The Effect of a New Coping Intervention on Stress and Burnout in Turkish Oncology Nurses

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ÖZET
Türk onkoloji hemşirelerinde yeni bir başa çıkma girişiminin stres ve tükenmişlik üzerine etkisi

Amaç: Bu çalışmanın amacı stresle başa çıkma eğitiminin onkoloji birimlerinde çalışan hemşirelerin stres belirtileri, başa çıkma tarzları ve tükenmişlik durumlarına etkisini değerlendirmektir.

Yöntem: Öntest-sontest modelli yarı deneysel olan bu araştırma 2008-2009 yılları arasında gerçekleştirildi. Araştırmanın evrenini üç farklı onkoloji biriminde çalışan toplam 71 hemşire oluşturdu. Bu birimlerin seçilme nedenleri İstanbul'da yer alması, klinik hizmet vermesi, grup eğitimine katılımın olabilmesi için en az 10 hemşirenin çalışıyor olmasıdır. Araştırmanın örneklemi %95 güven düzeyi ve %80 güçlülük değeri temel alınarak yaklaşık 30 kişi olarak belirlendi ve çalışma bu birimlerde çalışan 30 hemşire ile gerçekleştirildi. Araştırmaya katılacak hemşireler için randomizasyon yapılamadı, örneklemi belirlemede klinik iş akışını aksatmama, eğitime katılımın gönüllülüğü ve sürekliliği esas alındı. Öncelikle bir kaç stresle başa çıkma yönteminin birleştirildiği yeni bir eğitim programı hazırlandı ve uygulandı. Veriler eğitim öncesi, sonrası ve bir ay sonrasında Bilgi Formu, Stres Belirtileri Ölçeği, Stresle Başetme Tarzları Ölçeği ve Maslach Tükenmişlik Ölçeği kullanılarak toplandı. Verilerin değerlendirilmesinde yüzdelik ve frekans, Frieadman testi, Bonferroni düzeltmesi ve Wilcoxon sıralı işaretler testi kullanıldı.

Bulgular: Uygulanan stresle başa çıkma eğitim programı öncesi, sonrası ve bir ay sonrası yapılan değerlendirmelerde başa çıkma tarzlarında anlamlı bir sonuç bulunamamışken; stres belirtileri toplam puan (Fr-χ^2 17.88; p=0.000), bilişsel duyuşsal (Fr-χ^2 15.10; p=0.001), fizyolojik belirtiler (Fr-χ^2 8.35; p=0.015) alt boyutlarında, emosyonel tükenme alt boyutunda (Fr-χ^2 9.04; p=0.011) istatistiksel olarak anlamlı sonuçlar bulunmuştur.

Sonuç: Başetme eğitim programı onkoloji hemşirelerinin stres ve tükenmişlik durumları üzerinde anlamlı pozitif bir etki sağlamıştır.

Anahtar sözcükler: Onkoloji hemşiresi, stres, tükenmişlik, başa çıkma eğitimi

ABSTRACT
The effect of a new coping intervention on stress and burnout in Turkish oncology nurses

Objective: The aim of this study was to evaluate the effect on coping with stress training on oncology nurses regarding their stress symptoms, ways of coping with stress and burnout situations.

Method: This study used a quasi-experimental research design with pre-post intervention assessments and was carried out between the years 2008-2009. Its population consisted of 71 nurses who were working in three oncology units which were located in Istanbul, provided clinical services, and employed at least 10 nurses. The sample was determined as about 30 people based on potency value of 80% at 95% confidence level. It wasn't determined via randomization to avoid any delay in the clinic work flow. It was conducted on 30 nurses who were working at these units, were willing to participate and had an appropriate working schedule at the time of the training. A new training program combined with a few coping methods was conducted. Data were collected by Information Form, Stress Self-Assessment Checklist, Ways of Coping Inventory and Maslach Burnout Inventory which was filled before the training started, immediately and one month after the training ended. Data were evaluated in percentages and frequencies, Frieadman test, Bonferroni correction and Wilcoxon signed-rank test.

Results: The statistical analysis revealed significant results among the three measurements for the stress symptoms total score (Fr-χ^2=17.88; p=0.000), the cognitive affective (Fr-χ^2=15.10; p=0.001), physiologic signs (Fr-χ^2=8.35; p= 0.015) and the emotional exhaustion (Fr-χ^2= 9.04; p=0.011).

Conclusion: Results revealed that the program had a significant positive impact on oncology nurses' stress and burnout.

Key words: Oncology nurse, stress, burnout, coping training

INTRODUCTION

Stress is a term used to define the body's physiological and/or psychological reaction to circumstances that require behavioral adjustment (1). The transactional perspective views stress as a dynamic person–environment relationship mediated by perception, or cognitive appraisal, and coping. Lazarus (1993) define coping as 'cognitive and behavioral

efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person'. They identify two types of coping. Coping which alleviates emotional distress and coping which attempts to manage or alter the problem causing distress (2).

Problem-focused coping includes problem solving, positive reappraisal, and social support, while emotion-focused coping includes confronting, escape/avoidance, self-controlling, helpless approach. It is emphasized that problem-focused coping is more effective than emotion-focused coping (2,3). However, some studies reported that, during the stressful situation's active period, the use of the emotion-focused coping strategy was more adaptive than the problem-focused coping strategy, and when the source of stress is outside a person's control, an emotion-focused coping strategy is the only realistic option, and one can use such to reduce health risks and promote health resilience (4).

In the field of oncology, the factors including critical decision making, informing on the course of the disease, managing the treatment with severe side effects, the patient issues such as overdependence, frustration and incompliance to treatment, monitoring patients who are in pain (5-7), and terminal care cause stress (8,9) in healthcare workers. Additionally, emotional difficulties in connecting with the patient, failure to establish an adequate therapeutic communication (10-12), ethical considerations (13) and the conflicts within the staff also lead to stress, thereby potentially result in burnout in oncology healthcare workers (14).

Burnout is a term frequently used to describe the experience of the healthcare workers dealing with stressful situations. Burnout syndrome is based on three aspects: emotional exhaustion, depersonalization and lack of personal accomplishment. This syndrome particularly occurs as a result of the relations experienced in cases where the service provided to the oncology patients, who require intensive service, is not adequate (15-17).

The literature data report a negative correlation between the skills of effective coping and the existence of burnout syndrome (18,19). Most studies showed that ineffective coping strategies increased the stress, and represented a precipitating factor for the development of burnout (19-21). Rowe found that the problem-focused coping strategy was associated with lower levels of burnout (22). Specifically, all of the burnout subscales correlated negatively with the problem-focused coping strategy (22-24). On the other hand, most studies have reported that the emotion-focused coping strategy correlated with high burnout levels. Passive, avoidant and emotion-focused coping were associated positively with all three dimensions of burnout (19,25,26).

Based on this data, training of the nurses on coping with stress gains significance in reducing the stress symptoms, attaining the ability to handle stress individually and decreasing the burnout levels in nurses working at the oncology units involving stressful working conditions.

The stress and coping research in oncology nurses are commonly focused on identifying the stressors, the stress levels, the coping methods, the burnout levels and the effective factors. As for the experimental studies, they generally employ effective communication and counseling programs (27-32). Therefore, the research is needed how a training program on coping with stress does affect the level of stress and burnout of oncology nurses. In the present study designed for these purposes, a training program on coping with stress was structured, administered to the nurses and the results were evaluated.

MATERIALS AND METHODS

Aim and Design

In this study a quasi-experimental research design with pre-post intervention assessments was used. The aim of this study was to evaluate the effect of "coping with stress training" on oncology nurses regarding their stress symptoms, ways of coping with stress and burnout situations. The hypotheses of the study were as follows:

1. A significant reduction in the mean score for the stress symptoms of the nurses will be observed as a result of the coping with stress training program.

2. A significant increase in the mean score for effective coping techniques and a significant reduction in the mean score for ineffective coping techniques will be observed as a result of the coping with stress training program.

3. A significant reduction in the mean scores for the burnout-related subscale of emotional exhaustion and depersonalization and a significant increase in the mean score for the subscale of personal accomplishment will be observed as a result of the coping with stress training program.

The study was initially designed as an experimental study using a pre-test-post-test model, with a control group. However since multiple experimental groups were included from the same institution and it was not clear at the start of the study who could participate in the second groups, the control group could not be determined and a control group could not be included. The study was conducted using a pre-test-post-test model in a training group.

Participants

In determining the study setting, we took into consideration the presence of oncology units with inpatient clinics in the hospital, and the presence of at least 10 nurses working in these units due to the group-based training model for the stress management training and the fact that the group training is conducted with at least eight to 10 nurses. One Oncology Institute and the oncology units of two state hospitals located in Istanbul composed the study population. Three institutions were similar in terms of the number of patients, workflow, patient type, environmental stressors, and the number of nurses. Chemotherapy unit and in-patient clinics were present in each of the three institutions.

The study sample was determined as about 30 people based on potency value of 80% at 95% confidence level (power analysis). The study sample was not determined via randomization to avoid any delay in the clinic workflow, considering the fact that the nurses were working in shifts and with rotations and the lack of sufficient number of healthcare workers. The nurses, who were willing to participate and had an appropriate working schedule at the time of the training, represented the study sample. The study was started with 35 nurses but a nurse retired, a nurse left on maternity leave, a nurse was appointed to another location and two nurses didn't completed the training. It was conducted with 30 nurses.

After obtaining consent from the institutions, the objectives and the methodology of the training were explained to the clinic nurses in the study. Two groups (training date October-December 2008 for first group and January- March 2009 for second group) in the oncology institute, one consisting of five and the other consisting of seven nurses, two groups (training date; October-December 2008 for first group and January- March 2009 for second group) in the hospital, one consisting of 11 and the other

consisting of six nurses, and a six-nurse group (training date; January-March 2009) in the other hospital were established consecutively; 30 nurses completed the training. The nurses were divided into different groups as the localizations of the hospitals were far from each other and not to impede the flow of work in the hospital.

The Coping with Stress Training Program

Literature (periodicals, books and electronic databases) on stress and coping was screened, 41 references was used. Reports underline the importance of achieving the skills to cope and solve problems, expression of the emotions, and the positive relation maintenance and support groups (16), and the communication skills training, multiple self-care interventions, cognitive-behavioral interventions, relaxation techniques and the group approaches in preventing development of burnout in oncology healthcare workers (33-35).

Based on the literature, a training program was created by the investigator. For content validity, training program was submitted for expert opinion in relation to the methodology and assessment of the training. A panel of 16 experts (which was composed of a psychiatrist, psychiatric nurse specialists, internal medicine specialist nurse, educator, consultation-liaison psychiatry nurses, statisticians) examined the training program. According to expert opinion, the training program consisted of nine sessions. The sessions were held once weekly with each session lasting 90 minutes and was revised and implemented. Session headers and contents were as given below:

1. Session-"Introduction": Firstly, trainer introduces herself and then participants introduce themselves. Information is given about the content of the training program and group rules are determined. Data collection tools are applied.
2. Session-"Recognizing the stress": This session describes the concept of stress, the stress symptoms and stressors. Participants describe their own experiences related with stress.
3. Session–"Occupational stress and burnout": This session describes the problems caused by job stress and burnout syndrome. Participants describe their own experiences related with stress in the workplace.
4. Session-"Coping": This session describes coping as a concept and discusses effective and ineffective coping

strategies

5. Session-"Relaxation Techniques": This session discusses the importance of relaxation techniques used in coping. Educator shows breathing exercises and relaxation exercises, and then applies these exercises with the participants.

6. Session-"Effective Communication": This session describes effective communication and the assertive behavior characteristics and the importance of coping with stress. Role-play is used for the understanding of the subject.

7. Session-"Say no": This session describes "Why not say no", its causes and consequences and the steps to say no. Participants share their own emotions and thoughts about this issue. Role-play is used for the understanding of the subject.

8. Session-"Problem Solving": This session describes the concept of problem, problem solving, problem-solving steps and the importance of problem solving in dealing with stress. A sample problem is solved by using problem-solving steps.

9. Session-"Assessment": The training program and the trainer are evaluated in this session. Data collection tools are applied again.

Training was given by one trainer who is one of the authors of this article. The trainer received counseling from a lecturer who had group training and group-therapy experience. This lecturer is Assistant Professor in psychiatric nursing department, and he has been consulting to "psychosocial skills training group" patients with schizophrenia for 10 years. In addition, this lecturer is one of the authors of this article.

Data Collection

Data were collected prior to and right after the training and one month after the training.

The Data Form was created by the investigator for determining the socio-demographic characteristics including age, marital status, educational background and the occupational characteristics of the nurses.

Stress Self-Assessment Checklist (SAC) was developed by Das Gupta (1992) with the purpose of identifying the symptoms associated with stress in humans. The scale with the Turkish adaptation made by Hovardaoglu (1997) consists of three components as the cognitive-affective, physiological and pain-complaint component. It is a Likert-type scale with the Turkish form consisting of 38 articles evaluating the stress symptoms with each of the articles in the symptoms list having a 4-grade scoring. The minimum and the maximum score that could be achieved in the scale are 38 and 152 points, respectively. An increase in the score represents an increased frequency of the symptoms (36). For this study, the Cronbach's α value of the scale was calculated as 0.88.

Ways of Coping Inventory (WCI) was developed by Folkman and Lazarus to measure the strategies used by the individuals to cope with stress; assessment of the validity and reliability of the Turkish version was performed by Sahin and Durak (1995). WCI has two dimensions as the effective strategies focused on the problem and the ineffective strategies focused on the emotions. The scale consists of five different subscales including the self-confident approach, helpless approach, optimistic approach, submissive approach and seeking social support with 30 items in total. In this scale with a scoring between 0 and 3, the scores for each factor are calculated individually while the total score is not calculated. The high scores obtained for subscales signify that the person uses the relevant coping technique more frequently (37). The internal consistency coefficients for the subscales range between 0.45 and 0.80 with the range calculated for this study being 0.60-0.76.

Maslach Burnout Inventory (MBI) was originally developed by Maslach and this original scale has been translated into Turkish and its reliability was recalculated by Ergin and Çam (38,39). This Turkish version of the scale of which reliability and validity studies had been performed was used in this study.

The MBI has 22 items on five-point rating scale, scoring range between 0 and 4 (originally seven-point but five-point rating in Turkish adaptation) (38). The MBI has three subscales: Emotional Exhaustion (EE), Depersonalization (DP) and Personal Accomplishment (PA). The first (EE) consists of nine items and describes a person's feelings of being overloaded and burnout by his/her job (score range 0-36). The DP subscale consists of five items and describes a person's insensitive behavior towards the individuals he/she gives service to without considering the fact that each individual is a unique being (score range 0-20). The PA subscale consists of eight items and addresses feelings about ability to cope

with the problems of working directly with people in the work environment (score range 0-32). High EE and DP, and low PA are considered to indicate burnout (38). The reliability coefficients were detected to be 0.84, 0.78 and 0.72 for emotional burnout, depersonalization and personal accomplishment respectively. The sub-dimension α values were detected to be 0.82, 0.68, 0.62, respectively in this study.

Statistical Analysis

Data were evaluated in percentages and frequencies, using Frieadman test, Bonferroni correction and Wilcoxon signed-rank test before and after the training and one month after the training ended. Results were evaluated at $p < 0.05$ significance level and %95 confidence interval.

Ethical Consideration

Consent was obtained from the ethical committee to start the study. Written consent was also obtained from the relevant institutions as appropriate. The participating nurses were given information on the purpose of study and the group work; and verbal consent was obtained for participation. The nurses were reassured regarding the confidentiality of their identifications.

RESULTS

The mean age of the nurses included in the study was 34.87±8.0, 76.7% were married and, 76,7% had children (Table 1).

Table 1: The distribution of nurses' personal and professional characteristics

Characteristics	n	%
Age (year) [mean±SD] 34.87±8.0	30	100
Marital status		
Married	23	76.7
Single	7	23.3
Situation of having a child		
Has a child	23	76.7
No children	7	23.3
Duration of employment (year) [mean±SD] 13.87±8.8 years		
Duration of employment at oncology unit (year) [mean±SD]6.77±6.9 years		
Started working at the oncology unit		
Willingly	9	30.0
Unwillingly	21	70.0
How she works		
Fixed (Day)	12	40.0
Rotations	18	60.0
Pleased to state		
Pleased	10	33.3
Not pleased	20	66.7
The effect of life		
Effect	18	60.0
Not effect	12	40.0
Exposure status of cancer patients *		
Unaffected	2	6.7
I feel deep sorrow	18	60.0
I am afraid that I may also suffer from cancer	20	66.7
I feel helpless and angry	7	23.3
I feel guilt the patient's condition when you suffer	4	13.2
I feel inadequate and fails the patient's condition when you suffer	5	16.7
I avoided communicating with the patients	10	33.3
I'm glad to be able to help patients with cancer in my family	1	3.3
Thanks God that I was healthy	1	3.3
Angry with the things that cause cancer	1	3.3
I think what I'm doing is going to waste, I feel burnout	2	6.7
I look around pityingly cancer patients	1	3.3

* Were responded to more than one

The nurses' professional characteristics are showed in Table 1. The results revealed that 66.7% of the nurses were not pleased with working at an oncology unit, with 50% indicating the large number of terminal period patients and deaths, and 40% indicating deficient physical setting, materials and workers as the reason. Sixty percent of the nurses indicated that working in the field of oncology impacted their family and social life and this impact primarily involved the failure to spare time for the family and the inadequate social life due to exhausting, stress and nervousness (Table 1).

The investigation of the effect on the self-resulting from working with cancer patients revealed that the nurses felt the following: "I am afraid that I may also suffer from cancer" (66.7%), "I feel deeply sorrow" (60%) and 33.3% indicated that they avoided communicating with the patients (Table 1).

Before training the mean score for total stress symptoms was 65.00±11.6. The mean scores for the sub-dimensions are showed in Table 2. These scores indicate intermediate stress level. The assessment of the impact of the coping with stress training revealed statistically significant changes between the pre-, post-training and one month measurements in terms of the stress symptoms mean total score and the mean scores for the sub-dimensions of cognitive-affective and physiologic symptoms, while no significant difference was observed for the sub-dimension of the pain complaint (Table 2). A significant difference was observed for the stress symptoms total score, and the scores for the sub-dimensions of cognitive-affective and physiologic symptoms between pre-training, post-training (Z=-3.61, p=0.000; Z=-3.56, p=0.000; Z=-2.73, p=0.006) and pre-training and one month values (Z=-2.73, p=0.006; Z=-2.84, p=0.005; Z=-2.67, p=0.008), while the difference between the post-training and one month values was not considered to be significant (Table 3).

Table 2: Assessment of the Training by the Mean Stress Symptom Score

	Stress Symptom Scale Total Score X ± SD	Cognitive-Affective Symptom Subdimension X ± SD	Physiologic Symptom Subdimension X ± SD	Pain-Complaint Symptom Subdimension X ± SD
Pre training	64.36 ± 11.6	28.21 ± 5.7	16.25 ± 2.5	13.89 ± 3.6
Post training	57.68 ± 11.6	24.79 ± 5.5	14.93 ± 2.2	12.61 ± 3.6
1 month	57.96 ± 11.7	24.79 ± 5.7	14.82 ± 2.2	12.96 ± 3.5
Fr-χ^2; p	17.88; 0.000***	15.10; 0.001**	8.35; 0.015*	1.52 ; 0.462

Friedman test; *p<0.05, **p< 0.01, ***p<0.001, SD: Standard deviation

Table 3: The Impact of the Training on Stress Symptoms

	Stress Symptom Scale Total Score Z	p	Cognitive-Affective Symptom Subdimension Z	p	Physiologic Symptom Subdimension Z	p
Pre-training – post-training	-3.61	0.000 ***	-3.56	0.000 ***	-2.73	0.006**
Pre-training – 1 month after the training	-2.73	0.006**	-2.84	0.005**	-2.67	0.008**
Post-training – 1 month after the training	-0.30	0.764	-0.29	0.769	-0.08	0.929

Wilcoxon signed-rank test; *p< 0.05, **p< 0.01, ***p< 0.001

Table 4: Assessment of Training by the Mean Ways of Coping Score

	Self-confident approach X ± SD	Optimistic approach X ± SD	Helpless approach X ± SD	Submissive Approach X ± SD	Social Support Seeking X ± SD
Pre-training	11.64 ± 2.7	8.21 ± 2.3	8.36 ± 3.9	4.39 ± 3.1	7.71 ± 1.9
Post-training	11.89 ± 2.6	7.93 ± 2.7	7.00 ± 2.8	3.79 ± 2.7	7.61 ± 2.0
1 month later	12.54 ± 2.5	8.61 ± 1.8	6.93 ± 2.8	4.00 ± 2.8	8.07 ± 1.5
Fr-χ^{2}*; p	0.84; 0.654	0.97; 0.616	1.21; 0.544	1.10; 0.577	2.48; 0.289

*Friedman test

Table 5: Assessment of Training by MBI Sub-scale

	EE X ± SD	DP X ± SD	PA X ± SD
Pre-training	17.93 ± 7.3	5.68 ± 4.3	21.82 ± 4.6
Post-training	14.96 ± 6.2	4.11 ± 3.8	22.43 ± 5.3
1 month later	16.25 ± 6.4	4.00 ± 3.2	22.11 ± 4.1
Fr-χ²*; p	9.04; 0.011*	3.35; 0.187	0.140; 0.932

Friedman test, *p<0.05, EE: Emotional Exhaustion, DP: Depersonalization, PA: Personal Accomplishment, MBI: Maslach Burnout Inventory

Table 6: The Impact of Training on Emotional Exhaustion

	EE	
	Z	**p**
Pre-training – post-training	-2.75	0.006**
Pre-training – 1 month after the training	-1.49	0.135
Post-training – 1 month after the training	-1.49	0.121

Wilcoxon signed-rank test, **p< 0.01

The investigation of the pre-, post-training and one month ways of coping mean scores revealed an increase in the mean scores for effective strategies (i.e., self-confident approach) and a reduction in the mean scores for ineffective strategies (i.e., helpless approach) after the training and at one month of training when compared to the pre-training scores, however this difference was not considered to be statistically significant (Table 4).

Before training, the mean score for the emotional exhaustion was 18.27±7.2, depersonalization was 5.57±4.2, and personal accomplishment was 22.03±4.6 (Table 2). These scores indicate intermediate burnout level. To determine the effect of coping with stress training on the burnout, the pre- and post-training and one month burnout subscale mean scores were statistically evaluated and a significant result was obtained only for the emotional burnout sub-dimension (Table 5). While the difference between the pre-training and post-training emotional burnout subscale scores was significant (Z= -2.75, p= 0.006), the difference between the pre-training scores, and the one month scores, and the post-training and one month scores were not significant (Table 6).

DISCUSSION

Significant results were obtained in this study which was performed to evaluate the effect of coping with stress training on oncology nurses regarding their stress symptoms, ways of coping with stress and burnout sub-dimensions. In this respect, the present study is considered to be important as it contributes to the potential interventions to be developed to avoid stress and burnout, and guides the services given to the healthcare workers by the CLP nurses.

The results revealed that 66.7% of the nurses were not pleased with working at an oncology unit, with 50% indicating the large number of terminal period patients and deaths, and 40% indicating deficient physical setting, materials and workers as the reason. Sixty percent of the nurses indicated that working in the field of oncology impacted their family and social life and this impact primarily involved the failure to spare time for the family and the inadequate social life due to exhausting, stress and nervousness. According to these findings, it can be said that nurses have difficulty balancing their home and work lives. This may increase the stress and burnout.

The mean scores of SAC show that nurses stress at an intermediate level before training. Isıkhan, Comez and Danis (2004) found stress scores at intermediate levels for both nurses and doctors in their study of healthcare personnel working with cancer patients (5). Escot, Artero, Gandubert, Boulenger and Ritchie (2001) determined oncology nurses' general stress levels as low in their study and stated that they experience higher levels of stress when they face with specific situations such as providing care for patients who are about to die or suffering from pain. Even though oncology personnel are said to suffer from very high levels of stress, according to most literature, this current study indicates the level as intermediate (40). The fact that individuals get desensitized against stressors when they are exposed to long-term stress with the same intensity can be thought as the reason for this. Additionally, being not able to randomize the sample may be responsible for the nurses' moderate stress level.

The pre-training stress symptom total score, the mean scores for the sub-dimensions of cognitive-affective and physiologic symptoms were observed to exhibit a statistically significant reduction after the training. Insignificant difference between the post-training and one month scores was important because it showed that the reduction was maintained after the training. This result demonstrates that coping with stress training reduces the rate of stress symptoms and confirms the 1st hypothesis. Studies indicate that the multiple self-care interventions, cognitive-behavioral interventions and relaxation techniques and group-based approaches considerably reduce stress and anxiety among oncology nurses (35,41). The results from the present study are consistent with these results.

The investigation of the mean ways of coping scores revealed an increase in the mean scores for effective techniques and a reduction in the mean scores for ineffective techniques after the training and at one month of training compared to the pre-training scores, however this difference was not considered to be statistically significant. This result was attributed to the fact that the ways of coping involved the ways commonly used under certain circumstances or repeated over time under similar circumstances by the individuals and the requirement for a long period of time for a change (37).

Based on their assessments before and after the stress management program they administered to the nurses providing palliative care, Bruneau and Ellison (2004) reported that the program was effective on the nurses' individual coping skills as per qualitative results, particularly in relation to using relaxation and sharing their thoughts and experiences with their colleagues, however there were no significant changes in stress-related and coping scores (42). This result is similar to the findings of the present study.

The investigation of the nurses' mean scores for the subscale of burnout revealed a significant result only for the emotional exhaustion. While the difference between the pre-training and post-training emotional exhaustion scores was significant, the difference between the pre-training and one month, and post-training and one month scores was not significant. The literature data suggest that burnout has a three-factor structure with the core component being the emotional exhaustion and the depersonalization, and individual success deficiency being the accompanying variables (21,43). Evaluating the result that the training reduced the emotional burnout together with the literature data, we believe that the training could indirectly reduce depersonalization and increase individual success. Based on these results, the hypothesis that "A significant reduction in the mean scores for the burnout-related sub-scales of emotional exhaustion and the depersonalization and a significant increase in the mean score for the subscale of personal accomplishment will be observed as a result of the coping with stress training program" was partially confirmed. This result also shows that coping with stress training alone is not sufficient to reduce the burnout levels and that further investigation is needed to determine the effect of concomitant interventions.

Conclusion and Recommendations

Results revealed that the program had a significant positive impact on oncology nurses' stress and burnout. However, to generalize the findings, further research is needed, with a larger group, a control group, and a longer period of repeated training. Based on the data obtained, we may recommend identification of the stress and burnout levels and the coping techniques at intervals, the conduction of similar randomized case-control studies in larger populations and comparison of the results and sharing of data obtained with the clinics where the studies are performed.

Acknowledgements

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