



## Original Article

# The effectiveness of psychoeducation given to mothers of children with cancer

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### Abstract

**Objectives:** This study aims to determine the effects of a psychoeducation program on the self-perception of parental role, coping with stress and psychological symptoms of mothers who have a child with cancer and at least one healthy adolescent.

**Methods:** This is an interventional study with pretest, posttest and control group in which a psychoeducation program was administered. Mothers who were caring for a child diagnosed with cancer in the pediatric hematology-oncology clinics of two university hospitals in Ankara, Turkey were included in the study. The program was completed with 15 mothers in both groups. The efficacy of the program was assessed by the Self-Perception of Parental Scale, Coping with Stress Scale and Brief Symptom Inventory (BSI). Friedman and Wilcoxon tests were used for analysis of the data.

**Results:** The psychoeducation program, included the experiences and needs of healthy adolescent siblings, did not provide a statistically significant difference in mothers' self-perception of parental role and coping with stress. There was a decrease in all subscale scores and total scale scores of the mothers after the intervention and the scores were lower than the pre-intervention scores in the follow-up measurements, however, the scores were not statistically significant. Somatization and hostility subscales and total scale scores of mothers in the intervention group were found to be statistically significant ( $p < 0.05$ ).

**Conclusion:** The pilot psychoeducation program for mothers of children with cancer did not significantly affect the self-perception of parental role and coping strategies of mothers, but had a positive effect on their mental status.

**Keywords:** Parental roles; pediatric oncology; psychosocial; stress.

The survival rate of patients with childhood cancer has increased significantly with the discovery of new treatment methods in today's changing and developing world.<sup>[1,2]</sup> The diagnosis, treatment and rehabilitation stages of the disease are difficult psychosocial processes with different stressors on family members. The psychosocial adaptation of parents to these stages affects the process and changes by being affected by the process.<sup>[3-5]</sup>

Upon hearing the diagnosis, parents feel a constant need to be physically close to the ill child in order to ensure comfort and monitor symptoms/side effects, accumulating a number of new responsibilities and role expectations. Being the mother

of a child diagnosed with cancer changes self-perception by reshaping roles such as motherhood and spouse.<sup>[6]</sup> Since the fulfillment of responsibilities imposed by these new roles requires a compromise of requirements of the other roles, the diagnosis of a child with cancer has implications on parents' social lives and themselves. In addition, another challenging factor for parents in this process is the inability of fulfilling parenting roles for their healthy children. The necessity for mothers to always be with the ill child results in an inability to fulfill care roles with the other children such as preparing for school, meals, help with homework, etc.<sup>[6]</sup> In most families, although fathers or other relatives try to fulfill these duties and respon-

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**What is known on this subject?**

- Mothers of pediatric oncology patients experience difficulties in parental roles, psychosocial problems, and inability to cope with stressors. Psychoeducational interventions provide psychosocial benefits to these mothers.

**What is the contribution of this paper?**

- A psychoeducational program, which was implemented as a pilot program for mothers of Turkish pediatric oncology patients, improved their moods. Positive changes in the self-perception of parental roles scores and coping with stress scores were not statistically significant.

**What is its contribution to the practice?**

- Psychoeducational interventions for mothers as primary caregivers in pediatric oncology positively affected their mood, but this positive effect receded after a while, therefore the intervention should be repeated at regular intervals.

sibilities, mothers worry about the effect of absence on their other children, as well as feeling guilt, regret, longing and experiencing role overload.<sup>[6-8]</sup> Mothers state that constantly accompanying and taking care of the ill child negatively affects their relationship with other children.<sup>[9]</sup> This role-overload may cause psychosocial issues, even psychopathologies in parents, especially mothers.<sup>[8-10]</sup>

Studies addressing the psychosocial effects of childhood cancers on parents have revealed that parents have various emotional and behavioral reactions to the diagnosis.<sup>[10-12]</sup> Studies have also reported that parents of children with cancer have higher levels of distress, depression, anxiety, and hopelessness immediately following the diagnosis. These symptoms are significantly higher in parents of children with cancer than in those with healthy children. The symptoms affect each other and the negative symptoms are often higher in mothers than in fathers.<sup>[10]</sup> Studies have determined that mothers have higher post-diagnosis depression and anxiety scores than the upper limit values.<sup>[11]</sup> Studies have also found that parents of children with cancer are five times more likely to experience clinical depression symptoms than parents with healthy children.<sup>[12]</sup>

Psychosocial interventions for reducing stress and increasing adaptation in parents are mostly cognitive and/or behavioral therapies that are administered individually and shaped by knowledge of family systems.<sup>[13]</sup> These interventional programs aim to reduce negative emotions by improving problem-solving skills and are mostly given to mothers; have good tolerable, practical and applicable features, combining strong theoretical frameworks such as social psychology, psychological resilience, and disease-specific coping models.<sup>[13]</sup> In addition to studies on teaching problem-solving skills,<sup>[14,15]</sup> there are more comprehensive psychoeducational studies for mothers with content relevant to increasing knowledge of cancer, teaching relaxation techniques, and developing coping methods;<sup>[16-18]</sup> however, there are no studies examining "parents' self-perception of parental role" in assessing the effectiveness of the education given to them. Although one recent systematic literature review suggests that almost all interventions provide meaningful psychosocial benefits, there is still a need for further intervention studies on this subject.<sup>[19]</sup>

In Turkey, psycho-oncologic care for pediatric patients is not provided in a sustainable, routine and systematic manner and there is no standardization of psychosocial care services offered in pediatric oncology clinics in different cities or even in different hospitals of the same city. Some clinics employ a psychologist to serve patients and family members, if needed. However, there is only a limited number of interventional studies conducted with families examining the effects of information rather than psychosocial intervention.<sup>[20,21]</sup>

This study aimed to determine the effect of a psychoeducation program given to mothers having a child diagnosed with cancer along with one healthy adolescent, on self-perception of parental role, coping with stress and psychological symptoms. This study hypothesized that the program would increase self-perception of parental roles, change coping with stress positively and relieve mental symptoms in the mothers.

## Materials and Method

### Research Design

This study utilized an intervention study design with pretest-posttest pattern and a control group.

The study was created from the second section of the first author's doctoral thesis. Qualitative interviews were conducted with healthy adolescent siblings in the first section of the thesis,<sup>[22]</sup> which had two parts, to determine their experiences with the cancer process. Data obtained in this section were included in the content of the psychoeducation in the second part. Thus, an individual psychoeducation program, including the themes of sibling needs, was used in the second part for the mothers of children with cancer who also had at least one healthy adolescent.

### Research Hypotheses

*H0:* The psychoeducation program, which included the experiences and needs of adolescent siblings from the previous section, created for mothers of children with cancer and at least one healthy adolescent, will have no effect on the mothers' Self Perception of Parental Scale, Coping with Stress Scale and Brief Symptom Inventory scores.

*H1:* Mothers in the intervention group, who were included in the psychoeducation program, will have statistically significantly higher mean scores on the subscales of competence, satisfaction in parenting, investment and role balance than those in the control group.

*H3:* Mothers in the intervention group, who were included in the psychoeducation program, will have statistically significantly higher total mean scores on the Coping with Stress Scale than those in the control group.

*H4:* Mothers in the intervention group, who were included in the psychoeducation program, will have statistically significantly higher total mean scores on the Brief Symptom Inventory than those in the control group.

## Research Sample

The Non-Interventional Clinical Research Ethics Committee at Hacettepe University, Ankara gave ethical approval (No: GO 15/812) for the study. Then, the researchers applied to all the hospitals with pediatric hematology-oncology clinics in Ankara to obtain research permits; however, permission was obtained from only two. These two university hospitals are comprehensive diagnostic and treatment centers; however, they do not provide routine psychological care in oncology services. Mothers who cared for a child diagnosed with cancer at these clinics during the study, had at least one healthy adolescent, understood and spoke Turkish effectively, did not have any diseases affecting communication processes, and who wanted to participate in the study were included in the study. The reason for including only mothers in the study was that the primary caregivers of children in these clinics consisted entirely of mothers. A participant was excluded from the study in case of the death of her child at any stage of the research.

The psychoeducation program was originally planned as group sessions; however, the study was converted into individual sessions due to the lack of an adequate number of mothers meeting the inclusion criteria. Since there was no case study carried out in this pattern, the G-POWER analysis could not be performed beforehand to calculate the sample size. The size of intervention and control groups could be calculated as the program was carried out. Therefore, the researchers decided to calculate the sample size by consulting an academic staff member of Hacettepe University Faculty of Medicine, Department of Biostatistics. It was recommended for the researchers to give the educational program to ten mothers, complete the scales before and after the administration, enter data into the SPSS analysis after performing follow-up measurements, and calculate the sample size based on the obtained data. However, the researchers continued to collect data as the number was not enough to calculate the size. When the number of mothers in the groups reached 15, G-POWER analysis was performed on the difference between Brief Symptom Inventory (BSI) total scale scores of mothers in the intervention group measured before and after the educational training. As a result of the analysis, the power of the sample size was found as 0.77 with an error margin of 0.05 at a 95% confidence interval, therefore the administration was terminated.

A total of 16 mothers who received the psychoeducation constituted the intervention group; and 17 mothers were included in the control group. One mother from each group was excluded from the study because of the death of their child. One mother in the control group was excluded from the study because she wanted to stop participating in the study during the follow-up period. As a result, both intervention and control groups consisted of 15 mothers, whose mean age was  $34 \pm 8.30$  years. Almost all of the mothers (97%) were married, 73% were housewives, and 60% had monthly income between 1000–3000 TRY. In addition, 70% came from other parts

of the country for treatment, 40% had a secondary school degree, 57% had two children, and 90% reported to have received no psychosocial support. Of their children, 53% were between 0–6 years old, and 77% had been ill for more than 6 months. Mothers in the intervention and control groups had similar characteristics except working status (Table 1).

## Data Collection Tools

*Self Perception of Parental Scale (SPPR)*: This 22-item Likert-type scale was developed by MacPhee, Benson and Bullock and adapted to Turkish by Güler and Yetim.<sup>[24]</sup> The SPPR measured the women's self-perception of parenting role.<sup>[23]</sup> The Cronbach's alpha internal consistency coefficients of the subscales ranged between 0.61 and 0.68, and the test-retest reliability coefficients between 0.59 and 0.70. The scale has four subscales including competence (items 2, 6, 10, 14, 18, 21), satisfaction in parenting (items 4, 8, 12, 16, 20), investment (items 1, 5, 9, 13, 17) and role balance (item 3, 7, 11, 15, 19, 22), in which each item has two opposing sentences joined by the phrase "on the other hand" to learn how participants perceive their parenting roles. There are two options in each of these two opposing sentences, including "sort of true for me" or "really true for me". Participants answered the items by marking one of the two options which is more suitable for their parenting roles. Each option in the items is weighted as 1, 2, 3, and 4, respectively. There was no total score on the scale. A total score for each subscale was calculated by totaling the score obtained from each item on the subscale. A high score on the subscale indicated that the participant positively assessed her self-perception of that subscale. In this study, the Cronbach's alpha coefficient was found as 0.45 for the scale, and ranged between 0.45 and 0.52 for its subscales.

*Coping with Stress Scale (CSS)*: This is a 23-item five-point Likert-type scale developed by Türküm (2002).<sup>[25]</sup> It consisted of three subscales including avoiding trouble (items 1, 3, 11, 14, 15, 19, 21, 22), approach to the problem (items 2, 5, 6, 7, 8, 9, 12, 16), and search for social support (items 4, 10, 13, 17, 18, 20, 23). The items numbered 10, 17 and 20 were scored reversely. Both total scale score (23–115) and subscale scores (avoiding trouble: 1–40, approach to the problem: 1–40, and search for social support: 1–35) can be calculated. A higher score from each subscale indicates that the participant prefers the attitude specified in that subscale in coping with stress. The Cronbach's alpha internal consistency coefficient was found as 0.78 for the scale and ranged between 0.65 and 0.85 for its subscales in the validity and reliability study,<sup>[25]</sup> and 0.69 for the scale and ranging between 0.53 and 0.77 for its subscales in this study.

*Brief Symptom Inventory (BSI)*: This 53-item inventory was developed by Derogatis as a short form of the 90-item Symptom Check List (SCL-90-R).<sup>[26]</sup> This is a five-point Likert type scale allowing a person to assess their psychological state from various dimensions. For each statement, participants mark one of the options of "0: not at all", "1: a little bit", "2: moderately", "3:

**Table 1. Sociodemographic characteristics of mothers in the intervention and control groups and characteristics of their children's diseases**

Characteristics	Intervention group (n=15)		Control group (n=15)		Total (n=30)		p (Chi-square test)
	n	%	n	%	n	%	
Marital status							
Married	15	100.0	14	93.3	29	96.7	–
Single	0	0.0	0	0.0	0	0.0	
Other	0	0.0	1	6.7	1	3.3	
Educational status							
Primary school	4	26.7	3	20.0	7	23.3	0.057
Secondary school	8	53.3	4	26.7	12	40.0	$\chi^2$ : 5.43
Associate degree and higher	3	20.0	8	20.0	11	36.7	
Working status							
Employee	1	93.3	7	46.7	8	26.7	0.035
Unemployed	14	6.7	8	53.3	22	73.3	$\chi^2$ : 6.13
Region of residence							
Eastern Anatolia Region	4	26.7	1	6.7	5	16.7	0.171
Southeast Anatolian Region	4	26.7	3	20.0	7	23.3	$\chi^2$ : 5.72
Central Anatolia Region	2	13.3	7	46.7	9	30.0	
Black Sea Region	4	26.7	4	26.7	8	26.7	
Marmara Region	1	6.7	0	0.0	1	3.3	
Income (monthly)							
1000–3000 TL	8	72.7	7	50.0	15	60.0	0.414
3000 TL and over	3	27.3	7	50.0	10	40.0	$\chi^2$ : 1.32
Number of children							
2	8	53.3	9	60.0	17	56.7	0.713
3 and over	7	46.7	6	40.0	13	43.3	$\chi^2$ : 0.13
Age of the sick child							
0–6 age	8	53.3	8	53.3	16	53.3	0.855
7–12 age	5	33.3	4	26.7	9	30.0	$\chi^2$ : 0.31
13–18 age	2	13.3	3	20.0	5	16.7	
Duration of the disease (month)							
0–6	4	26.7	6	40.0	10	33.3	0.084
6–12	2	13.3	6	40.0	8	26.7	$\chi^2$ : 6.17
12–24	3	20.0	2	13.3	5	16.7	
24 and over	6	40.0	1	6.7	7	23.3	
Psychosocial support status							
Yes	3	20.0	0	0.0	3	10.0	0.224
No	12	80.0	15	100.0	27	90.0	$\chi^2$ : 3.33

quite a bit" and "4: extremely". The scale, which was composed of nine subscales in the original study, consisted of five subscales in the Turkish validity and reliability study conducted by Şahin and Durak,<sup>[27]</sup> including anxiety (items 12, 13, 28, 31, 32, 36, 38, 42, 43, 45, 46, 47, 49), depression (items 9, 14, 16, 17, 18, 19, 20, 25, 27, 35, 37, 39), interpersonal sensitivity (items

15, 21, 22, 24, 26, 34, 44, 48, 50, 51, 52, 53), somatization (items 2, 5, 7, 8, 11, 23, 29, 30, 33) and hostility (items 1, 3, 4, 6, 10, 40, 41) [147, 148]. Scale items were scored between 0 and 4. Thus, the total scale score varied between 0 and 212. A high total score indicated higher frequency of psychological symptoms. Apart from the total scale score, each subscale score can be

calculated separately. There are two Turkish validity and reliability studies of the scale,<sup>[27,31]</sup> which are used in international literature for various populations.<sup>[28-30]</sup> These studies found the internal consistency coefficient between 0.95 and 0.96 for the scale and ranged between 0.55 and 0.86 for the subscales. In this study, the Cronbach's alpha coefficient was found as 0.96 for the scale and ranged between 0.79 and 0.89 for the subscales.

### Research Process

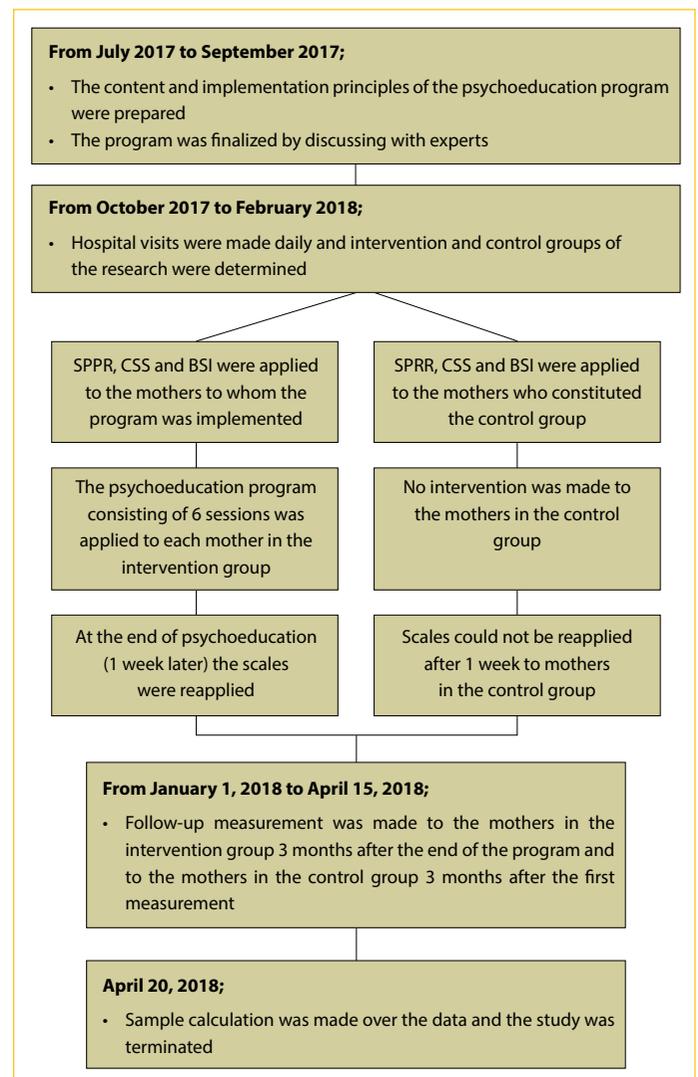
This study was produced from the first author's doctoral dissertation. The first section included qualitative interviews with healthy adolescent siblings. Data obtained in the interviews were used to prepare the content of the educational program. Consequently, mothers were given information about the experiences of healthy siblings from this process to improve their self-perception of parental roles. The "Psychoeducational Program for Mothers of Healthy Children and Pediatric Cancer Patients", which is based on the cognitive-behavioral theory, was then provided to the mothers giving them relevant information to improve both their mood and ability to cope with stress.

After the first section of the study was completed, a psychoeducation program was developed for the mothers in the next section by conducting a comprehensive literature review to prepare program content and structure. In addition, qualitative data from the first study was used in the second section, as one of the educational themes included the difficulties experienced by healthy siblings in this process. Before finalizing the program, the content was evaluated by two experts in psychiatric nursing.

The researchers invited mothers who met the inclusion criteria to participate in the study by visiting the relevant units daily between October 2017 and February 2018. The mothers were informed about the study and written and verbal consents were obtained from those who wanted to participate. The mothers were randomly assigned to experimental and control groups. Before the intervention, mothers in both groups were asked to complete the personal information form and the scale forms used to evaluate the effectiveness of the psychoeducation program. The psychoeducation program with a total of six sessions, each lasting approximately 60–90 minutes (except for the meeting interview), was given to the mothers in the intervention group (by the first author). The patient length of stay was kept short due to the risk of infection, so the program was given to each individual separately. Therefore, only one program session was held each day, so the implementation of the entire program lasted a week for each mother. No intervention was administered to mothers in the control group. The scale forms were given again to the mothers in the intervention group at the end of the program; however, the second measurement was not given to those in the control group. A follow-up measurement was performed on mothers in the intervention group three months after the end of the

program, and on those in the control group three months after the first measurement.

The "Psychoeducational Program for Mothers of Healthy Children and Pediatric Cancer Patients", consisted of a total of six sessions and had the following contents: 1) changes in the family due to the diagnosis of cancer, 2) difficulties and expectations of healthy siblings in this process, 3) the use of social/institutional resources, 4) effective communication and coping skills to improve the ability of mothers to manage the situation, assessment, and termination. In the sessions, audiovisual materials were utilized by question-answer and verbal narrative methods, and performance feedbacks were provided for the assignments when necessary. In addition to the information provided and the skills taught, the intervention program, which was based on the cognitive-behavioral theory, emphasized the mothers' own life experiences and discussed the skills and information they learned by comparing their experiences, thus raising their awareness of the subject. In addition, visual materials were used in some sessions. The



**Figure 1.** Flow chart of the research.

researchers overseeing the research process had received theoretical training of all psychotherapy theories during their doctoral education. In addition, they provided supervised individual psychological counseling to three clients using cognitive behavioral therapy (CBT) techniques.

### Data Analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS) 23.0 (Armonk, NY: IBM Corp.). Descriptive characteristics of the mothers were evaluated using the mean, standard deviation and percentage. The Mann-Whitney U test was used to evaluate whether mothers in the control and intervention groups had similar sociodemographic characteristics for the variable of age, and the Chi-Square test for other data. The Mann-Whitney U test analyzed whether there was a statistically significant difference between the groups' scale scores measured before the intervention as the data did not show normal distribution. The Friedman test was used to

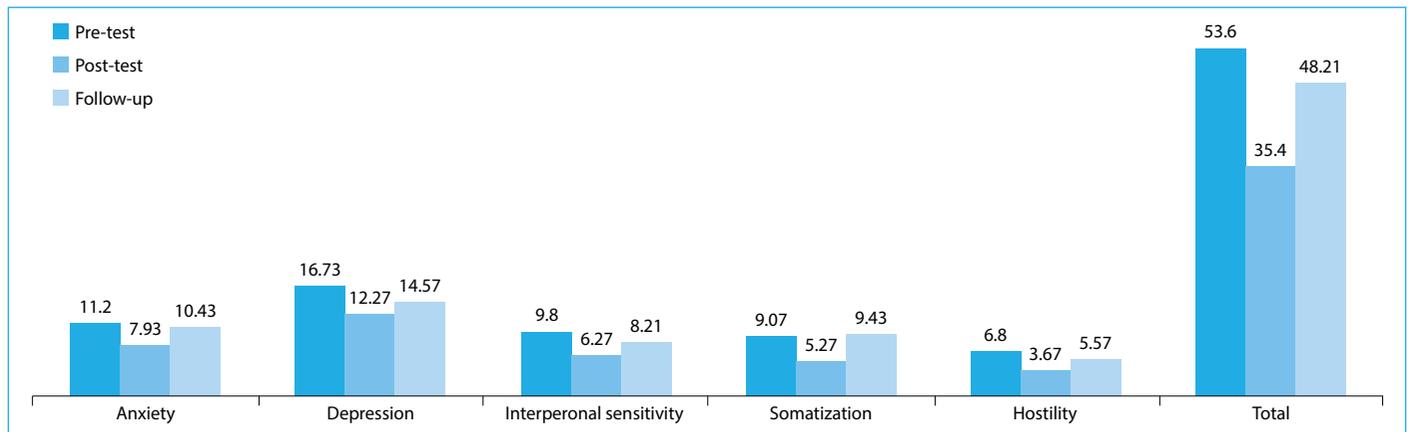
determine the differences between the intervention group's pretest, posttest and follow-up measurements, and the Wilcoxon test to analyze the difference between the control group's first and last measurements.

### Results

There was no statistically significant difference between the scale mean scores of mothers in the intervention and control groups before the psychoeducation program (Table 2). The intervention did not make a statistically significant difference in the mothers' SPPR and CSS subscale scores and CSS total score, but it caused significant differences between their BSI somatization and hostility subscale and total scale scores (Table 3). The analysis determining the variables causing these differences revealed that the mothers' BSI somatization and hostility subscales and total scale mean scores significantly decreased after the psychoeducation program, compared

**Table 2. Comparison of the mean of pre-scores of the intervention and control groups**

Scales and subscales	Intervention group (n=15)	Control group (n=15)	p (Mann-Whitney U test)
	Mean±SD; Median	Mean±SD; Median	
Self Perception of Parental Scale			
Investment	16.40±0.412; 17.00	16.00±0.936; 16.00	0.624 U: 100.00
Competence	20.60±1.116; 20.00	19.87±0.867; 20.00	0.744 U: 104.00
Role balance	20.53±0.960; 22.00	20.33±1.149; 19.00	0.595 U: 99.00
Satisfaction in parenting	16.73±0.358; 17.00	16.53±0.682; 17.00	0.870 U: 108.50
Coping with Stress Scale			
Search for social support	24.87±1.234; 24.00	27.20±1.251; 27.00	0.174 U: 79.00
Approach to the problem	29.27±1.703; 31.00	33.07±1.395; 33.00	0.098 U: 72.50
Avoid trouble	24.93±1.123; 24.00	26.93±1.465; 27.00	0.325 U: 88.00
Brief Symptom Inventory			
Anxiety	11.20±3.222; 11.00	7.87±1.690; 6.00	0.870 U: 108.00
Depression	16.73±3.320; 16.00	15.33±2.636; 13.00	1.00 U: 112.00
Interpersonal sensitivity	9.80±2.379; 10.00	6.73±1.830; 3.00	0.512 U: 96.50
Somatization	9.07±2.069; 6.00	5.40±1.112; 5.00	0.389 U: 91.00
Hostility	6.80±1.634; 8.00	3.80±0.619; 4.00	0.161 U: 78.50
Total	53.60±11.660; 52.00	39.13±6.605; 30.00	0.653 U: 101.00



**Figure 2.** Changes in the intervention group's BSI total score means and subscale score means.

to those measured before the program ( $p < 0.05$ ). Figure 2 presents the details of this change in BSI total and subscale mean scores of mothers in the intervention group.

In addition, there was no statistically significant difference between the pretest, posttest and follow-up measurements of mothers in the intervention group (Table 3, Table 4). There also

**Table 3. Comparison of the mean of pre-scores, post-scores and follow-up scores of the intervention group**

Scales and subscales	Measure (Mean $\pm$ SD; Median)			Difference between groups	
	Pretest <sup>a</sup>	Posttest <sup>b</sup>	Follow-up <sup>c</sup>	X <sup>2</sup> Friedman	p
<b>Self Perception of Parental Scale</b>					
Investment	16.40 $\pm$ 0.412; 17.00	17.00 $\pm$ 0.710; 16.00	15.93 $\pm$ 0.835; 16.00	1.192	0.551
Competence	20.60 $\pm$ 1.116; 20.00	22.13 $\pm$ 0.682; 22.00	22.07 $\pm$ 1.040; 22.00	3.792	0.150
Role balance	20.53 $\pm$ 0.960; 22.00	22.27 $\pm$ 1.049; 22.00	22.57 $\pm$ 1.108; 22.00	5.773	0.056
Satisfaction in parenting	16.73 $\pm$ 0.358; 17.00	16.73 $\pm$ 0.384; 17.00	17.50 $\pm$ 0.272; 17.00	2.651	0.266
<b>Coping with Stress Scale</b>					
Search for social support	24.87 $\pm$ 1.234; 24.00	24.53 $\pm$ 1.447; 24.00	24.43 $\pm$ 1.866; 24.50	0.380	0.981
Approach to the problem	29.27 $\pm$ 1.703; 31.00	30.80 $\pm$ 1.685; 30.00	31.29 $\pm$ 1.727; 33.00	0.286	0.867
Avoid trouble	24.93 $\pm$ 1.123; 24.00	28.60 $\pm$ 1.226; 28.00	27.21 $\pm$ 1.573; 27.00	3.887	0.143
Total	79.06 $\pm$ 2.781; 78.00	83.93 $\pm$ 2.42; 81.00	82.92 $\pm$ 3.746; 83.50	3.527	0.171
<b>Brief Symptom Inventory</b>					
Anxiety	11.20 $\pm$ 3.222; 11.00	7.93 $\pm$ 2.048; 6.00	10.43 $\pm$ 2.966; 6.00	2.098	0.350
Depression	16.73 $\pm$ 3.320; 16.00	12.27 $\pm$ 2.533; 11.00	14.57 $\pm$ 3.132; 16.00	4.204	0.122
Interpersonal sensitivity	9.80 $\pm$ 2.379; 10.00	6.27 $\pm$ 1.752; 2.00	8.21 $\pm$ 2.151; 7.00	4.960	0.084
Somatization	9.07 $\pm$ 2.069; 6.00	5.27 $\pm$ 1.419; 3.00	9.43 $\pm$ 2.601; 4.50	7.190	0.027 <sup>(a-b)</sup>
Hostility	6.80 $\pm$ 1.634; 8.00	3.67 $\pm$ 0.728; 4.00	5.57 $\pm$ 1.401; 4.00	7.426	0.024 <sup>(a-b)</sup>
Total	53.60 $\pm$ 11.660; 52.00	35.40 $\pm$ 7.379; 30.00	48.21 $\pm$ 11.325; 35.00	7.00	0.030 <sup>(a-b)</sup>

**Table 4. Paired comparison of the mean of pre-scores, post-scores and follow-up scores of the intervention group**

Scales and subscales	Measure (Mean±SD; Median)		Difference between groups		Measure (Mean±SD; Median)		Difference between groups		Measure (Mean±SD; Median)		Difference between groups	
	Pretest	Posttest	W	p	Pretest	Follow-up	W	p	Posttest	Follow-up	W	p
Self Perception of Parental Scale												
Investment	16.40±0.412; 17.00	17.00±0.710; 16.00	0.88	0.375	16.40±0.412; 17.00	15.93±0.835; 16.00	0.079	0.937	17.00±0.710; 16.00	15.93±0.835; 16.00	0.63	0.527
Competence	20.60±1.116; 20.00	22.13±0.682; 22.00	1.10	0.271	20.60±1.116; 20.00	22.07±1.040; 22.00	1.81	0.070	22.13±0.682; 22.00	22.07±1.040; 22.00	0.18	0.857
Role balance	20.53±0.960; 22.00	22.27±1.049; 22.00	2.18	0.029	20.53±0.960; 22.00	22.57±1.108; 22.00	2.281	0.023	22.27±1.049; 22.00	22.57±1.108; 22.00	0.402	0.688
Satisfaction in parenting	16.73±0.358; 17.00	16.73±0.384; 17.00	0.26	0.788	16.73±0.358; 17.00	17.50±0.272; 17.00	1.49	0.136	16.73±0.384; 17.00	17.50±0.272; 17.00	1.63	0.102
Coping with Stress Scale												
Search for social support	24.87±1.234; 24.00	24.53±1.447; 24.00	0.35	0.725	24.87±1.234; 24.00	24.43±1.866; 24.50	0.31	0.752	24.53±1.447; 24.00	24.43±1.866; 24.50	0.15	0.874
Approach to the problem	29.27±1.703; 31.00	30.80±1.685; 30.00	0.59	0.550	29.27±1.703; 31.00	31.29±1.727; 33.00	1.38	0.166	30.80±1.685; 30.00	31.29±1.727; 33.00	0.08	0.929
Avoid trouble	24.93±1.123; 24.00	28.60±1.226; 28.00	2.48	0.013	24.93±1.123; 24.00	27.21±1.573; 27.00	1.454	0.146	28.60±1.226; 28.00	27.21±1.573; 27.00	0.56	0.570
Total	79.06±2.781; 78.00	83.93±2.42; 81.00	1.82	0.069	79.06±2.781; 78.00	82.92±3.746; 83.50	3.140	0.002	83.93±2.42; 81.00	82.92±3.746; 83.50	3.30	0.001
Brief Symptom Inventory												
Anxiety	11.20±3.222; 11.00	7.93±2.048; 6.00	1.57	0.116	11.20±3.222; 11.00	10.43±2.966; 6.00	0.81	0.414	7.93±2.048; 6.00	10.43±2.966; 6.00	1.36	0.172
Depression	16.73±3.320; 16.00	12.27±2.533; 11.00	1.99	0.46	16.73±3.320; 16.00	14.57±3.132; 16.00	1.33	0.183	12.27±2.533; 11.00	14.57±3.132; 16.00	0.98	0.327
Interpersonal sensitivity	9.80±2.379; 10.00	6.27±1.752; 2.00	2.08	0.037	9.80±2.379; 10.00	8.21±2.151; 7.00	0.85	0.421	6.27±1.752; 2.00	8.21±2.151; 7.00	0.98	0.326
Somatization	9.07±2.069; 6.00	5.27±1.419; 3.00	2.65	0.008	9.07±2.069; 6.00	9.43±2.601; 4.50	0.554	0.579	5.27±1.419; 3.00	9.43±2.601; 4.50	2.25	0.024
Hostility	6.80±1.634; 8.00	3.67±0.728; 4.00	2.60	0.009	6.80±1.634; 8.00	5.57±1.401; 4.00	1.38	0.166	3.67±0.728; 4.00	5.57±1.401; 4.00	1.83	0.06
Total	53.60±11.660; 52.00	35.40±7.379; 30.00	2.58	0.010	53.60±11.660; 52.00	48.21±11.325; 35.00	1.47	0.140	35.40±7.379; 30.00	48.21±11.325; 35.00	1.50	0.132

**Table 5. Comparison of the mean of pre scores and follow-up scores of control group**

Scales and subscales	Measure (Mean±SD; Median)		Difference between groups	
	Pretest <sup>a</sup>	Follow-up <sup>b</sup>	Wilcoxon testi	p
Self Perception of Parental Scale				
Investment	16.00±0.936; 16.00	15.46±0.882; 16.00	0.89	0.929
Competence	19.87±0.867; 20.00	18.85±1.005; 19.00	1.30	0.192
Role balance	20.33±1.149; 19.00	20.77±0.900; 21.00	1.14	0.251
Satisfaction in parenting	16.53±0.682; 17.00	15.77±0.752; 16.00	1.89	0.058
Coping with Stress Scale				
Search for social support	27.20±1.251; 27.00	27.00±1.038; 27.00	0.44	0.655
Approach to the problem	33.07±1.395; 33.00	32.15±1.552; 33.00	1.18	0.237
Avoid trouble	26.93±1.465; 27.00	27.23±1.144; 26.00	0.11	0.906
Total	87.20±9.108; 88.00	86.38±2.716; 89.00	0.55	0.582
Brief Symptom Inventory				
Anxiety	7.87±1.690; 6.00	7.77±1.912; 5.00	0.24	0.806
Depression	15.33±2.636; 13.00	12.92±3.173; 8.00	0.98	0.327
Interpersonal sensitivity	6.73±1.830; 3.00	6.69±1.855; 5.00	0.19	0.844
Somatization	5.40±1.112; 5.00	5.85±1.224; 4.00	0.24	0.806
Hostility	3.80±0.619; 4.00	4.38±0.958; 4.00	0.86	0.390
Total	39.13±6.605; 30.00	37.61±8.157; 23.00	0.28	0.780

was no statistically significant difference between the pretest and follow-up measurements of those in the control group (Table 5).

## Discussion

This study was conducted to determine the effect of a psychoeducation program given to mothers having a child diagnosed with cancer along with a healthy adolescent, on self-perception of parental role and coping with stress and psychological symptoms. The study found that psychoeducation did not make a significant difference in mothers' self-perception of parental role and coping with stress, but relieved their mental symptoms. There was a significant decrease in mothers' somatization and hostility subscale and BSI total scale scores immediately following the program. Although there continued to be a decrease in scale scores during the 3-month follow-up period, this significant effect did not continue.

Although mothers in the intervention and control groups had similar sociodemographic characteristics, there was a significant difference between the groups according to work status (Table 1); the number of unemployed mothers was higher in the intervention group. However, there was no significant difference between the scale mean scores of mothers in both groups (Table 2). Conversely, studies have reported that working mothers have to cope with stressors and other issues such as difficulty taking time off from work, having to quit a job, and experiencing economic difficulties.<sup>[10]</sup> In this context, there is still a need for studies that compare the stressors of employed and unemployed mothers and to plan interventions accordingly.

This study found that the psychoeducation program did not make a significant difference in mothers' self-perception of parental role. Information and practical suggestions regarding the needs of healthy siblings included in the educational content were expected to positively affect the mothers' self-perception of parenting role; because one of the biggest concerns of parents regarding parental roles, in this process, is the neglect of healthy siblings.<sup>[10]</sup> Although parents are aware of most of the needs and emotional strains of healthy siblings, they have to devote most of their time and energy to the ill child, leading them to question their parental roles and experience guilt.<sup>[7,8,32,33]</sup> Psychosocial interventions for parents of children diagnosed with cancer generally have contents such as teaching effective coping skills, developing problem-solving skills, increasing knowledge about the disease, and teaching relaxation techniques.<sup>[13–21,34–36]</sup>

Unlike other studies on psychosocial interventions, this study aimed to increase the awareness of mothers regarding healthy adolescent siblings and the belief that they can help their healthy children with practical suggestions, based on the experiences of healthy siblings. The mothers' SPPR scores evaluated whether these goals were achieved or not. Even though the difference between their scores was not significant, there was an increase in their posttest scores, which suggested that they perceived themselves more adequate in their parenting roles, considered they managed their other roles in a balanced manner, and felt responsible for raising children in a better way. There was an increase in the mothers' satisfaction in parenting subscale scores in the follow-up period. This may be because both their satisfaction in parenting increased due to changes in the self-perception of parenting role, and interac-

tions with their children improved. The average time required for acquired knowledge and skills to change one's behaviors is at least six months. Therefore, the absence of a significant difference between the groups' posttest SPPR mean scores could be due to lack of opportunity in adapting the knowledge and skills learned in the program into their social lives, which is a limitation of the study. The program was implemented in a short period of time over a week when the mothers stayed in the hospital and this may have affected the results of this study.

This study also found that the intervention did not make a significant difference in mothers' ability to cope with stress. There was an increase in their posttest and follow-up mean scores on "approach to the problem" subscale, no change in those on "search for social support" subscale, and a decrease in those on "avoiding trouble" subscale; however, none of the scores were statistically significant. Teaching problem-solving skills and coping techniques are frequently used in intervention studies for parents of children with cancer. One study, in which parents were given basic problem-solving skills training based on cognitive behavioral theory, found an increase in their problem-solving skills.<sup>[34]</sup> Another study, in which mothers were similarly taught relaxation techniques and how to develop effective coping and problem-solving skills, also found an increase in their knowledge and a decrease in their anxiety levels.<sup>[16]</sup> Studies evaluated the effect of psychoeducational interventions for parents directly taking into consideration the improvements in their mental states rather than the changes in their methods of coping with stress.<sup>[14-17,34]</sup> This study used the BSI to evaluate the effects of psychoeducational intervention on the mothers' mental states. In the psychoeducation program, the mothers were informed about problem-solving steps, effective coping methods, and taught relaxation techniques to practice. It was an expected and desired outcome that mothers could use more effective methods to cope with stress at the end of the intervention. Although not significant, the increase in their "approach to the problem" subscale mean scores may suggest that the intervention positively contributed to mothers' approach to the problem. Conversely, the statistically insignificant increase in mothers' "avoiding trouble" subscale mean scores may suggest that although the intervention increased their awareness, they did not feel ready to solve problems. In addition, the lack of change in mothers' "search for social support" subscale mean scores may suggest their support from social circles did not change during this process. Additionally, the mothers could not find an opportunity to utilize the knowledge and skills they acquired, as research shows that the average time required for acquired knowledge and skills to change behavior is at least six months and the intervention was administered in a limited time period of one week. These factors may not have allowed them to make significant changes in their methods of coping with stress.

As can be seen in Tables 3 and 4 and Figure 2, the most visible effect of psychoeducation intervention was on the mental symptoms of mothers. There was a significant decrease

in their posttest BSI somatization and hostility subscales and total scale scores measured after the intervention. Studies have reported a number of interventions effective in reducing negative emotions of parents.<sup>[13]</sup> Sahler et al. have found a significant decrease in the anxiety, post-traumatic stress and depression scores of mothers who were taught problem solving skills, which continued to decrease even after three months.<sup>[14]</sup> Askins et al. evaluated the effectiveness of training of computer aided problem-solving skills and determined that the training improved mother's mood and decreasing depression symptoms.<sup>[15]</sup> There are studies suggesting that such interventions for mothers contribute positively to both them and their ill child's well-being,<sup>[17]</sup> that interdisciplinary interventions reduced stress in mothers,<sup>[18]</sup> that group interventions are more useful than individual interventions,<sup>[35]</sup> and that mothers with higher perceived social support benefit more from such interventions.<sup>[36]</sup> Two interventional studies conducted in Turkey have shown that increasing parents' knowledge of the disease improves their quality of life and decreases their anxiety levels.<sup>[20,21]</sup> There are no Turkish studies on psychoeducation interventions conducted with mothers of children diagnosed with cancer. The results of this study suggest that the psychoeducation program increased the mothers' mental well-being. Accordingly, mothers of children with cancer in Turkey are considered to need this type of intervention. The fact that this effect did not continue in the follow-up period may be because the interventions should be repeated periodically.

All intervention studies for families of children diagnosed with cancer provide psychosocial benefits; however, there is still a need for quality studies on this subject. The psychoeducation program implemented in this study was designed to strengthen the mothers' psychosocial aspects and thus increase their well-being by enabling them to see the situation as more controllable. The relief observed in their mental symptoms at the end of the process suggests that the intervention has achieved this goal. However, the insignificant increase in their follow-up scores suggests that the intervention should be repeated frequently, and/or that the obstacles to maintain their increased well-being should be determined, and thus relevant interventions should be planned to address these obstacles.

### Limitations

This study has some limitations. First, although there are a total of seven hospitals with high-capacity pediatric oncology clinics/polyclinics in Ankara, only two of them allowed the research. This limitation led to fewer participants and thus the results could not be generalized. Another difficulty was that most of the pediatric oncology patients in Ankara came from different provinces of Turkey for treatment and their length of hospital stay was kept as short as possible due to the risk of infection. The program could not be extended for a longer period due to the shortened length of hospital stay and the lack of a caregiver for the ill child other than the mother. As the pre-

and post-test measurements had to be performed in the clinic for the same reasons mentioned above, the mothers were considered to find no opportunity to use the knowledge and skills they learned in the program in their social lives. Another limitation was the low Cronbach's alpha coefficients of the scales used in the study. One other limitation was that the first part of the study was carried out with healthy adolescent siblings, while the second part was carried out with mothers. The unforeseen limitations encountered in the thesis process made it necessary to make methodological changes in the study.<sup>[22]</sup> Mothers reported neglecting their healthy children and feel guilty before the program, although the first part of the study was carried out with healthy adolescents getting their individual opinions about issues where they had difficulties allowed the psychoeducation to be prepared in this manner.

## Conclusion

Despite the limitations, this study is important in terms of being the first psychoeducational study conducted with mothers in the field of pediatric oncology. The psychoeducation program increased the mothers' self-perception of parental role and improved coping with stress, but these changes were not statistically significant. Although the intervention caused significant differences in mothers' mental symptoms, this effect has decreased over time.

In the light of these results, psychoeducational intervention studies are recommended to include larger number of mothers and be given over a longer period of time. It is difficult to carry out interventional studies in hospitals, as there are often only mothers caring for their children as primary caregivers in hospitals and no other companions are present in the clinics. Therefore, psychoeducational interventions can be implemented by home visits. In addition, as these studies are more effective when carried out in groups, group interventions can be planned for parents of children whose discharge procedure is completed, by establishing a multidisciplinary team with the participation of clinicians. In order to ensure the continuity of psychosocial recovery, it may be beneficial to repeat psychosocial interventions for healthy family members of children diagnosed with cancer at least in 3-month time periods.

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