

Effectiveness of problem solving therapy in reducing depression and premenstrual symptoms in women with premenstrual syndrome

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(Received 7 Dec, 2013

Accepted 6 Aug, 2014)

Original Article

Abstract

Introduction: About 90 percent of women experience one of Pre-Menstrual Syndrome (PMS) symptoms. PMS is identified with periodic relapse of a combination of physical, psychological and/or troublesome changes that occur during the luteal phase of menstruation cycle. One of psychological symptoms is depression. These symptoms influence on the quality of women relationships in family, workplace and society. Therefore, this research has done to study the effect of problem-solving treatment on reducing depression and premenstrual symptoms in girls with premenstrual syndrome.

Methods: Research design was pretest-posttest with the control group. Target population was all students of Tehran Payam Noor University from which 30 individuals with medium depression as well as with PMS were selected as sample through aimed random sampling and assigned randomly in two control and experimental groups. Research instruments were Beck Depression Inventory and Pre-Menstrual Syndrome Diagnosis Questionnaire. Problem-solving treatment was trained in the experimental group during 6 sessions, one hour per every week.

Results: Findings showed that problem-solving treatment influenced on reducing depression and premenstrual symptoms ($P < 0.05$).

Conclusion: Because of the short duration of treatment and ease of training, problem-solving skill can lead to promoting individual mental health level. Therefore, problem-solving treatment is recommended by itself or along with pharmacotherapy in individuals, that pharmacotherapy is not considered or is insufficient.

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Key words: Treatment, Premenstrual Syndrome, Depression

Citation: Aliakbari Dehkordi M, Haghshenas L, Alipoor A, Mohtashami T. Effectiveness of problem solving therapy in reducing depression and premenstrual symptoms in women with premenstrual syndrome. Hormozgan Medical Journal 2016;19(5):279-286.

Introduction:

Menstruation is as one of the women's crises of life, however, is a natural biological phenomenon, but in most women is associated with unpleasant symptoms. Premenstrual syndrome (PMS)

includes: physical, cognitive, emotional and behavioral changes that occur periodically in the luteal phase of the menstrual cycle (1). This disorder causes considerable disturbance in the normal daily function and activities of women (2).

The etiology of premenstrual syndrome is multifaceted and includes physiological, psychological and cultural factors. Although studies of its treatment process is more focused on physical interventions (3), in a recent study conducted, 45 percent of students had mild symptoms, 32.6% had moderate symptoms and 22.4 percent had severe symptoms (1). In addition, the prevalence of this disorder in Iran is estimated about 52.9 percent (4).

Although premenstrual syndrome is not life threatening and can not cause impairment, but it can affect the quality of women's life and has a negative effect on different fields, including daily activities at home, interpersonal relationships, social activities, activities related to leisure, sexual activity, work and efficiency (5). The most common symptoms associated with PMS may be related to physical problems such as headaches, joint discomfort and pain in the abdomen and breasts, but many results of studies show that psychological - mood symptoms such as depression, anxiety and sudden mood changes are experienced as the main factors causing distress and discomfort in one week before and one week after the onset of menstruation by patients with PMS (6,7). According to Alavi et al study (8), among mood symptoms associated with PMS, the prevalence of depression by 43.5% is more than other symptoms.

Although, based on the number of studies, pharmaceutical interventions were effective in alleviating symptoms of moderate to severe PMS, but other studies suggest a positive effect of nonpharmacologic interventions on improving symptoms and increasing women's adaptive power with PMS symptoms (9-13). Meanwhile, Hunter et al (9), a study was conducted to compare the effects of medication (fluoxetine) and psychotherapy on PMS and its related symptoms, the results represented the more effect of medication in short term follow-up (3 months later) compared with the long lasting therapeutic effect of psychotherapy in long term follow up (6 months later), respectively. However, many single drug therapy in clinical trials had not more significant effects from non-pharmacological interventions and were associated with the limitations such as an incomplete treatment due to adverse drug reactions (14). Various treatments for this disorder have been presented and each one has provided evidence to determine the

effectiveness of their intervention programs. Some of these therapies are cognitive-behavioral therapy (CBT). Using cognitive-behavioral therapy makes women find out more compatible methods with premenstrual changes, including depression (15). One of the cognitive-behavioral methods to reduce depression is problem-solving therapy that is a short-term psychological therapy that as its name implies, this treatment uses a problem-solving approach to manage psychological disorders (16-19). In the meta-analysis of Bell and di Zorila (21), based on results of 21 samples associated with the effect of problem-solving treatment for reducing the depression, it became clear that the effectiveness of it is as much as other psychological and drug therapies and is more effective than when no treatment will be done or only attention / support will be applied. In addition, based on Hossein Nazari et al study, (22) it was found the cognitive - behavioral therapy was effective in reducing the physical and psychological symptoms of premenstrual syndrome. In a study of Taghi-Zadeh and colleagues (23) on the efficacy of cognitive - behavioral therapy, including stress management skills training, diet and problem solving on premenstrual syndrome and symptoms associated with it, it has been found that this treatment has an effect on physical symptoms, hostility and interpersonal sensitivity and anxiety, but about the depression, no significant difference between the average intensity in both sample and control groups has not seen at the end of the study.

Methods:

This study is an interventional study and the design of this study is pretest - posttest with the control group. The statistical population of the study in this research included included all 19 to 30-year-old female students of Payam Noor University of Tehran in 2014-2015 semesters. In this study, purposive sampling and random assignment was used. This means that among the 250 questionnaires distributed, people with depression score higher than 14 and a score of premenstrual syndrome more than 68, and the other conditions to enter the sample that is noted below, were considered and then among these 50 eligible people, 30 were randomly selected and then were randomly

assigned to two experimental and control groups. Then the experimental group was under the problem solving therapy and no intervention was used for the control group. Training sessions were considered individually in 6 sessions per week of about 1 hour in the counseling center of Tehran PNU. After about two months, a post-test was done for both groups. To analyze the data, descriptive statistical method including the average and standard deviation was used and inferential statistical method including analysis of covariance was used.

In this study, girls who are suffering from physical and mental well-known and approved or treated, such as endocrine disorders, metabolic disorders and epilepsy drugs or the effects of premenstrual syndrome, such as sedatives, hypnotics hormone therapy and anti-prostaglandin used or to study the impact of stressful events or surgical procedures were excluded.

In this study, girls who suffered from known physical and mental and approved diseases or were under treatment, such as endocrine disorders, metabolic disorders and epilepsy or used effective drugs for premenstrual syndrome, such as sedatives, hypnotics, hormone therapy and anti-prostaglandin or were under the impact of stressful events or surgical procedures before the study, were excluded.

In this study, BMI 21 items questionnaire was used. This type of questionnaire is a self test and test articles in total; consist of 21 articles associated with various symptoms, which subjects must answer on a four degree scale from zero to three. These articles are in fields such as sadness, pessimism, sense of failure, guilt, sleeping disturbances, loss of appetite, self-loathing and so on. So the two articles were assigned to affection, 11 articles were assigned to the understanding, 2 articles were assigned to explicit behaviors, 5 articles were assigned to physical symptoms and 1 article was assigned to the interpersonal semiotics. In this way, this scale determines varying degrees of depression from mild to very severe and its range of scores are from zero to 63 (24).

Partov (1975, quoted by Khosh, 2009) in an experimental study on the distribution of depression among students of different faculties of Tehran University, showed that the test has sufficient

credibility (reliability) and stability (credit). He normed this test in 1992 on the Iranian population. Chegini (2003, quoted by Khosh, 2009) has obtained the correlation of 0.54 with MMPI Depression Scale (25). As well as, PMS questionnaire was used to diagnose the premenstrual disorder.

This questionnaire is set by Badiei and Khoshdel (2013). It contains 39 words that the answers are graded and scored by Likert from none to severe. Its validity has been obtained by experts in the fields of psychology and psychiatry. The reliability of this questionnaire was obtained by two ways of the Cronbach's alpha and split-half and an internal consistency of 0.94 was obtained. In the split-half, correlation coefficient for individuals and couples in the same group as compared to the first and second half of 94.0 and 84.0 respectively. All values were significant at 0.001. In this questionnaire, all items are directly scoring. For all cases, they zero, the weak one, to an average of 2, to sever 3 and 4 will be very severe. The scores are added together and the overall result is determined. The mean and standard deviation 5.23 3.45 and 8.68 is the cut-off point. Lower scores indicate not merely the absence of symptoms characteristic of this is that the symptoms are much lower.

In addition, in the calculation of the correlation coefficient, via the split-half method in the odd and even way for the same group was 0.94 and via the comparison of the first and second half was 0.84 respectively. All values were at significance level of 0.001. In this questionnaire, all items are directly scoring. In all cases, zero was given to none; one to the weak, two to medium, three to a lot and four to very much. Ultimately, the scores are added together and the overall result is determined. The average is 45.3, the standard deviation is 23.5, and the cut-off point is 68.8. Accordingly, Women who have scores higher than the cut-off point reflect the severity of premenstrual syndrome in them, so that the rate of it is higher than the severity of symptoms of 68.8% individuals in the society and need the medical services and counseling. Lower scores do not indicate the absence of symptoms and merely indicate that the severity of symptoms is much lower.

The pre-test was taken from both the experimental and control groups, according to

premenstrual symptoms that usually occur 7 to 10 days before menstruation, we asked the participants to record their symptoms in this period. Then, the experimental group was trained the problem solving therapy for 6 sessions and approximately an hour. Problem solving method is by using Maynerz-Wallis's (20) practical guide of problem-solving treatment for depression and anxiety, respectively. This includes seven steps:

1. Description of Treatment and its plausibility
2. Identify, define and analyze the problem
3. Determination of achievable goals
4. Creating solutions
5. Evaluation and selection of solutions
6. Perform the selected solution
7. Assessing the result after performing the solution

Problem-oriented solving treatment will be done in 6 sessions. The first two sessions, must be close to each other (about one week), to ensure that the strategies are understood. The first two sessions, each takes an hour and includes a detailed assessment about the patient's problem and rational explanation of the treatment, and creating the motivation and confidence and good relationship with the patient and more time than other sessions will be considered.

The first session includes:

1. Introduce and explain session's period and duration of treatment
2. Gaining a brief understanding about the symptoms of the disease and background information
3. Explanations about the logic of problem solving therapy
4. Writing a list of problems
5. Describing the problem-solving process by working on a specific problem
- 6 - Conclusions and determining the next session

Second session:

1. Reviewing patient's progress and strengthening his success
2. Understanding the difficulties that may be caused
3. Supporting the patient
4. Evaluation of a new problem with the use of problem-solving process

5. Help the patient in the acquisition and use of problem-solving skills.

6. Statement of homework

Third to fifth sessions:

Maintaining a good relationship between patient and therapist that the basic problem solving is created on its basis. And

1. Reviewing the patient's progress and strengthening his continuous efforts
2. Addressing the problems from the list of problems and new problems, if they have been raised.
3. The integration of skills and patient's independence in order to the problem-solving leading

Sixth Session:

1. Summary of progress made
2. Reviewing the skills and understanding of problem solving
3. Predicting possible future problems
4. Ending therapy with a positive approach

After completion of treatment, a post-test will be taken in both experimental and control groups.

The method of analyzing information

In this study, descriptive statistics index and statistical analysis of covariance were used and the data were analyzed by using SPSS 19.

Results:

Descriptive data (average, standard deviation and minimum and maximum score) of research variables are presented in Table 1.

As Table 1 shows, the average and standard deviation of the depression scores in the experimental group during pre-test are 21.13 and 6.12 and in post-test are 11.60 and 5.36. In addition, the average and standard deviation of depression in the control group during pretest are 20.26 and 2.78 and in post-test are 22.06 and 6.41. Moreover, the average and standard deviation of the scores of premenstrual syndrome in experimental group in pretest are 77.26 and 9.52, and in the post-test are 68.60 and 5.61, respectively. These values in the control group in pretest are 72.13 and 3.70 and in post-test are 74.60 and 5.62.

Table 1. The average and standard deviation, minimum and maximum score of marital adjustment components

Variables	Group		The average	Standard deviation	The highest	Lowest
Depression	Experimen	Pretest	21.13	6.12	37	16
		Posttest	11.6	5.36	24	5
	Control	Pretest	20.26	2.78	26	14
		Posttest	22.06	6.41	31	4
Premenstrual	Exprimen	Pretest	77.26	9.52	104	68
		Posttets	68.6	5.61	78	60
	Control	Pretest	72.13	3.7	81	68
		Posttest	74.6	5.62	88	69

Table 2. Checking the homogeneity of regression slope in depression and premenstrual syndrome components

Sources	The dependent variables	Sum of squares	Degrees of freedom	Mean square	F	The significance level
Group interaction and research variables	Depression	1.83	1	1.83	0.08	0.77
	Premenstrual syndrome	82.42	1	82.42	6.94	0.14

To analyze the data and determine the effect of problem- oriented treatment of the depression and premenstrual symptoms, the analysis of covariance was used. It should be noted that prior performing this analysis, related assumptions of it was determined and results indicate the assumptions of using the covariance analysis. The assumption of regression slopes homogeneity and normality of the variables in the study is the most important covariance analysis assumption that the calculated results summary are presented in the tables 2 and 3.

To examine the assumptions of covariance analysis, the homogeneity of the regression slope in variables was calculated that are presented in Table 2.

As Table 2 shows that due to the significant level of group interaction and pre-test in the variables of the study, if this interaction is statistically significant, the data does not support the homogeneity of regression slope hypothesis. It has been shown here that this interaction is not significant, so the homogeneity of regression slopes was observed (Brace et al, translated by Ali Abadi and Samadi, 2010).

In addition, in order to evaluate the normal distribution of variables, hypothesis, the SPSS

software was used. The results showed that the normal distribution of variables in the experimental and control groups is shown in Table 3.

Table 3. Normal distribution of variables

Variables	Shapiro-wilk test	
	Statistic	Significance level
Depression premenstrual syndrome	0.93	0.08
	0.96	0.43

As the distribution of variables table shows and according to the Shapiro-wilk's test values and since the significance level of each depression variables ($P=0.08$), and premenstrual syndrome variable ($P=0.43$) are not significant, so we could say that the data distribution in the experimental and control groups is normal.

Therefore, according to Tables 2 and 3, it can be stated that the most important conditions of covariance analysis, meaning the equality of the regression slope in pre-test and post-test and normality of variables is established, so to compare the experimental and control groups, the covariance analysis can be used that the results of this analysis are shown in Table 4.

Table 4. The results of univariate variance analysis in MANCOVA text on depression and premenstrual syndrome

The dependant variable	The average squares	F	Sig	Effect size	Ability test
Depression	666.46	34.59	0.0001	0.57	1
Premenstrual syndrome	554.16	39.03	0.0001	0.6	1

According to the results of Table 4, after adjusting the scores, the problem-oriented solving treatment effect on each of the variables is as follows: depression variable ($F=34.59$ and $P=0.0001$) and premenstrual syndrome ($F=39.03$ and $P=0.0001$) as table 4 shows, both variables are significant at $P<0.05$ level. In other words, the research aim that is the effectiveness study of problem-oriented solving therapy in decreasing the depression and premenstrual symptoms was accomplished. The Statistical power of one is also shown the high statistical accuracy of this test.

Conclusion:

As mentioned, this study was aimed to evaluate the effectiveness of problem-oriented solving therapy on decreasing the depression and premenstrual symptoms. The results of this study show that the problem-oriented solving therapy training was effective in reducing depression and premenstrual syndrome. These findings are consistent with the studies abroad (9,18,19,21) and in Iran (11-13,16,22,26). For example, in a research that conducted by De Zorila and colleagues (21), the effectiveness of problem-oriented solving therapy in reducing depression was the same as other psychological and drug therapies. O'Brien et al (16). Considered the cognitive-behavioral therapy effective in the treatment of premenstrual syndrome and stated that this treatment resulted in significant improvement in the treatment of premenstrual syndrome and the effects of this treatment has remained for a long time. Based on Hossein Nazari et al (22). Research, the results showed that the cognitive-behavioral therapy has an effect on mental and physical components of premenstrual syndrome and decreases them. The results of the present study are inconsistent with some studies. For example, in Taghizadeh et al (23) research, in terms of the cognitive-behavioral treatment effectiveness of depression is inconsistent with the present study. Failure to reduce depression in above research according to researcher's opinion

was due to the low number of sessions. Although, the difference in results can also be caused by using different tools. However, in terms of the cognitive-behavioral treatment effectiveness of other premenstrual signs is consistent with this study.

According to the results of this study and considering the efficiency and the short-term of problem-oriented solving treatment and the benefits that can be in other areas of an individual's life, psychologists can consider this method in conjunction with other common methods for depression in patients with premenstrual syndrome. Moreover, by considering the ease of this procedure and lack of need to special means for education, inclusion of this treatment in public education programs, especially schools for girls suffering from depression and premenstrual syndrome is suggested. Although limitations as cautious about generalizing the results, and a limited sample number, the logical conclusion will be subjected to extensive studies in the future, but it is imperative to create awareness and insight into PMS symptoms in female students and training psychotherapy practices by health workers is needed.

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