Original Article

The Effect of Resilient Counseling on the Symptoms of Premenstrual Syndrome among Adolescent Girls in Hamadan, Iran, 2018: A Clinical Trial

Narges Babakhani, Seyedeh Zahra Masoumi, Batoul Khodakarami, Hossein Mohagheghi[1], Maryam Farhadian[2]

Department of Midwifery, Mother and Child Care Research Center, School of Nursing and Midwifery, Hamadan University of Medical Sciences, [1]Department of Psychology, Faculty of Economic and Social Sciences, BU-Ali Sina University, [2]Department of Biostatistics, School of Public Health, Hamadan University of Medical Sciences, Hamadan, Iran

ORCID:

Narges Babakhani: 0000-0002-4655-0783

Seyedeh Zahra Masoumi: 20000-0002-2045-3707

Batoul Khodakarami: 0000-0002-2503-1239

Hossein Mohagheghi: 0000-0002-4232-2273

Maryam Farhadian: 0000-0002-6054-9850

ABSTRACT

Background: Premenstrual syndrome (PMS) is one of the most common causes of poor performance in girls and women. **Objectives:** The aim of this study was to examine the effect of group resilience counseling on PMS severity in adolescent girls. **Methods:** A randomized controlled trial was conducted on 120 high school girls in Hamadan, Iran. Participants were recruited conveniently and randomly assigned to an intervention group ($n = 60$) and a control group ($n = 60$). The intervention group participated in eight 1-h resilience counseling sessions, whereas the control group received no intervention. Data were collected using a demographic characteristics form, the Premenstrual Symptoms Screening Tool, and the Connor-Davidson Resilience Scale. The primary and secondary outcome measures were PMS severity and resilience score. The independent samples and paired samples t-tests were used to analyze the data. **Results:** Most of the participants in the intervention and control groups had severe PMS symptoms at baseline (61.7% and 63.3%, respectively). However, after the intervention, the majority of the intervention group reported mild (36.7%) or moderate (46.4%) symptoms ($P < 0.001$). No significant changes occurred in the control group. The mean total resilience score in the intervention group increased from 50.5 ± 14.9 to 67.3 ± 15.2 ($P < 0.001$). **Conclusion:** Resilience counseling for girls with PMS can reduce the severity of PMS.

KEYWORDS: *Adolescent, Premenstrual syndrome, Resilience*

INTRODUCTION

Premenstrual syndrome (PMS) has discomforting symptoms and interferes with a person's daily life. The prevalence of PMS is reported to be 40%, 85%, 46%, and 60% in Europe, Africa, Asia, and South America, respectively.[1] A large study of Iranian female high school students found a prevalence of 83.1%, of whom 57.7% suffered from severe symptoms.[2] The most common symptoms are anger and irritability, anxiety, fatigue, and mood swings.[3] PMS is also more prevalent in adolescents than in adults and makes them stressed and nervous.[4,5] PMS can lead to increased absence in industrial and educational centers and may result in hospital admissions,[6] interferes with personal and family

Address for correspondence: Dr. Seyedeh Zahra Masoumi, Department of Midwifery, Mother and Child Care Research Center, School of Nursing and Midwifery, Hamadan University of Medical Sciences, Hamadan, Iran.
E-mail: zahramid2001@gmail.com

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relationships, and increases the risk of child abuse.[7,8] Since its exact pathophysiology is unknown, PMS is usually treated symptomatically.[9] Due to the side effects of medications, PMS treatment has shifted to complementary therapies such as diet and reflexology,[10] life skills training,[11,12] and cognitive-behavioral therapy.[13,14]

People's adaptive responses to stressful and challenging situations[11,12] such as PMS[15] are influenced by their mental health and resilience.[16] Resilience is the ability to cope with and recover from difficult situations and adverse life experiences.[17,18] High levels of resilience can prevent mental health problems in adolescents and youth,[19] resulting in less anxiety and depression.[20] Due to the destructive effects of PMS on adolescent girls' academic and social performance, the need for nonpharmacological interventions for this sensitive group is emphasized. Some studies have examined the effects of life skills training[11] and cognitive-behavioral therapy[13] on PMS symptoms. Some studies also reported that resilience indirectly mediates people's responses to anxious situations.[21-23] However, we found no study examining the effect of resilience counseling on the severity of PMS symptoms in Iranian adolescent girls.

Objectives

This study was conducted to determine the effect of resilience counseling on the severity of PMS in adolescent girls.

METHODS

Design and participants

This randomized controlled pretest–posttest clinical trial was conducted in 2018. We calculated the sample size based on the results of a former study,[3] where an educational program about PMS could increase the resilience score of female students from 50.47 ± 14.09 to 62.00 ± 11.67. Accordingly, with a type I error of 0.05, a power of 0.90, a $\mu 1$ of 50.47, a $\mu 2$ of 62, an $S1$ of 14.09, and $S2$ of 11.67, and the sample size was set at 32 per group. However, considering the possibility of dropout, we recruited 60 students in each group.

The statistical population included all female high school students of Hamadan aged 15–17 years with moderate-to-severe PMS. First, 57 high schools and vocational schools in Hamadan were divided into three districts in terms of socioeconomic classes. A total of six high schools (i.e., two from each upper, middle, and lower socioeconomic classes) were then selected by lot. The initial sample consisted of 215 girls aged 15–17 years in grades 9–11 who completed the Premenstrual Symptoms Screening Tool (PSST) to identify those with moderate-to-severe PMS. A total of 124 girls were

diagnosed with moderate-to-severe PMS, four of whom were excluded because they were taking psychotropic medications. Then, 120 participants were selected and randomly assigned to a control group ($n = 60$) and an intervention group ($n = 60$) through a block randomization method with a block size of 10.

Inclusion criteria were: being 15–17 years old high school girls, living in Hamadan city, having a moderate-to-severe PMS score (scores of 19 and up from the PSST), receiving no medication for PMS (e.g., psychotropic drugs, hormones, and antiprostaglandins), no history of physical and mental diseases, and passing at least six menstrual cycles. Exclusion criteria included taking any medication for PMS during the study, experiencing events such as the death or illness of a loved one, and not attending two consecutive sessions.

Data collection instruments

Three instruments were used to collect data in this study. The instruments included a demographic data questionnaire (developed by the research team), the PSST, and the 25-item Connor–Davidson Resilience Scale (CD-RISC-25). The demographic questionnaire included items on parents' job, education, illnesses residence with parents, and characteristics of the menstrual cycle. The PSST includes 19 items. All items are answered on a 4-point scale ranging from "never = 0" to "severe = 3." Hariri *et al*. evaluated the content validity and reliability of the Persian version of PSST and reported its Cronbach's alpha as 0.9.[24]

The CD-RISC-25 includes 25 items and all items are rated on a 5-point Likert scale ranging from "Not true at all = 0" to "True nearly all the time = 4." The total score ranges between 0 and 100, with higher scores indicating higher resilience. Ahangarzadeh Rezaei examined and confirmed the psychometric properties of the Persian CD-RISC-25 and reported its Cronbach's alpha as 0.82.[25] All participants completed the demographic questionnaire at baseline. They also answered the PSST and CD-RISC-25 both at baseline and 3 months after completing the intervention.

Intervention

The intervention group received resilience group counseling sessions for 4 weeks (twice weekly). Each session included questions and answers, resilience group counseling, group discussion (in groups of 8–12), and slide presentation. However, the control group received no intervention and did not participate in the group counseling sessions. All counseling sessions were conducted by a counselor based on the program of resilience sessions in similar studies and related books.[14,26] Accordingly, the resilience counseling and

training sessions included materials on self-awareness, coping skills, knowledge raising, positive thinking, support-seeking, hardiness, emotional management, openness, agreeableness, conscientiousness, individual competence, and positive acceptance of change[14,26] as summarized in Table 1. The research assistants who collected and analyzed the data had no information about the intervention and control groups.

Ethical considerations

This study was approved by the Institutional Review Board and the Ethics Committee of Hamadan University of Medical Sciences, Hamadan, Iran (IR.UMSHA. REC.1395.220). Informed consent was obtained from all participants, and they were assured of the confidentiality of their personal information. Further, this research has been registered in the Iranian Registry of Clinical Trials under the number IRCT2015052615341N6.

Data analysis

Data were analyzed using the SPSS, version 16 (IBM company from America). The normal distribution of the variables was assessed by the Kolmogorov–Smirnov test. The independent and paired-samples *t*-tests were used to analyze the data with a normal distribution. The chi-square test was also used to compare the categorical variables between the study groups. $P < 0.05$ were considered statistically significant.

Table 1: Outline of the counseling sessions

Session	The content of resilience counseling sessions
Session 1	Introducing premenstrual syndrome and puberty – knowledge raising
Session 2	Familiarizing girls with problematic behaviors in the syndrome individually - self-awareness
Session 3	Discussing self-esteem and self-efficacy
Session 4	Addressing optimism, including positive attitude, happiness, and hope
Session 5	Training emotional management (stress, anger, and anxiety)
Session 6	Discussing problem-solving behavior (decision-making – accountability)
Session 7	Teaching interpersonal and social skills (effective communication – empathy)
Session 8	Reviewing previous sessions

RESULTS

The intervention and control groups were homogeneous with respect to demographic characteristics such as parents' job, education, illnesses residence with parents, and menstrual cycle characteristics ($P > 0.05$).

Most of the participants in the intervention and control groups had severe PMS before the intervention (61.7% and 63.3%, respectively). However, after the intervention, the majority of the intervention group reported mild (36.7%) or moderate PMS (46.4%). No significant changes occurred in the control group [Table 2].

The intervention was able to decrease the mean scores of the intervention group in all PSST subscales. The mean total PSST score decreased from 31.6 ± 6.9 to 21.5 ± 6.8 in the intervention group, confirming the effect of the intervention [Table 3]. In addition, the mean total resilience score in the intervention group increased from 50.5 ± 14.9 to 67.3 ± 15.2 [$P < 0.001$; Table 4].

DISCUSSION

Three months after the completion of the intervention, a significant decrease in PMS severity was observed in the intervention group, indicating the effectiveness of resilience counseling in reducing PMS symptoms. Consistent with our findings, Masumi *et al*. also studied the effect of coping skills training on PMS in 140 undergraduate students in Hamadan, Iran, and reported that the training was effective in reducing students' complaints of PMS symptoms.[12] Self-awareness is one of the components of resilience skills[27] and was of the basic components of the intervention in both our study and the aforementioned studies.[12,27]

In a descriptive study, Ng *et al*. also investigated the moderating role of resilience on Singaporean adolescent students' coping with anxiety, depression, anger, and aggression. They found that positive thinking, request for support, and hardiness played a direct role, whereas resilience had an indirect effect on coping with challenging psychological conditions.[21] Positive thinking, persistence, and seeking help and support were also among the components of resilience counseling in our intervention. A study also reported the positive effect of 10 weekly sessions of emotional intelligence

Table 2: Comparison of the frequency and severity of premenstrual syndrome in control and intervention groups[a]

Severity of the syndrome	Before the intervention		P	After the intervention		P
	Intervention	Control		Intervention	Control	
Mild	0	0	>0.85	22 (36.7)	4 (6.7)	<0.001
Moderate	23 (38.3)	22 (36.7)		28 (46.7)	22 (36.7)	
Severe	37 (61.7)	38 (63.3)		10 (16.7)	34 (56.7)	

[a]Data presented as *n* (%)

Table 3: Comparison of the mean scores of premenstrual syndrome and its subsets

Different aspects of premenstrual syndrome	Before intervention	After intervention	*P*
Psychological dimension			
Control	22.1 ± 7.3	21.7 ± 7.0	0.01
Intervention	22.5 ± 5.6	15.4 ± 5.3	<0.001
P	0.706	< 0.001	-
Physical dimension			
Control	3.5 ± 1.2	3.5 ± 1.2	0.08
Intervention	3.3 ± 1.3	2.3 ± 1.0	<0.001
P	0.37	< 0.001	-
Effect on life			
Control	5.8 ± 2.7	5.8 ± 2.6	0.04
Intervention	5.8 ± 2.3	3.8 ± 1.8	<0.001
P	0.94	< 0.001	
Total score			
Control	31.4 ± 7.9	29.4 ± 7.6	<0.001
Intervention	31.6 ± 6.9	21.5 ± 6.8	<0.001
P	0.87	<0.001	

Data presented as mean±SD. SD: Standard deviation

Table 4: Comparison of resilience scores in the intervention and control groups before and after the intervention

Group	Resilience score		Mean change	*P*
	Before intervention	After intervention		
Control	58.2 ± 16.9	59.2 ± 16.7	−0.98 ± 2.6	0.006
Intervention	50.5 ± 14.9	67.3 ± 15.2	16.8 ± 14.7	<0.001
P	0.009	<0.001[a]	-	-

[a]Covariance analysis. Data presented as mean±SD. SD: Standard deviation

training on introspection, aggression, and resilience in teenage girls. They concluded that controlling emotions can help teenagers control their aggression.[28] Since emotional intelligence is also one of the components of resilience, their results are comparable to those of the present study. In a review study of the relationships between resilience and personality traits, Oshio *et al.* concluded that personality traits have a great influence on perceived personal competence, tolerance of negative events, and personal relationships, and all of these are components of resilience.[29] Shahabi *et al.* also found that an individual's perceived competence and positive acceptance of change can increase resilience in patients with cardiac diseases.[26] All of these components were considered in the counseling sessions held in this study. Based on the findings of this study and those of similar studies, resilience group counseling seems to play an important role in reducing the severity of PMS.

Limitations of this study include the short length of the study period. The effectiveness of these counseling interventions can be further explored through a study with a larger number of participants and a longer period of intervention and follow-up.

CONCLUSION

Overall, resilience counseling could alleviate the severity of PMS in adolescent girls. We suggest that school counselors use resilience counseling to reduce the impact and severity of PMS in the lives of adolescent girls.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Biggs WS, Demuth RH. Premenstrual syndrome and premenstrual dysphoric disorder. Am Fam Physician 2011;84:918-24.
2. Zandi G, Onsory K, Helalat SH, Mirzaee S, Agha Alikhani E, Sadeghi Harsini M, *et al.* Prevalence of premenstrual syndrome and premenstrual dysphonic disorder among thestudents of Islamic Azad University of Parand. N Cell Molecul Biotech J 2013;3:113-20.
3. Ashtari N, Pourebrahim T, Koolaee AK, Khoshkonesh A, Khatiban M. The efficacy of group awareness training of premenstrual syndrome on psychological resilience and quality of life in female high school students. Sci J Hamadan Nurs Midwifery Facult 2015;23:63-73.
4. Direkvand Moghadam A, Kaikhavani S, Sayehmiri K. The worldwide prevalence of premenstrual syndrome: A systematic review and meta-analysis study. Iran J Obstet Gynecol Infert 2013;16:8-17.
5. Bakhshani NM, Hasanzadeh Z, Raghibi M. Prevalence of premenstrual symptoms and premenstrual dysphoric disorder among adolescents students of Zahedan. Zahedan J Res Med Sci 2012;13:e93773.
6. Tonekaboni MM, Peeri M, Azarbayjani M. Effect of two intensity of aerobic exercise on clinical symptoms of premenstrual syndrome in fertile women. World Appl Sci J 2012;19:295-301.
7. Hamid N, Babamiri M, Dehghani M. The relationship between mental health, spiritual intelligence with resiliency in student of Kermanshah University of Medical Sciences. Jentashapir J Health Res 2012;3:331-8.
8. Izadinia N, Amiri M, Jahromi R, Hamidi SH. A study of relationship between suicidal ideas, depression, anxiety, resiliency, daily stresses and mental health among Tehran university students. Procedia Soc Behav Sci 2010;5:1615-19.
9. Tartagni M, Cicinelli MV, Tartagni MV, Alrasheed H, Matteo M, Baldini D, *et al.* Vitamin D supplementation for premenstrual syndrome-related mood disorders in adolescents with severe

hypovitaminosis D. J Pediatr Adolesc Gynecol 2016;29:357-61.

10. Baghdassarians A, Bagheri Karimi A. The effect of dietary and reflexology over premenstural syndrume symptoms relief. J Psychol Res 2013;5:1-15.

11. Park Y. Effects of depression, self-esteem, and social support on suicidal ideation in college students. Child Health Nurs Res 2017;23:111-16.

12. Masoumi SZ, Shobeiri F, Roshanaei GH, Khanialamooti M. The effect of training premenstrual coping skills in undergraduate students in the school of nursing and midwifery, Hamadan-Iran. Prevent Care Nurs Midwifery J 2017;7:44-51.

13. Maddineshat M, Keyvanloo S, Lashkardoost H, Arki M, Tabatabaeichehr M. Effectiveness of group cognitive-behavioral therapy on symptoms of premenstrual syndrome (PMS). Iran J Psychiatry 2016;11:30-6.

14. Taghizadeh Z, Shirmohammadi M, Feizi A, Arbabi M. The effect of cognitive behavioural psycho-education on premenstrual syndrome and related symptoms. J Psychiatr Ment Health Nurs 2013;20:705-13.

15. Jafarnejad F, Shakeri Z, Najaf Najafi M, Salehi Fadardi J. Evaluation the relationship between stress and the risk of premenstrual syndrome. Iranian J Obstet Gynecol Infert 2013;16:11-8.

16. Greup SR, Kaal SE, Jansen R, Manten-Horst E, Thong MS, van der Graaf WT, *et al*. Post-traumatic growth and resilience in adolescent and young adult cancer patients: An overview. J Adolesc Young Adult Oncol 2018;7:1-14.

17. Gerami Nejad N, Hosseini M, Mousavi Mirzaei SM, Ghorbani Moghaddam Z. Association between resilience and professional quality of life among nurses working in intensive care units. Iran J Nurs 2019;31:49-60.

18. Chung J, Lam K, Ho KY, Cheung AT, Ho L, Gibson F, *et al*. Relationships among resilience, self-esteem, and depressive symptoms in Chinese adolescents. J Health Psychol 2020;25:2396-405.

19. Armand A, Talaei A. The effectiveness of cognitive-behavioral stress management training on reducing psychological problems and symptoms of premenstrual syndrome. Gynecol Infert 2012;15:24-31.

20. Welz A, Huffziger S, Reinhard I, Alpers GW, Ebner-Priemer U, Kuehner C. Anxiety and rumination moderate menstrual cycle effects on mood in daily life. Women Health 2016;56:540-60.

21. Ng R, Ang RP, Ho MH-R, editors. Coping with anxiety, depression, anger and aggression: The mediational role of resilience in adolescents. Springer: Child Youth Care Forum 2012.

22. Min JA, Lee CU, Chae JH. Resilience moderates the risk of depression and anxiety symptoms on suicidal ideation in patients with depression and/or anxiety disorders. Compr Psychiatry 2015;56:103-11.

23. Liu JC, Chang LY, Wu SY, Tsai PS. Resilience mediates the relationship between depression and psychological health status in patients with heart failure: A cross-sectional study. Int J Nurs Stud 2015;52:1846-53.

24. Hariri FZ, Moghaddam-Banaem L, Siah Bazi S, Saki Malehi A, Montazeri A. The Iranian version of the premenstrual symptoms screening tool (PSST): A validation study. Arch Womens Ment Health 2013;16:531-7.

25. Ahangarzadeh Rezaei S. Psychometric properties of the persian version of "Conner-davidson resilience scale" in adolescents with cancer. Nurs Midwifery J 2015;13:739-47.

26. Shahabi A, Ehteshamzadeh P, Asgari P, Makvandi B. Comparison of the effectiveness of acceptance and commitment therapy and guided imagery on the resilience of cardiac disease patients referring to the heart rehabilitation department. Intern Med Today 2020;26:276-97.

27. Kaur K, Saini P. Effectiveness of sensitization programme on knowledge regarding premenstrual syndrome (PMS) among adolescent girls. Int J Nurs Educ 2016;8:60-4.

28. Orak RJ, Farahani MA, Kelishami FG, Seyedfatemi N, Banihashemi S, Havaei F. Investigating the effect of emotional intelligence education on baccalaureate nursing students' emotional intelligence scores. Nurse Educ Pract 2016;20:64-9.

29. Oshio A, Taku K, Hirano M, Saeed G. Resilience and big five personality traits: A meta-analysis. Personal Individ Differ 2018;127:54-60.