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Effect of Group Cognitive-Behavioral Therapy on Health-Related Quality of Life in Females With Premenstrual Syndrome

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Abstract

Background: The premenstrual syndrome (PMS) is characterized by intense physical and psychological changes. The most common symptoms include anxiety, depression, fatigue, anger, irritability, sense of being out of control, confusion, change in appetite and sleep, bloating and breast tenderness. The symptoms affect the quality of life of women, and cause impairment in many aspects of life.
Objectives: The purpose of this study was to examine the effects of cognitive-behavioral therapy (CBT) on improvement of health-related quality of life in female students with premenstrual syndrome (PMS).
Materials and Methods: In this study, 40 students with PMS were selected from Shahid Chamran university in Tehran, Iran, and were randomly assigned to the intervention and control groups. Participants in the intervention group received 10 sessions of CBT. Women in the control group did not receive any treatment.
Results: The results of ANCOVA were statistically significant ($P < 0.001$), and showed that group CBT improved the quality of life in the experimental group compared to the control group. In addition, the effects of the intervention on quality of life lasted for 2 months.
Conclusions: Cognitive-behavioral therapy can be effective in improvement of health-related quality of life of female students with PMS.

Keywords: Cognitive-Behavioral Therapy, Health-Related Quality of Life, Premenstrual Syndrome

1. Background

The premenstrual syndrome (PMS) is characterized by intense physical and psychological changes that occur during the luteal phase of the menstrual cycle periodically (1).

The most common symptoms include anxiety, depression, fatigue, anger, irritability, sense of being out of control, confusion, change in appetite and sleep, bloating and breast tenderness (2). The symptoms affect the quality of life of women, and cause impairment in many aspects of life including daily activity, interpersonal relationships, social activities, sexual function, and job performance (3). The premenstrual syndrome has both health-related direct costs and indirect costs related to deceased productivity and efficacy at work (4). Health-related burden has been reported to be comparable to cyclothymia disorder and major depression (4).

Although etiology of PMS is multifactorial and consists of physical, psychological and cultural factors, study of care in treatment of PMS has mainly focused on physical interventions, and psychosocial interventions have been less thoroughly investigated. While some women with PMS, may request other interventions, and be concerned about the side effects of the drugs (5).

To date, some psychological programs have been applied, and a number of them have been reported to be effective in treatment of premenstrual symptoms.

Kirkby et al. (1994) compared CBT in two groups of the placebo psychological treatment and a waiting list group. After treatment and 9 months follow-up, CBT resulted in a significant reduction of premenstrual symptoms compared to controls (6). In Morse et al. study (1990), CBT was compared to the relaxation therapy and progesterone. Decrease in symptoms was observed at all three interventions. However, CBT and progesterone maintained gains through follow-up (7). Christensen and Oei (1995) found that both CBT and informed-focused therapy were effective in reducing the premenstrual symptoms (8). Hunter et al. (2002) compared CBT and fluoxetine for the premenstrual dysphoric disorder. They reported that both interventions equally decreased premenstrual symptoms at the end of 6 months. Effectiveness of fluoxetine was more rapid; however, the results of CBT were more permanent during 1-year follow-up (9).

Ussher et al. (2002) reported reduction in premenstrual symptoms in response to a women-centered intervention (a combination of CBT and narrative therapy) (10). Aruna (2013) investigated the effect of cognitive behavioral nursing strategies on PMS in adolescent girls. The intervention included education on menstrual hygiene and PMS and practice of Yoga relaxation techniques. Results of the study showed a significant difference in premenstrual distress, anxiety, depression, and knowledge in the experimental group compared to the control group (11).

Blake et al. (1998) described cognitive therapy, significantly more effective than the control group (5). In Iran, despite the high prevalence of PMS, the study of care in treatment of this problem has received little attention.

Taghizadeh et al. (2013) investigated the effect of cognitive behavioral psycho-education on PMS and related symptoms. Their results showed that the intervention was efficient in reduction of physical symptoms, anxiety, aggression, and interpersonal sensitivity. There was no significant reduction in depression after the intervention (12). Also, in a study by Davoodvandi et al. (2011), cognitive-behavioral instruction had a significant impact on physical symptoms, including headache, abdominal bloating and gobbler, but tender breast and extremities edema were not improved (13).

2. Objectives

The aim of the present study was to evaluate the effect of group CBT on health-related quality of life of female students with PMS.

3. Materials and Methods

This study is an experimental type in which pretest and posttest are administered on the control group. The study was conducted over a period of 12 months from 2013 to 2014. All female students of Shahid Chamran university who suffered from PMS were invited by announcement to take part in the study. Two-hundred eight students participated in the study and gave informed consent after explaining the procedure of the study.

They received the demographic form, daily record of severity of problems (DRSP) and premenstrual symptoms impact survey (PMSIS); each participant had a code and the researcher did not need to use her name. Premenstrual symptoms were recorded on a daily basis for 2 months. After this time interval, 122 women completed the DRSP and had it delivered. Of these 122 women, 80 women met the daily criteria for PMS. They were screened by the interview based on some criteria, including having regular menstrual cycles (24 – 35 days). The selected group was not taking hormonal, psychotropic, vitamins, oral contraceptives at the time; they were not pregnant, lactating, experiencing stressors such as marriage, surgery, and death of relatives during the previous three months. Also, they were not under any kind of treatment to relieve the symptoms during the study and did not have internal, gynecological, and psychiatric disorders.

Seven students, who did not meet the criteria, were excluded from the study after the interview. Finally, 40 women were randomly selected from the remaining 73 women. They were randomly assigned to the intervention or control groups.

Participants in the intervention group received ten weekly 90-minute group CBT sessions. Two clinical psychologists held the sessions. Treatment plan was scheduled by Hunter et al. (2002) and Hunter (2003) (9, 14). The intervention consists of relaxation, PMS attribution training, challenging beliefs, stress management, education on dietary management and problem solving.

The subjects of the control group received no interventions until the end of the study. Participants of the two group completed Persian adopted versions of PMSIS in three stages of pre-intervention, post-intervention, and a 2-month follow-up.

3.1. Questionnaires

3.1.1. Daily Record of Severity of Problems

In the present study, the premenstrual symptoms were measured by the DRSP form (Endicott et al. 2006) (15). In this instrument, eleven common premenstrual symptoms including depressed mood, anxiety, effective liability, anger or irritability, decreased interest in usual activities, lack of energy, change in appetite, change in sleep, being overwhelmed and some physical symptoms have been listed in 21 distinct items. Three items at the end of the diary have designed to ask about how the symptoms affect the various aspects of subject's life. Subjects rate each symptom daily on a 6-point scale (one = not at all to six = extreme) (15). Endicott et al. (2006) assessed the reliability of the scale using the test-retest reliability and the internal consistency. They calculated concurrent validity of DRSP using the Hamilton depression rating scale (HDRS), the social adjustment scale and quality of life enjoyment and satisfaction questionnaire (15).

They reported the DRSP as a sensitive, reliable, and valid instrument in diagnosis and evaluation of the PMS and premenstrual dysphoric disorder (15). Izadi (2011) (16) also assessed the reliability of DRSP in an Iranian sample, using measures of the internal consistency.

The range of the internal consistency coefficients was from 0.55 in physical symptoms to 0.81 for de-

pression symptoms in the follicular phase and 0.50 for anger/irritability to 0.78 for depression symptoms in the luteal phase of the first recorded menstrual cycle. In this study, the internal consistency coefficients was reported from 0.54 for physical symptoms to 0.84 for depression symptoms in the follicular phase and from 0.51 for physical symptoms to 0.80 for depression symptoms in the luteal phase of the second recorded menstrual cycle.

Beck depression inventory (BDI) was used in the study conducted by Izadi (2011) (16) to assess the validity of the DRSP. The correlation between the BDI score and total scores of DRSP was 0.41, and with subscales of depressive symptoms, anger/irritability and physical symptoms were 0.61, 0.34 and 0.48, respectively (16).

3.1.2 Premenstrual Symptoms Impact Survey

This survey is a disease-specific quality of life assessment tool, which developed by Wallenstein et al. (2008) in order to identify the health-related quality of life domains that are most affected by premenstrual symptoms. This instrument has five questions, and Likert-style answers were defined on a range from one (none of the time) to five (all of the time). The lower total scores show the better quality of life (3).

The PMSIS provides reliable and valid measures of the health-related quality of life (Wallenstein et al. 2008 (3)). The reliability and validity of the scale were acceptable in an Iranian sample. Cronbach's alpha as an internal consistency estimate of the reliability of a test was reported to be 0.83. The instrument correlates well with BDI (r = 0.74) (Izadi, 2011) (16).

3.2. Statistical Tests

Data were analyzed using ANCOVA. The probability level of 0.05 was accepted as statistically significant. Statistical analyses were performed using SPSS software version 16.

4. Results

The mean age of the participants was 22.5 years (SD = 2.22) for the experimental group, and 23.47 years (SD = 4.01) for the control group. In terms of education, 65% of the participants of the experimental group were in the bachelor level and 35% were in the postgraduate level. Seventy percent of the individuals in the control group were students in the bachelor level and 30% in the control group were student in the postgraduate level. Participants' demographic features listed in Table 1.

Mean scores of the quality of life in the pretest, posttest and follow-up stages were reported. As shown in Table 2, the quality of life was mostly influenced by the treatment in the experimental group and the mean scores changed from 16.18 in the pretest stage to 11 in the posttest and 9 in the follow-up stage. In the control group, the mean scores in pretest, posttest, and follow-up stages were approximately the same.

Table 1. Participants' Demographic Features

Demographic Variable	Experimental Group	Control Group
Age, y[a]	22.5 (2.22)	23.47 (4.01)
Level of education[b]		
Bachelor	65	70
Postgraduate	35	30

[a]Values are expressed as mean (SD).
[b]Values' unit is %.

Table 2. Mean (SD) Scores of Quality of Life in Pretest, Posttest and Follow-up Stages[a]

Group	Stages		
	Pretest	Posttest	Follow-up
Experimental	16.18 (2.56)	11 (1.71)	9 (2.3)
Control	17.35 (2.23)	16.82 (1.81)	16.37 (2)

[a]Values are expressed as mean (SD).

The results of ANCOVA showed that there were significant differences between the experimental and control groups in quality of life in the posttest stage ($P < 0.001$) (Table 3). Therefore, group CBT could improve the health-related quality of life of women with PMS.

The findings also showed that the mean score of the quality of life was significantly different between the experimental and control groups in follow-up stage ($P < 0.001$) (Table 3). As a result, the gains made at the end of the treatment could be maintained for at least 2 months.

5. Discussion

Since the study about effectiveness of psychotherapy in improvement of premenstrual symptoms has received little attention in Iran, the aim of the present study was to evaluate the effect of group CBT on health-related quality of life in female students with PMS.

The findings indicate that CBT is an effective intervention to improve the health-related quality of life of women with PMS.

The findings replicate the results of some studies (Aruna, 2013; Taghizadeh et al. 2013; Davoodvandi et al. 2011; Ussher et al. 2002; Hunter et al. 2002; Christensen

Table 3. Results of Analysis of Covariance on Mean Scores of Quality of Life in Posttest and Follow-up Stages

Stages	Sum of Squares	df	Mean Squares	F	P Value
Posttest stage	284.004	1	284.004	381.37	< 0.001
Follow-up stage	283.76	1	283.76	125.61	< 0.001

Abbreviation: df, degree of freedom.

and Oie, 1995; Kirkby, 1994; Blake et al. 1998), which suggested that the CBT or cognitive therapy could be effective for women with PMS (5, 8-13).

According to a theoretical perspective of CBT for PMS, cognitive appraisal of symptoms (i.e. what the symptoms mean to a woman) may worsen emotional reactions to them. If she believes that the monthly changes are out of control, she cannot cope with the changes and feels victimized by anxiety and negative mood, focus on physical and emotional changes and striving for control will increase (14, 17, 18).

Some beliefs that are influenced by cultural values, such as "She should be perfect" or "Shouldn't be angry", also make it difficult for her to tolerate cyclic changes in mood, and further depression, anxiety, and anger are likely resultant reactions (14, 17, 18).

The cognitive behavioral therapy, which focuses on modifying problematic thought, emotions and behavior, interferes in these cycles by evaluating these symptoms attributions and teaching coping strategies. Techniques of the CBT help the women to identify the attributions and beliefs and maladaptive thoughts and to challenge and restructure them (17).

Since life style has been reported to be important in etiology of PMS (19), the subjects of the experimental group were given educational materials on PMS, diet regiments and stress management.

Since PMS is not the same in all women, the multifaceted approach is most effective way for prevention and treatment of the symptoms (16). Considering the extensive content of an interventional program in our study, participants were able to use the program based on their requirements.

Being together and receiving support and empathy from the other group members that is seen in the group therapy have also a great normalizing effect on their problems, which facilitates the coping process. The follow-up data suggest that the gains made at the end of the intervention were maintained for at least 2 months.

5.1. Conclusions

The main conclusion from this study is that group CBT is an effective intervention to reduce premenstrual symptoms. Some reasons are related to the findings of the intervention. In this study, the CBT approach has focused on women's beliefs and their symptoms attribution, challenging beliefs, modifying problematic thoughts and emotions, and restructuring maladaptive behavioral patterns. Educating problem solving, stress management, relaxation therapy, and education on dietary management also may be related to good outcome.

5.2. Limitations

Some limitations should, however, be taken into account. One of them was the absence of an external criterion like assessment by a gynecologist against which the validity of the self-report measures could be judged. Therefore, it is recommended in future studies.

This study was conducted on students who met criteria for PMS, which means the findings should be generalized to those with a different level of education or women suffer from premenstrual dysphoric disorder with caution. Participation in the study was voluntary that may limit the generalizability of the results to less motivated women. It is recommended to use other therapy options such as psycho-education, and pharmacotherapy in future researches. Other beneficial suggestions would be conduction of similar investigation on women suffering from the premenstrual dysphoric disorder.

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Footnotes

Authors' Contribution: Iran Davoudi and Mahnaz Mehrabizadeh conceived and designed the study. Maryam Izadi-Mazidi and Iran Davoudi carried out the intervention. Maryam Izadi-Mazidi performed the statistical analysis, analyzed the data, and drafted the manuscript. All authors read and approved the final manuscript.

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