical and mental symptoms. Diverse treatments seem logical to be effective on psychological issues (40, 41), which lead to a better performance in all phases of the menstrual cycle (42, 43). A weak point in this study was that we did not compare the level of self-esteem with the control group without PMS.

The large statistical population (n: 800) and evaluating the level of self-esteem are the strength points of this study. One of the limitations of the design was the difference in academic classes (grades 9 - 12). Further studies with a similar approach and larger sample size while considering the psycho-social level of the girls using a control group are recommended.

#### 4.1. Conclusion

This study showed that the means score of psychotic symptoms is higher than that of other symptoms in the study population. The level of self-esteem was estimated as moderate in 53% of the subjects.

PMS causes mood disorder (loss of interest in daily activities, nervousness, irritability, interpersonal conflicts, anxiety, difficulty in concentration, tension, emotional instability, depressed mood, hopelessness), leading the individuals to put away their perfectionism and success. Thus, it strengthens the individuals' negative self-concept which is accompanied by low self-esteem. It is necessary to consider diverse treatments, particularly in psychological aspect among PMS patients in order to prevent poor attitudes, incompetency, irresponsibility, and problem exaggeration. However, reconstruction and inefficient cognition seem necessary in severe PMS.

#### Acknowledgments

This article is a part of proposal number: 92-6805. Researchers appreciate research and technology department of Shiraz University of Medical Sciences. The authors



would like to thank Shiraz University of Medical Sciences, Shiraz, Iran and also center for development of clinical research of Nemazee hospital for statistical analysis and Dr. Nasrin Shokrpour for editorial assistance.

## Footnotes

**Authors' Contribution:** Marzieh Akbarzadeh and Fatemeh Ghodrati have prepared the first draft of the manuscript and Marzieh Akbarzadeh has made critical revisions to the paper and responded to the reviewers. Mansureh Dehghani and Poursan Tavakoli helped surge forward the article.

**Conflict of Interests:** None declared.

## References

- Talaei A, Fayyazi Bordbar MR, Nasiraei A, Pahlavani M, Dadgar S. Epidemiology of premenstrual syndrome (PMS) in students of Mashhad University of Medical Sciences [In Persian]. *Iranian J Obstet Gynecol Infertil*. 2009;**12**(2):15-22.
- Zare H, Taraj S. The effect of premenstrual syndromes on the function of short-term, long-term and provident memory of afflicted women [In Persian]. *Iranian J Obstet Gynecol Infertil*. 2009;**12**(3):1-8.
- Douglas S. Premenstrual syndrome. Evidence-based treatment in family practice. *Can Fam Physician*. 2002;**48**:1789-97. [PubMed: 12489244].
- Freeman EW, Halberstadt SM, Rickels K, Legler JM, Lin H, Sammel MD. Core symptoms that discriminate premenstrual syndrome. *J Womens Health (Larchmt)*. 2011;**20**(1):29-35. doi: 10.1089/jwh.2010.2161. [PubMed: 21128818].
- Olive DL, Palter SF. Reproductive physiology. In: Berek JS, editor. *Novaks gynecology*. 14th ed. Philadelphia: Lippincott Williams Wilkins; 2006. p. 161-84.
- Lee JC, Yu BK, Byeon JH, Lee KH, Min JH, Park SH. A study on the menstruation of Korean adolescent girls in Seoul. *Korean J Pediatr*. 2011;**54**(5):201-6. doi: 10.3345/kjp.2011.54.5.201. [PubMed: 21829411].
- O'Brien PM. Helping women with premenstrual syndrome. *BMJ*. 1993;**307**(6917):1471-5. doi: 10.1136/bmj.307.6917.1471. [PubMed: 8281092].
- Delara M, Borzuei H, Montazeri A. Premenstrual disorders: prevalence and associated factors in a sample of Iranian adolescents. *Iran Red Crescent Med J*. 2013;**15**(8):695-700. doi: 10.5812/ircmj.2084. [PubMed: 24578837].
- Lustyk MK, Widman L, Paschane A, Ecker E. Stress, quality of life and physical activity in women with varying degrees of premenstrual symptomatology. *Women Health*. 2004;**39**(3):35-44. doi: 10.1300/J013v39n03\_03. [PubMed: 15256354].
- Geary A. *Food and mood handbook: find relief at last from depression, anxiety, PMS, cravings and mood swings*. London: Thomson; 2001. p. 1-6.
- Sayegh R, Schiff I, Wurtman J, Spiers P, McDermott J, Wurtman R. The effect of a carbohydrate-rich beverage on mood, appetite, and cognitive function in women with premenstrual syndrome. *Obstet Gynecol*. 1995;**86**(4 Pt 1):520-8. doi: 10.1016/S0029-7844(95)80009-3. [PubMed: 7675373].
- Carson VB. *Mental health nursing: the nurse-patient journey*. 2nd ed. Philadelphia: Saunders; 2000. p. 1-6.
- Aklchi M, Mahri A. Sabzevar of self-esteem in high school students in the academic year 89-88 [In Persian]. *Sunrise Health*. 2011;**10**(1):28-37.
- Biggs WS, Demuth RH. Premenstrual syndrome and premenstrual dysphoric disorder. *Am Fam Physician*. 2011;**84**(8):918-24. [PubMed: 22010771].
- Gammon J, Morgan-Samuel H. A study to ascertain the effect of structured student tutorial support on student stress, self-esteem and coping. *Nurse Educ Pract*. 2005;**5**(3):161-71. doi: 10.1016/j.nepr.2004.09.003. [PubMed: 19038195].
- Babaei M, Fadakar Soghe R, Sheikhol-Eslami F, Kazemnejad Leili E. Survey self esteem and its relevant factors among high school students [In Persian]. *Holist Nurs Midwifery*. 2015;**25**(3):1-8.
- Kaplan H, Sadock B. *Kaplan and Sadock's synopsis of psychiatry behavioral science clinical psychiatry*. 10th ed. Philadelphia: Lippincott Williams Wilkins; 2007. 12 p.
- Yelsma P, Yelsma J. Self-esteem and social respect within the high school. *J Soc Psychol*. 1998;**138**(4):431-41. doi: 10.1080/00224549809600398. [PubMed: 9664861].
- Rapaport MH, Clary C, Fayyad R, Endicott J. Quality-of-life impairment in depressive and anxiety disorders. *Am J Psychiatry*. 2005;**162**(6):1171-8. doi: 10.1176/appi.ajp.162.6.1171. [PubMed: 15930066].
- Akbarzadeh M, Dehghani M, Moshfeghy Z, Emamghoreishi M, Tavakoli P, Zare N. Effect of Melissa officinalis Capsule on the Intensity of Premenstrual Syndrome Symptoms in High School Girl Students. *Nurs Midwifery Stud*. 2015;**4**(2). e27001. doi: 10.17795/nmsjournal27001. [PubMed: 26339667].
- Borenstein JE, Dean BB, Endicott J, Wong J, Brown C, Dickerson V, et al. Health and economic impact of the premenstrual syndrome. *J Reprod Med*. 2003;**48**(7):515-24. [PubMed: 12953326].
- Asadi M, Salehi M, Sadooghi M, Afkham Ebrahimi A. Self-esteem and attitude toward body appearance before and after cosmetic rhinoplasty [In Persian]. *Iran J Psychiatry Clin Psychol*. 2013;**19**(1):28-33.
- Correa AJ, Sykes JM, Ries WR. Considerations before rhinoplasty. *Otolaryngol Clin North Am*. 1999;**32**(1):7-14. doi: 10.1016/S0030-6665(05)70112-2. [PubMed: 10196435].
- Herz L, Gullone E. The Relationship between Self-Esteem and Parenting Style: A cross-cultural comparison of Australian and Vietnamese Australian adolescents. *J Cross Cult Psychol*. 2016;**30**(6):742-61. doi: 10.1177/0022022199030006005.
- Ponsoda V, Abad FJ, Francis LJ, Hills PR. Gender differences in the coopersmith self-esteem inventory: The incidence of differential item functioning. *J Individ Dif*. 2008;**29**(4):217-22. doi: 10.1027/1614-0001.29.4.217.
- Shahedifar N, Sharifian M, Setarehforozan A, Biglarian A. Exposure to physical violence between their parents and their relationship with self-esteem. *Iran Red Crescent Med J*. 2014;**16**(1).
- Rapkin AJ, Winer SA. Premenstrual syndrome and premenstrual dysphoric disorder: quality of life and burden of illness. *Expert Rev Pharmacoecon Outcomes Res*. 2009;**9**(2):157-70. doi: 10.1586/erp.09.14. [PubMed: 19402804].
- Steiner M, Macdougall M, Brown E. The premenstrual symptoms screening tool (PSST) for clinicians. *Arch Womens Ment Health*. 2003;**6**(3):203-9. doi: 10.1007/s00737-003-0018-4. [PubMed: 12920618].
- Nisar N, Zehra N, Haider G, Munir AA, Sohoo NA. Frequency, intensity and impact of premenstrual syndrome in medical students. *J Coll Physicians Surg Pak*. 2008;**18**(8):481-4. [PubMed: 18798584].
- Yang M, Wallenstein G, Hagan M, Guo A, Chang J, Kornstein S. Burden of premenstrual dysphoric disorder on health-related quality of life. *J Womens Health (Larchmt)*. 2008;**17**(1):113-21. doi: 10.1089/jwh.2007.0417. [PubMed: 18240988].
- Alexander M, Fawcett JN, Punciman PJ. *Nursing practice: hospital and home: the adult*. Edinburgh: Churchill Livingstone; 2000. p. 232-6.
- Kumari S, Sachdeva A. Patterns and Predictors of Premenstrual Symptoms among Females Working in a Psychiatry Hospital. *Scientifica (Cairo)*. 2016;**2016**:6943852. doi: 10.1155/2016/6943852. [PubMed: 27293977].
- Tabassum S, Afridi B, Aman Z, Tabassum W, Durrani R. Premenstrual syndrome: frequency and severity in young college girls. *J Pak Med Assoc*. 2005;**55**(12):546-9. [PubMed: 16438276].

34. Tatari F, Shaker J, Hosseini M, Rezaii M, Amirian M, Amirian F. Frequency of premenstrual dysphoric disorder, premenstrual syndrome and some related factor in student of girl's high schools of Kerman-shah [In Persian]. *J Res Behav Sci*. 2007;5(1):13-9.
35. Arslan C. Anger, self-esteem, and perceived social support in adolescence. *Soc Behav Pers*. 2009;37(4):555-64. doi: [10.2224/sbp.2009.37.4.555](https://doi.org/10.2224/sbp.2009.37.4.555).
36. Chang YT, Chen YC. Study of menstrual attitudes and distress among postmenarcheal female students in Hualien County. *J Nurs Res*. 2009;17(1):20-9. doi: [10.1097/JNR.0b013e3181999d25](https://doi.org/10.1097/JNR.0b013e3181999d25). [PubMed: [19352226](https://pubmed.ncbi.nlm.nih.gov/19352226/)].
37. Chen HM, Chen CH. Related factors and consequences of menstrual distress in adolescent girls with dysmenorrhea. *Kaohsiung J Med Sci*. 2005;21(3):121-7. doi: [10.1016/S1607-551X\(09\)70288-8](https://doi.org/10.1016/S1607-551X(09)70288-8). [PubMed: [15875437](https://pubmed.ncbi.nlm.nih.gov/15875437/)].
38. Lu ZJ. The relationship between menstrual attitudes and menstrual symptoms among Taiwanese women. *J Adv Nurs*. 2001;33(5):621-8. doi: [10.1046/j.1365-2648.2001.01705.x](https://doi.org/10.1046/j.1365-2648.2001.01705.x). [PubMed: [11298198](https://pubmed.ncbi.nlm.nih.gov/11298198/)].
39. Sepehrirad M, Toozandehjani H. Effectiveness of cognitive-behavioral group therapy training and nutritional strategies based on traditional medicine on premenstrual syndrome [In Persian]. *Iran J Obstet Gynecol Infertil*.
40. Hassiotis A, Serfaty M, Azam K, Strydom A, Martin S, Parkes C, et al. Cognitive behaviour therapy (CBT) for anxiety and depression in adults with mild intellectual disabilities (ID): a pilot randomised controlled trial. *Trials*. 2011;12:95. doi: [10.1186/1745-6215-12-95](https://doi.org/10.1186/1745-6215-12-95). [PubMed: [21492437](https://pubmed.ncbi.nlm.nih.gov/21492437/)].
41. Blake F. Cognitive therapy for Premenstrual Syndrome. *Cogn Behav Pract*. 1995;2(1):167-85. doi: [10.1016/s1077-7229\(05\)80009-4](https://doi.org/10.1016/s1077-7229(05)80009-4).
42. Fritz MA, Speroff L. *Clinical gynecology endocrinology and infertility*. Philadelphia: Lippincott Williams Wilkins; 2011. p. 531-46.
43. Kashani L, Saedi N, Akhondzadeh S. Femicomfort in the treatment of premenstrual syndromes: a double-blind, randomized and placebo controlled trial. *Iran J Psychiatry*. 2010;5(2):47-50. [PubMed: [22952490](https://pubmed.ncbi.nlm.nih.gov/22952490/)].