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Effect of a self-help educational program with peer group on anxiety of mothers of children with cancer: A clinical trial study

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Abstract:

BACKGROUND: The mental health of the mothers of the children with cancer is strongly influenced by the child's illness and treatment process. This study aimed to investigate the effect of a self-help educational program with peer group on anxiety of the mothers of the children with cancer.

MATERIALS AND METHODS: This clinical trial study was conducted on 44 mothers of the children with cancer in an educational Hospital of Isfahan University of Medical Sciences, Iran. Convenience sampling method was performed on the eligible mothers, and using random allocation, they were divided into two groups of the intervention ($n = 22$) and the control ($n = 22$). Both groups completed the Hamilton Anxiety Questionnaire before and after the intervention. The intervention of the study was a self-help educational program with peer group that was performed in collaboration with the mothers of the children with cancer, a psychiatrist, and cancer nurses in the hospital within 3 months.

RESULTS: The results showed that 55% of the mothers of the intervention group had severe and very severe anxiety before the intervention, but the intensity of their anxiety was reported to be moderate after the intervention. The analysis of covariance with adjusted anxiety score in the two groups showed that the mean score of anxiety in the intervention group decreased from 22.3 to 12.3 after the intervention, showing a significant difference ($P < 0.05$).

CONCLUSION: The program, designed to support the mothers and guide the specialists and psychiatrists to counsel the mothers, can enhance their self-help and reduce their anxiety level.

Keywords:

Anxiety, cancer, children, educational, mother, peer groups, self-help group

Introduction

Today, cancer is the leading cause of mortality in countries. Although childhood cancers are not prevalent, every year about 16,400 cancers are diagnosed in children and adolescents under 20 years old.[1,2] This rate is estimated to be 18.1% in low-income countries among the 5–14-year-old children.[3] Acute lymphoblastic leukemia, non-Hodgkin lymphoma, and central nervous system are the most prevalent childhood cancers referred to hospitals for treatment and care.[1]

The incidence of cancer and hospitalization in children may cause many problems for their families. These children need to undergo intensive care diagnostic and treatment procedures. Because of unawareness about the cause and manner of treatment and care and the suffering imposed on the child during the illness, the parents of these children often get anxious

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and pass their anxiety on the child. Studies around the world have also shown that parents, especially mothers of children with cancer, have many mental and psychological problems including anxiety and depression.[4-6] The level of depression, anxiety, and stress in the mothers of the children with cancer is also alarming in Iran. According to a recent study conducted by Asghari-Nekah *et al*. in Iran, 68.7% of the mothers of the children with cancer suffered from stress, 56.2% had anxiety, and 53.1% of them were depressed. Owing to these mood changes, the mothers had a low level of resilience, and this maternal resilience was negatively and significantly correlated with stress, anxiety, and depression.[6]

Although there are various supportive programs for the parents, especially for the mothers of the children with cancer, at health centers,[7,8] a lot of stress and anxiety is imposed on these parents at different stages of their child's treatment and diagnostic procedures. Therefore, it is necessary to think about an appropriate strategy for reducing the anxiety of these parents, especially mothers. Being in peer group is one of the strategies that can help to cope with anxiety and reduce it. A study found that peer groups were effective in self-efficacy of the diabetic patients.[9] Other studies have shown that these mothers have a heavy burden of caring for their children and consequently develop the feelings of fatigue, exhaustion, and anxiety and thus do not have competency to help other mothers, as they themselves are anxious and unable to help other members of the peer group.[4,8]

Based on above, researchers have found it necessary to conduct more research in this regard. On the other hand, researchers' experiences and their long-term presence in cancer wards suggest that nurses or physicians cannot lonely help to calm mothers, because they have not experienced living with such children and cannot truly understand the situation and feelings of a suffering mother. Moreover, another major motivation for this study was the leukemia of one of the researchers' child. Based on her experiences during the process of her child's illness and also presence in the pediatric ward, she concluded that stress and anxiety are the most prevalent problems among the mothers of these children and the strategy of peer group, which can lead to self-help, should be used to reduce anxiety and stress in these mothers. Accordingly, the aim of this study was to investigate the effect of a self-help educational program with peer group on the anxiety of the mothers of the children with cancer.

Materials and Methods

This is a clinical trial study conducted with the registration code of IRCT20190616043902N1. Using the formula of $n = \frac{(Z_1 + Z_2)^2 (S^2)}{d^2}$ the sample size was calculated to be twenty participants in each group. Considering the probability of 10% loss in samples, the sample size of each group was considered to be 22 participants. Z is the 95% confidence level that is equal to 1.96. z is the test power factor of 80% that is equal to 0.84. S is an estimation of the standard deviation of the mothers' anxiety score in both groups. *d* is the minimum difference of the mean anxiety score between the two groups, indicating that the difference is significant and is equal to 0.9.

Initially, the convenience sampling method was used and 44 eligible mothers of the children with cancer were selected. Then, the mothers were divided into two groups of control (n = 22) and intervention (n = 22) by the random allocation, using drawing cards. Inclusion criteria were having no neuropsychiatric disorder based on their medical record, no major stress in the recent 6 months reported by the mothers themselves, no stressful events such as financial crisis, divorce, and death of the first-degree members of the family, and having an ill child (from 1 week to 2 years). The criteria of the consort checklist were completed [Figure 1].

Pre- and post-intervention data were collected using the Hamilton Anxiety Questionnaire in both groups. The questionnaire consisted of two parts: the first part contained the mother's demographic information (age, education level, employment status, type of child cancer, etc.) and the second part contained 14 questions

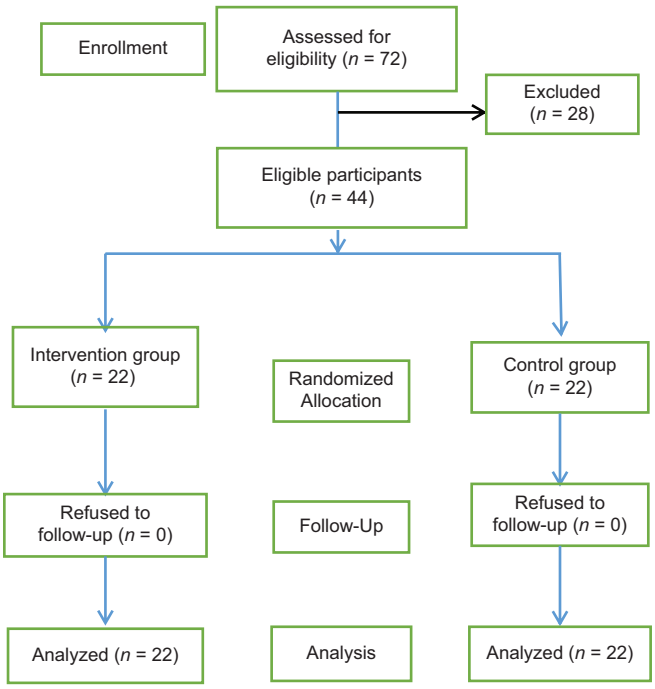

Figure 1: The consort chart of study

about anxiety symptoms. The mothers' responses to each question were assessed based on a five-point Hamilton scale ranging from 0 to 4 (0 = absence, 1 = mild, 2 = moderate, 3 = severe, and 4 = very severe). The scores ranged from 0 to 56. The mean score, then, was calculated for each person. Content validity and scientific reliability of this questionnaire were confirmed by studies.[10-12]

The intervention consisted of a group educational self-help program that was conducted in eight sessions over 3 months. The mothers were excluded if they lost more than two sessions or if they attended other anxiety-reducing classes such as yoga. The participating mothers were ensured about the confidentiality of their information, and then informed written consent was obtained from all of them. The intervention consisted of a self-help educational program with peer group held in eight sessions (each session was about 45–60 min) for 3 months in the teaching classroom of the Seyed-al-Shohada (Omid) Hospital affiliated to the Isfahan University of Medical Sciences in summer and autumn 2018.

The content of the sessions is shown in Table 1. After the sessions, the mothers were asked to practice and repeat the strategies offered to them. During the first 24 h after the first training session, the mothers were telephoned to ensure that they understood and applied verbal and written instructions correctly. Moreover, this telephone contact provided them with the opportunity to ask possible questions or express their feelings, concerns, fears, difficulties, problems, and successes with regard to taking care of their child. Doing so, they were provided with appropriate solutions as well as emotional and informational support and were retrained if needed. To assess the provided training and supports, how to cope with anxiety, and to facilitate the adaptability of them, follow-up measures were performed using telephone, telegram, or the presence of the mothers themselves. The telephone contacts, lasted from 20 to 40 min, were coordinated with mothers in the afternoon. At the end of the study, to meet the ethical principles and raise the awareness of the mothers of the control group, an educational booklet and other related materials were given to them.

The data were analyzed using descriptive and inferential statistics. Descriptive statistics such as mean, standard deviation, frequency, and percent was done for demographic variables. Chi-square and Mann–Whitney tests were used to compare groups for the nominal demographic variables. Independent *t*-test and analysis of covariance were used to compare the mean score of the two groups. Statistical significance was considered at $P < 0.05$. All statistical analyses were performed using SPSS version 22 (SPSS Inc., Chicago, IL, USA).

Results

According to the results of the study, the mean (Standard Devotion) of the mothers' age was 37.25 (6.85) and 37.41 (6.31) in the intervention and control groups, respectively. Other demographic characteristics are shown in Table 2. Independent *t*-test showed that the mean score of anxiety was not significantly different between the two groups before the intervention ($P > 0.05$). The analysis of covariance with adjusted anxiety score in the two groups showed that, after the intervention, the mean score of anxiety in the intervention group was significantly lower than the control group ($F = 80.02$, $P < 0.001$) [Table 3]. In addition,

Table 1: Self-help -educational program for the mothers of the children with cancer

Session	Subjects
First session	Introducing the researcher and the psychiatrist to the mothers and acquainting the mothers with each other
	Describing the aims of the research
	Precipitation of group thoughts based on the acceptance of the children cancer
	Expressing the problems and challenges
Second session	The 45 min lecture of the psychiatrist about cancer and its impact on family
	Expression of the mothers' experiences with cancer and the articulation of problems
	The psychiatrist's counseling with mothers to help reduce their anxiety
Third session	Treatment and care challenges for children with cancer
	Expressing the experiences of the mothers of the children rescued from cancer
	Peer support of the mothers regarding treatment and diagnostic procedures
Fourth session	Discussing the recognition of the thoughts leading to anxiety, and recognizing the triangle of (a) depression; (b) fear and anxiety; and (c) anger and violence, with destruction at the center
Fifth session	Control and management of emotions in the form of role modeling
Sixth session	Management of the ways of treating children and caring for them
	The mothers' consultation with a psychiatrist
Seventh session	Feedback of managing anxious thoughts
Eighth session	Summarizing and providing a feedback from the past sessions and addressing some of the unresolved issues and how mothers and researchers deal with them

the results showed that the greatest problem (50%) was severe and very severe anxiety among the mothers, but after the intervention, the mood was not severe and only 55% of the mothers had an experience of moderate anxiety.

The result was shown no significant difference in the intervention group in terms of the stress intensity with muscle contraction, fear, insomnia, and cardiovascular symptoms before and after the intervention ($P > 0.001$). However, the intensity of other anxiety items in the intervention group, after the intervention, was significantly lower than before the intervention ($P < 0.001$) [Table 4].

Discussion

The aim of the study was to investigate the effect of a self-help educational program with peer group on anxiety of the mothers of the children with cancer. The results of the study revealed that this program can reduce the anxiety of the mothers.

Table 2: Comparison of the demographic characteristics of the participants of the study

Type of the disease	Control group, *n* (%)	Intervention group, *n* (%)	Chi-squared test		
			χ^2	df	*P*
Leukemia	11 (55)	10 (45.5)	1.32	4	0.86
Brain tumor	2 (15)	4 (18.2)			
Neck mass	1 (5)	2 (9.1)			
Hemolytic anemia	3 (15)	4 (18.2)			
Sarcoma	3 (15)	2 (9.1)			
Variables	**Control group, *n* (%)**	**Intervention group, *n* (%)**	**Mann–Whitney test**		
			Z		*P*
Education level					
Elementary	4 (20)	5 (22.7)	0.42		0.67
High school	14 (70)	13 (59.1)			
Academic	2 (10)	4 (18.1)			
Mother's job					
Housewife	18 (90)	19 (84.4)			0.55
Employed	2 (10)	3 (13.6)			

Table 3: Comparison of the mean score of anxiety between the two groups before and after the intervention

Time	Mean (SD)		Independent *t*-test			Analysis of covariance		
	Intervention group	Control group	*t*	df	*P*	*F*	df	*P*
Before the intervention	22.3 (12.3)	20.6 (10.2)	0.51	40	0.61	-	-	-
After the intervention	12.5 (7.2)	21.4 (8.5)	-	-	-	80.02	1	<0.001

SD=Standard deviation

Table 4: The frequency percent of responses to each item before and after the intervention

Trait or behavior	Before the intervention					After the intervention					Test	
	No response	Mild	Moderate	Severe	Very severe	No response	Mild	Moderate	Severe	Very severe	*Z*	*P*
Anxious	0	30	20	35	15	5	40	55	0	0	3.35	0.001
Stress with muscle contraction	25	5	45	15	10	20	25	50	5	0	1.66	0.10
Fear	35	20	35	5	30	45	25	25	0	0	1.30	0.19
Insomnia	25	30	25	10		26.3	47.4	15.8	5.3	5.3	1.73	0.08
Mental or cognitive	23.5	5.9	29.4	23.5	17.6	23.5	41.2	29.4	0	5.9	2.41	0.02
Depressed	0	30	40	20	10	20	45	30	5	0	2.99	0.003
Physical and muscular	25	25	35	10	5	30	50	15	5	0	2.18	0.03
Physical and sensory	30	20	25	20	5	36.8	52.6	5.3	5.3	0	2.50	0.01
Cardiovascular symptoms	44.4	38.9	11.1	5.6	0	40	60	0	0	0	1.13	0.21
Respiratory symptoms	38.6	31.6	15.8	10.5	5.3	42.1	52.6	5.3	0	0	2.32	0.02
Digestive symptoms	40	20	15	10	15	65	25	5	5	0	2.87	0.004
Genital and urinary system symptoms	30	25	20	20	5	57.9	42.1	0	0	0	2.84	0.005
Symptoms of autonomic nervous system	30	10	25	20	15	60	30	10	0	0	3.73	0.001
Behavior during the interview	25	35	10	15	15	55	30	10	5	0	2.85	0.004

The mood of the mothers changed from severe and very severe to mild and moderate anxiety following the intervention. This indicates that, while such an intervention is beneficial for mothers, they are still experiencing a significant proportion of anxiety. Similarly, another study in Iran showed that 56% of mothers had anxiety, 53% had depression, and 68% of them had stress.[6] Studies indicated that the mothers of the children with leukemia experienced a lot of depression and anxiety.[13,14] Reviewing 58 articles, van Warmerdam *et al*. found out the diagnosis and treatment of cancer is a traumatic experience for parents. He also found that 5%–65% of mothers' experience anxiety, and 7%–91% have an experience of depression.[4]

One of the major causes of sudden anxiety in cancer is the treatment of and other related procedures. A qualitative research in Iran identified the needs of mothers. The results indicated that what mothers needed strongly was medical awareness, physical health awareness, psychoeducational health information, and information about family lifestyle. Therefore, a regular assessment of the informational needs of the parents can help health-care providers to reduce stress and anxiety in families by providing them with the information they need.[15] As such, a group educational self-help program can meet the needs of these parents. Group educational self-help program can reduce the mothers' mean score of anxiety. Using a group of peer mothers, together with a group of specialists (psychiatrist and nurse), we were able in this study to set up a supportive training program to help mothers minimize their anxiety with their own help. When the mothers' anxiety is reduced, they are more prepared to accept and deal with existing challenges and thus are better able to care for their children during the diagnostic and treatment procedures.

Given the importance of mothers' problems, it is necessary for the health team to plan effective and appropriate measures for mothers. The results of the present study indicated that a self-help-educational program with peer group is an effective, affordable, and safe method that can be adapted to different sociocultural conditions and be welcomed by mothers. Accordingly, we found that these mothers themselves, as real sufferers in this regard, can help each other to reduce their anxiety effectively. Although other strategies such as relaxation therapy, prayer, spirituality, or writing the events of daily life can reduce the anxiety of these mothers,[16-19] self-help can play a significant role in the reduction of anxiety.

Other studies have also shown the effect of peer group. In this regard, Rashidi's study investigated the effect of peer support on self-efficacy of diabetic patients. After preparing the peer group, he held ten training-support sessions for the peer group members for 3 months, and the results showed the effectiveness of the program. In addition, the peer group can reduce anxiety by improving communication skills and support.[9,20] In this regard, a study showed that the reinforcement of coping skills, the enhancement of the dimensions of the supporters and family communication network, the improvement of interpersonal communication skills, and the strengthening of self-care behaviors can reduce mothers' anxiety.[21]

Cancer and its process of treatment can lead to the exhaustion of caregivers and affect the quality of their life severely.[22] Moreover, the parents of children with cancer feel strongly guilty at all stages of the disease, at the time of death, and after the death of their children.[23] Although, mothers always have some challenges in take care of infants and children in the hospital and home.[24,25] Therefore, applying different strategies, including the results of the present study, may be useful for them.

The present study was faced with different challenges and limitations. For example, it was difficult to get mothers together because they had to take care of their children and did not feel well to participate in the sessions. For this reason, 72 mothers were invited to participate in the study, but 28 of them were unable to enter the study from the outset. However, after sampling and attending the sessions, getting to know each other, and exchanging emotions and empathy, they were able to help one another and the program was held perfectly. The most important point was that they accomplished this supportive program with the guidance and help of the nurses and a psychiatrist. Sample size was determined to show the minimum difference between the two groups. It is suggested to investigate the effect of this intervention on larger samples of mothers to obtain more generalizable results.

Conclusion

The results of this study showed that the mothers of the children with cancer experience a great deal of anxiety. Although many measures have already been taken by the health team to address these problems and there are standards to support these mothers, it seems that using self-help by parents, especially mothers of these children, can help them better through understanding sociocultural conditions. Using a self-help educational program with peer group had a significant impact on reducing the anxiety of the mothers of the children with cancer. Therefore, it is recommended to use this program in the support system with the help and patience of the nurses and hospital officials.

Ethics Approval and Consent to Participate

This paper was extracted from a master's thesis in pediatric nursing, approved by Ethics Committee of Isfahan University of Medical Sciences (the registration code of IRCT20190616043902N1). All participants provided written informed consent for participation. Anonymity and confidentiality were assured, and participants were allowed to withdraw from the study at any time and for any reason. All data were stored securely in the principal researcher's office and were accessible only to the researcher.

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Conflicts of interest

There are no conflicts of interest.

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