FREQUENCY OF PREMENSTRUAL SYNDROME AND EFFECTIVENESS OF GROUP COUNSELING IN REDUCING THE SEVERITY OF SYMPTOMS IN FEMALE STUDENTS

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ABSTRACT

Objective: To determine the frequency of premenstrual syndrome and effectiveness of group counseling in reducing the severity of symptoms of premenstrual syndrome in female students of Hamadan University of Medical Sciences.

Methodology: This quasi-experimental study was conducted on 80 female students with definite diagnosis of premenstrual syndrome (PMS) in the University of Medical Sciences, Hamadan, Iran, in 2014. They were allocated randomly into two groups (intervention and control), each group having 40 members. Three counseling sessions were performed in the intervention group. Assessment was performed before the intervention and then after one and two months' post-intervention). Questionnaire of provisional diagnosis of PMS and inventory of overall severity of symptoms of PMS were used. Analysis of the data was performed by SPSS/16, using chi-square and paired t-tests. P value < 0.05 was regarded as significant.

Results: Frequency of PMS was 56% among the students. Both groups were similar at the beginning of the study as demonstrated by Kolmogorov-Smirnov test. Mean scores of PMS symptoms (including anxiety, depression, emotional, water retention and somatic changes) were decreased significantly in the intervention group (p <0.05).

Conclusion: Premenstrual syndrome was found in higher frequency among university students. Group counseling was significantly effective in improving the symptoms of premenstrual syndrome.

Key Words: Premenstrual syndrome, Menstruation, Group counseling

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INTRODUCTION

Premenstrual syndrome (PMS), which usually starts 7-10 days before menstruation, is a set of somatic, psychological, emotional, and behavioral symptoms that occur in the secretory phase of the menstrual cycle. Being a relatively common disorder among women of childbearing, it can seriously affect their lifestyle and social relationships[1-4]. Premenstrual syndrome has two symptomatic types: somatic and emotional. Somatic complaints include sensitive and painful breasts, flatulence, abdominal pain, feeling of weight gain, edema, headache, backache, nausea, change in defecation and acne. Emotional symptoms are irritability, anxiety, nervousness, depression, feeling of extreme fatigue and weakness, mood change, dizziness, and change in sleep pattern and appetite[5-8].

Diagnostic criteria for PMS include presence of at least one emotional sign and one physical sign that occur before menstruation and resolve with the onset of it in the absence of any medicinal intervention[3,9-12]. PMS has a multi factorial etiology and variations in estrogen and progesterone levels is one of the proposed mechanisms for PMS. It can also be caused by defective secretion of aldosterone and neurotransmitters, as well as environmental factors, such as alcohol consumption and stress[10-12].

The exact prevalence of PMS is uncertain[13]; however, it is reported with different levels of severity in 85% of women[14]. According to Ghaedi's et al[15] study conducted in Iran in 2011, 78.4% of students suffer from this syndrome. Ramezani et al[16] reported the prevalence of PMS as 52.9%, out of which 34.5% had severe symptoms, necessitating medical treatment. PMS symptoms

may recur until menopause during each ovulation cycle; however, the severity and frequency of symptoms may change with time. PMS also negatively affects interpersonal relationships, workplace presence, productivity, and healthcare related costs.

Due to uncertain etio-pathology of PMS, different treatment modalities have been used. These include medicinal treatments (hormonal, antidepressants, and pain killers), supplements and vitamins, surgical treatments, adjuvant therapy and non-medicinal modalities (such as physical exercise, change in lifestyle, cognitive and cognitive-behavioral education, stress management, massage, reflexology, yoga, muscle relaxation, herbal remedies, and aromatherapy)[4,11,17]. Medicinal treatments are usually administered to patients who do not respond to non-medicinal methods15. Since many women with PMS do not respond to common treatment methods or develop complications, the need for new therapeutic approaches is still felt[18]. Studies on the effects of non-medicinal interventions including stress management, relaxation, lifestyle change, dietary modification, physical activities & exercise and anger management skills have reported successful results in controlling the severity of PMS symptoms[19-21].

Among the recommended adjuvant therapies for PMS, physical exercise, dietary modification, consultation, fennel seeds, chamomile seeds, saffron, hypericum perforatum, vitagnus, acupressure and evening primrose have been studied in Iran[18,22-24]. There are scant studies on the effectiveness of different types of counseling, such as group counseling, in reducing PMS symptoms. In a study conducted by Taghizadeh et al19 the mean severity of PMS symptoms including somatic symptoms, anxiety, interpersonal sensitivity and aggression significantly reduced after group counseling.

The present study intended to determine the PMS frequency and the effectiveness of group counseling, as a reasonable safe treatment, on severity of symptoms of PMS, in female students of Hamadan University of Medical Sciences. Following were the reasons for consideration of the current research: 1) High prevalence of PMS among women and its harmful effects on their quality of life (e.g. causing functional limitations); 2) Priority of non-medicinal methods for reducing the symptoms and/or treatment of PMS; 3) Evidence showing the effectiveness of counseling on PMS symptoms; 4) and recommendations for the conduction of more studies.

METHODOLGY

This was a quasi-experimental study with pre- and post counseling interventional design. The study population included female students of Hamadan University of Medical Sciences, in academic year of 2014. Two hundred women expressed interest in the study and 120 women were excluded due to failure to meet inclusion criteria or declining interest. Eighty women with definitive diagnosis of PMS were stratified randomly into 02 forty–member groups of intervention (counseling) and control. The sample size was obtained for each group at the significance level of 95%, using following formula: $N=2(Z_{1-\alpha/2} + Z_{1-\beta})^2 (1/ES)^2$, (ES=0.7)= 32. However, due to probable sample loss, 40 subjects were considered for each group. The eligible students were consecutively included in the study from a certain time point, until the required sample size was reached.

The importance of research and its objectives were explained to the participants. They were allowed to leave the study whenever they wanted. Informed consent was obtained from all subjects who were enrolled in the study and they were ensured that the information obtained from the subjects will remain private. Participants were respected and ethical discrimination was avoided. This study was approved by the Ethical Committee of Hamadan University of Medical Sciences. Trial registration code of project was 16.35.9.1345, IRCT201309296888N3.

Eligibility criteria included patients who were 18-25 years old, with regular menstrual cycles (intervals of 21 days and lengths of 3-6 days) for at least six months, were not on medication, single, without physical and psychological diseases, not on PMS symptom relieving medication, not participating in other educational courses, and not in a stressful condition (loss of a relative, marriage, divorce of parents, financial problem in family, crash, and horrible accidents) from three months before the study. Students who did not participate in the counseling sessions and those with incomplete questionnaire were excluded.

Since many variables can affect the severity of this syndrome, the subjects were homogenized in terms of demographic characteristics (e.g. age and education) and all had a complete awareness of this syndrome. To eliminate the effect of confounding factors, it was tried to prevent the coincidence of the current research and stressful semester exams. The counseling sessions were performed only in the intervention group while the control group received just routine care. The symptoms of premenstrual syndrome, such as related to anxiety, depression, emotional changes, retention features and somatic symptoms, were studied using questionnaires administered before the intervention, after the first cycle of intervention, and after the second cycle of group counseling and both groups were compared.

Data collection tools were demographic and menstrual history questionnaire, provisional diagnosis of premenstrual syndrome questionnaire and inventory of overall severity of symptoms of premenstrual syndrome. The DSM-IV-based PMS provisional diagnosis

form includes 11 items, and having at least five items indicates provisional diagnosis of PMS (at least one of the symptoms should be from the five first symptoms).

The inventory of overall PMS symptom severity, assesses the severity of five groups of symptoms: anxiety symptoms (nervous tension, emotional swings, irritability, concentration loss, fear without reason); depression symptoms (depression, hopelessness, forgetfulness, crying, dizziness, mood disorders, sleep disorders, isolation, loss of interest in daily activities); emotional symptoms (headache, sweating, hot flushing, increased appetite, palpitation, fatigue, lethargy, decreased energy, and sense of inability to perform daily tasks); retention symptoms (weight gain, swelling of extremities, hypersensitivity, heaviness and pain in the chest, back and abdominal pain, muscle and joint pain, muscle cramps, flatulence); and somatic symptoms (acne, inflammation of the nose, frequent urination & constipation). Each of these symptoms is scored from 0 (symptomless) to 4 (very severe symptoms)[3].

Validity and reliability of this questionnaire have been confirmed in Iran[3]. In this study, validity of the questionnaire was assessed through content validity analysis, based on books, scientific articles and comments of supervisors. To evaluate the face and content validities of the questionnaire, it was given to 10 faculty members of Hamadan University of Nursing and Midwifery, and then their comments and recommendations were considered in preparing the final version of the questionnaire. Reliability of the questionnaire in previous studies was obtained using Cronbach's alpha (α =0.95)19.

Three counseling sessions were performed in the intervention group. In the first session, anatomy and physiology of the reproductive system and definition of menstrual cycle and related concepts were addressed. The second session dealt with the definition of PMS, its prevalence in Iran, its etiology and different aspects of lifestyle. In the third session, diet-related subjects, such as increase in consumption of calcium, vitamin B and C groups, foods containing these vitamins, the way they should be consumed, decrease in the consumption of casein, salt, etc., and having at least half an hour physical activities (e.g. walking) per day, were addressed. There were 7-10 participants in each class. At the end of each counseling session, students' questions were answered. In addition, telephonic contacts were made every week to answer probable questions of the subjects.

Three subjects from each group were excluded due to incorrect completion of the PMS severity inventory and the study was completed with 37 subjects in each group. Analysis of the data was performed by SPSS/16, using chi-square and paired t-tests. P value <0.05 was regarded as significant.

RESULTS

Frequency of PMS was 56% among the university students. The independent t-test showed no significant difference between-groups before the intervention in the mean and standard values of demographic and menstrual variables, (p >0.05, Table 1).

The independent t-test did not show any significant difference between-groups in the total PMS score before the intervention (zero cycle); however, a significant statistical difference was observed in the first and second cycles after the intervention (p<0.05,Table 2). The scores of PMS severity reduced even more significantly at the end of the second month after the couselling session. This reduction in symptoms continued with time.

The independent t-test showed a significant relationship between each PMS symptom (anxiety, somatic, emotional swings, retention symptoms and depression) in the first and second cycles after group counseling (p <0.05) as presented in Table 3.

DISCUSSION

Group counseling was significantly effective in reducing the overall PMS severity. Findings of all previous studies on the effects of different types of counseling and non-medicinal treatments on the reduction of PMS symptoms are consistent with this study[19,20,25-28].

Although some physicians recommend lifestyle and dietary modification(e.g. increase in physical activities or decrease in the use of caffeine, salt, and refined sugars), for improvement in symptomatology of PMS; unfortunately the effectiveness of these recommendations has not been proven by sufficient number of studies. The present study addressed this issue and highlighted the importance of group counseling. There are scant studies supporting nutritional counseling for the consumption of calcium, vitamin D, vitamin E, and vitamin B6 supplements, which was addressed in the present study. Moreover, there are insufficient evidence supporting cognitive-behavioral treatment for PMS; however, a study on this treatment has shown the effectiveness of cognitive-behavioral based group counseling on the reduction of psychological symptoms of PMS, which can be a very desirable therapeutic option[26].

Taghizadeh et al[18] investigated the effect of consultation on dietary modification and life style (anger management, problem solving, etc.) on PMS symptoms, and concluded that group counseling significantly decreased the overall PMS severity and its symptoms, which was consistent with our study. Stoddard et al[28] showed that regular physical exercise can reduce the symptoms of premenstrual syndrome and its associated somatic signs.

Table 1: Baseline characteristics and clinical data of the study population

Characteristics	Intervention (n=37)	Control (n=37)	P Value
Age (Years)	20.95 (1.22)	20.54 (1.36)	0.09
Menarche Age (Years)	13.57 (1.06)	13.57 (1.38)	0.07
Duration of Bleeding (Days)	6.38 (1.16)	6.14 (1.15)	0.70
Menstrual Periods (Days)	26.97 (5.20)	27.27 (4.64)	0.60
Dysmenorrhea Age (Years)	15.69 (2.85)	15.50 (2.61)	0.30
Body Mass Index (kg/m2) (%)			
<19.8	14 (37.8)	15 (40.5)	0.90
19.8-26	22 (59.5)	21 (56.8)	
>26	1 (2.7)	1 (2.7)	
Menstrual Regularity (%)			
Yes	25 (67.6)	24 (64.9)	0.80
No	12 (32.4)	13 (35.1)	
Dysmenorrhea (%)			
Yes	25 (67.6)	20 (54.1)	0.20
No	12 (32.4)	17 (45.9)	
Lack of Social Activities and Relationships with others (%)			
Yes	19 (51.4)	22 (59.5)	0.4
No	18 (48.6)	15 (40.5)	
Drug use in Menstruation (%)			
Yes	22 (5/59)	20 (1/54)	0.6
No	15 (5/40)	17 (5/45)	
Exercise Pre-menstrual (%)			
Yes	10 (27/0)	4 (10/8)	0.07
No	27 (73/0)	33 (89/2)	
Exercise during Menstruation (%)			
Yes	13 (35/1)	8 (21/6)	0.1
No	24 (64/9)	29 (78/4)	
Reducing daily work before the onset of Menstruation (%)			
Yes	30 (81/1)	32(86/5)	0.5
No	7 (18/9)	5 (13/5)	
Reducing daily work during Menstruation (%)			
Yes	31 (83/8)	33 (89/2)	0.4
No	6 (16/2)	4 (10/8)	

Data for continuous variables is presented as mean (SD); Data for categorical variables is presented as frequency (percentage).
P value for the difference between groups.

Table 2: Scores of premenstrual syndrome before and after the intervention in the two groups

Characteristics	Mean (SD)		P value
	Intervention Group (n=37)	Control Group (n=37)	
Before the Intervention (Cycle 0)	6.95 (4.02)	6.03 (3.02)	0.1
After the Intervention (Cycle 1)	5.22 (3.96)	4.97 (2.21)	0.005
After the Intervention (Cycle 2)	4.46 (3.72)	4.84 (2.48)	0.002

Table 3: Comparison of changes in mean premenstrual syndrome scores before and after the intervention in two groups

Characteristics	Mean (SD)		P value
	Intervention Group (n=37)	Control Group (n=37)	
On Admission (Cycle 0)			
Anxiety	0.1	1.24 (0.89)	1.49 (1.07)
Depression	0.6	1.22 (0.94)	1.57 (1.04)
Emotional	0.6	1.22 (1.08)	1.27 (1.14)
Water Retention	0.1	0.59 (0.92)	0.78 (1.29)
Somatic Changes	0.6	1.76 (1.03)	1.84 (1.04)
One Month later (Cycle 1)			
Anxiety	0.04	0.65 (0.75)	0.89 (1.12)
Depression	1.22 (1.00)	1.03 (0.79)	0.03
Emotional	0.95 (1.02)	1.00 (0.91)	0.02
Water Retention	0.92 (1.14)	0.84 (0.98)	0.04
Somatic Changes	1.22 (0.85)	1.46 (0.93)	<0.0001
Two Months later (Cycle 2)			
Anxiety	0.76 (0.79)	0.76 (0.79)	0.04
Depression	1.30 (1.05)	1.19 (1.02)	0.03
Emotional	0.62 (0.95)	0.92 (0.86)	0.03
Water Retention	0.86 (1.08)	0.59 (0.76)	0.01
Somatic Changes	0.92 (0.79)	1.43 (0.86)	<0.0001

Ismail et al[29] reported the superiority of cognitive-behavioral treatment. Non-medicinal treatments, including supportive and psychological therapies, as well as aerobic exercise and dietary supplements, were effective treatments for PMS[31]. Shobeiri et al[30] investigated the effect of vitamin E on the reduction of muscle pain in PMS students, and reported its effectiveness in relieving PMS-induced muscle pain. This finding is consistent with the findings of the present study. Davoodvandy et al[26] investigates the effectiveness of cognitive-behavioral group education in reducing the somatic signs of PMS, and it was found to be an effective treatment. The above studies were consistent with the present study concerning the effectiveness of group counselling approach in reducing PMS symptoms.

Regarding the high prevalence of PMS and its associated economic and psychological effects; large young population of Iran; and the fundamental role of women in different social areas, any negligence in PMS treatment may lead to harmful impact on the health and quality of life of the affected individuals. Ultimately this might lead to decreased self-confidence, disruption in their interpersonal relationships and social activities in the long-term[19,32,33]. As counselling regarding lifestyle and dietary changes, increased physical activities and improving awareness of the side effects of medicinal treatments, is cost-effective and safe, and allows face-to-face interaction with clients to answer their questions, along with positive results of previous studies, group counseling may be regarded as reliable and safe treatment for patients with PMS.

LIMITATIONS

More extensive and longer study with larger sample size is needed to determine the effectiveness of group counseling on the severity of PMS symptoms. Another weakness of this study was the lack of an appropriate place to hold counseling sessions with study participants.

CONCLUSION

Group counseling sessions on lifestyle modification, including good diet and sufficient physical activities (e.g. walking), is an important factor in improving PMS symptoms. Therefore group counseling can be recommended as an effective therapeutic technique.

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CONTRIBUTORS

FS conceived the idea, planned the study and drafted the manuscript. RE, FEA, SN and SN helped acquisition of data, did statistical analysis, editing and final approval of manuscript. All authors contributed significantly to the submitted manuscript.