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THE EFFECT OF TRAINING TO RELIEVE CANCER PATIENTS' CHEMOTHERAPY SYMPTOMS

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A B S T R A C T

Objective: This was a quasi-experimental study to assess whether the training given to cancer patients affected their chemotherapy symptoms.

Methods: The sample consisted of 60 patients who had received chemotherapy (intervention group 30 patients; control group 30 patients) in the Trabzon/Turkey. The data were collected using the Patient Information Form and Chemotherapy Symptom Assessment Scale between September 2012-September 2013. The first individual training for the intervention group took place after the second cycle of chemotherapy. The Chemotherapy Symptom Training Booklets were distributed to these patients. Individual training for each patient in the intervention group was repeated after the third and fourth cycles of chemotherapy. The Chi-Square, Mann Whitney U tests, percentages, median were used to evaluate the data.

Results: When compared with the patients in the control group, the patients of the intervention group had a lower frequency of the symptom "constipation"; a lower severity of the symptom "vomiting after treatment" and "problems of mouth and throat" symptoms; a lower degree of discomfort of the symptoms "vomiting after treatment", "pain", "infectious signs", "problems of mouth and throat", "changes in appetite", "feeling of weakness", "feeling unusual fatigue", "feeling distressed/anxious", and "feeling pessimistic and unhappy" symptoms ($p<0.05$).

Conclusions: As a result of the training they underwent, patients experienced some relief from their chemotherapy symptoms

INTRODUCTION

Cancer is a chronic disease which can trigger physical, psychological and social problems.[1] The literature reports that there will be 27 million cancer cases worldwide by 2030. Cancer is the second leading cause of death in Turkey. It is estimated that the incidence of cancer in Turkey will increase twofold by 2030 and will approach 450/100.000.[2]

Chemotherapy is one of the most common ways to treat cancer. Although there are currently many new chemotherapy drugs, patients often experience difficulties in coping with their treatment due to the potential and ongoing side effects.[3,4] Patients suffer from various physical and psychosocial problems such as pain, lack of appetite, fatigue, fear, and loneliness. [1,4,5] The psychosocial lives of cancer patients are also impacted due to the ambiguity of the cancer and the treatment process. Patients' relations with their spouses, family members and significant others may be affected. The chemotherapy process leads to increased stress levels for cancer patients, fear of loss of control over their lives, and changes in their social roles and interactions with others.[6-8]

It is very important to keep patients' chemotherapy symptoms under control and to effectively manage them as these symptoms can seriously affect patients' quality of life. [1-5] Experience has shown that cancer patients need information and training at every phase of the cancer and chemotherapy process.[1,4,5] Recent reports have indicated that providing cancer patients who are undergoing chemotherapy with information and training aimed at controlling their symptoms from the treatment have yielded positive results.[9-11] Studies have shown that patients' need for antiemetic drugs to control nausea and vomiting during chemotherapy can be reduced by providing them with training and information to control

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these symptoms.[12] Furthermore, psychosocial interventions for symptoms management of cancer patients undergoing chemotherapy have shown positive results in patients' ability to cope with stress, thus improving their quality of life.[10]

Cancer patients need information and training in order to fully participate in the decision-making process about their health status, to control disease and treatment-related symptoms and to cope with the cancer experience. The literature has reported that patients who are not well informed about the chemotherapy and the side effects are less able to control their symptoms, and they also experience more severe side effects from the treatment.[1] Lack of knowledge about cancer and chemotherapy may become a source of fear and anxiety for many cancer patients.[7]

In caring for cancer patients who undergo the rigors of chemotherapy, the goal of nurses is to offer compassionate care to relieve their suffering and to offer the support needed to improve the patients' health.[1,5] Informational meetings and training could become a significant factor in patients' adaptation to the disease.[1,13] Thus, in keeping with this aim, the training should include information about the effects and side effects of chemotherapy medicines, balanced diet, activity programs, role changes, adaptation/compliance, coping with hopelessness, and healthy functioning with family and social ties.[13,14] It is very important that the training be offered to patients at a suitable time and place, and information and training need to be delivered in a clear and explicit manner. In this way the development of many chemotherapy symptoms may be prevented, and patients may learn to cope more effectively with existing symptoms.[7,15]

The current study examines the effect upon chemotherapy symptoms of providing information and training to cancer patients undergoing chemotherapy. With planned informational meetings/trainings, nurses can offer support to help patients recognize and cope with the physical and psycho-social problems they will encounter. Our hypothesis states that the information and training given to cancer patients will reduce the incidence, severity and level of distress associated with chemotherapy symptoms.

METHODS

This was a quasi-experimental study. This study was conducted from September 2012 to September 2013. A convenient subject of 60 cancer patients who received chemotherapy in the Ambulatory Chemotherapy Unit of a University Hospital, Trabzon/Turkey. The patients were divided into intervention (30 patients) and control groups (30 patients). Criteria for inclusion in the studyrequired that patients had cancer and were receiving chemotherapy, were older than ≥18 years, had undergone the second cycle of chemotherapy, were able to communicate and speak Turkish, were literate, did not have any visual and hearing impairments and any chronic diseases that required continuous treatment, were informed of the diagnosis, and agreed to participate in the research.

The data were collected using the Patient Information Form (PIF) and the Chemotherapy Symptom Assessment Scale (C-SAS).

Patient Information Form (PIF): After a review of the literature, the PIF was designed by the researchers. The form had two parts with a total of seven questions. The first part included five questions about patients' socio-demographic characteristics (gender, age, marital status etc.). The second part included two questions about patients' diseases (cancer type, cancer duration).

Chemotherapy Symptom Assessment Scale (C-SAS): The C-SAS is a scale that measures 24 chemotherapy symptoms which occur in cancer patients who receive chemotherapy. It is one of the important scales used to measure chemotherapy-specific symptoms. It was developed by Brown et al. (2001) and its validity and reliability tests were performed in England.[16] The first part of the scale measures "frequency of the symptoms", the second part measures "severity of the symptoms", and the third part measures "degree of discomfort of the symptoms". Frequency of symptoms is assessed with answers "yes/no", and severity of the symptoms is assessed with a three-point Likert-type measurement: mild = 1, moderate = 2, and severe = 3. The degree of discomfort of the symptoms is assessed with a four-point Likert-type measurement: none = 0, mild = 1, quite a lot = 2, and excessive = 3. Each symptom is separately assessed. The C-SAS includes no subscales. Higher scores indicate higher level of frequency of the symptoms, severity of the symptoms, and degree of discomfort of the symptoms. Turkish validity and reliability tests of the C-SAS were performed by Ozlem Aslan.[1] Chronbach α for frequency of the symptoms was 0.67; Chronbach α for severity of the symptoms was 0.80, and Chronbach α for degree of discomfort of the symptoms was 0.82.[17]

Chemotherapy Symptom Training Booklet (CSTB): The booklet was designed by the researchers after the literature had been reviewed. Contents of the CSTB were selected based upon C-SAS symptoms. The booklet was used for the training of the patients in the intervention group. The booklet was prepared to provide patients with written and illustrated materials and had two objectives: to decrease chemotherapy-related symptoms and to enable patients to quickly access information about the chemotherapy symptoms affecting them. For example; the following recommendations were made for the nausea symptom: (1) find the reason of the nausea (2) eat your meals slowly, often, and in small portions (3) follow a diet of liquids and soft foods (4) after the meal, lie in a semi-recumbent position and change your position slowly (5) avoid very hot and cold, fatty and spicy foods and caffeine.

Procedure

Control group: The control group was composed of 30 patients who had finished their second cycle of chemotherapy. Soon thereafter they were administered the PIF and C-SAS by the researcher at the Ambulatory Chemotherapy Unit. These patients were not offered individual training to decrease chemotherapy symptoms, and the CSTBs were not given to them. The patients of the control group benefited from the standard care given at the Ambulatory Chemotherapy Unit. The C-SAS was administered again to these patients after the fifth cycle of chemotherapy.

Intervention Group: The intervention group was composed of 30 patients. The researcher at the Ambulatory Chemotherapy Unit administered the PIF and C-SAS to the intervention group after the second cycle of chemotherapy. The first individual training of these patients was conducted and the CSTB was distributed. After the third and fourth cycles of chemotherapy, the training was resumed for each patient in the intervention group (a total of 3 trainings). On average the training sessions lasted 20 minutes and took place in a private patient room at the Ambulatory Chemotherapy Unit. The training was given using narration and question-answer techniques derived from the CSTBs, and after the fifth cycle of chemotherapy, the C-SAS was again administered to these patients

Training: The aim of this intervention was to alleviate and or to eliminate the difficulties caused by chemotherapy symptoms among the patients. Contents of the training were based upon the C-SAS symptoms. The topics were (a) determination of the patients' well-being and their symptoms and (b) clarification of the recommendations in the CSTB.

Each patient in the intervention group was provided three individual training sessions in a private patient room at the Ambulatory Chemotherapy Unit using the face-to-face interview technique. The training focused on the symptoms that patients had difficulty coping with and controlling, and opportunities were given them to ask questions and to get answers. There was no time limitation for the training, and depending on the needs of the patients, sessions lasted for 20 minutes. In addition to the recommendations offered in the CSTB, patients were supported by the researchers in accordance with their needs.

Ethical Considerations

Ethical approval to conduct the current study was obtained from the Karadeniz Technical University Faculty of Medicine Ethics Council (2012/152). Written approval was also obtained from the institution where the study was conducted. Informed consent forms outlining the aims and procedures of the study were obtained from all participants who were guaranteed confidentiality. The study conformed to the principles of the declaration of Helsinki.

Data Analysis

The SPSS (Statistical Package for Social Sciences) for Windows 18.0 was used for data encoding and statistical analyses to assess the findings obtained from the study. Evaluation of data was carried out using the descriptive statistical methods (frequency, percentage, median), and the Chi-Square test was used for the comparison of qualitative data. In the comparison of quantitative data of two groups, the Mann-Whitney U test was used in the inter-group comparisons of the parameters. Results obtained from the analyses were considered significant with a 95% confidence interval at $p < 0.05$.

RESULTS

Table 1 Descriptive and Disease Characteristics of the Patients

Descriptive and Disease Characteristics	Intervention Group (n=30) n(%)	Control Group (n=30) n(%)	p
Gender			
Female	14(46.7)	8(26.7)	0.180
Male	16(53.3)	22(73.3)	
Age			
18-39	6(20.0)	6(20.0)	0.953
40-60	17(56.7)	16(53.3)	
61 and ↑	7(23.3)	8(26.7)	
Marital status			
Married	26(86.7)	28(93.3)	0.671
Single/widowed/divorced	4(13.3)	2(6.7)	
Education			
Literate	26(23.3)	2(6.7)	0.828
Primary education	14(46.7)	25(83.3)	
High school	9(30.0)	3(10.0)	
Employment			
Housewife	12(40.0)	9(30.0)	0.320
Civil servant	5(16.7)	3(10.3)	
Self employment	5(16.7)	8(26.7)	
Retired	8(26.7)	10(33.3)	
Cancer Type			
Gastrointestinal	6(20.0)	10(33.3)	0.618
Haematological	3(10.3)	2(6.7)	
Genitourinary	6(20.0)	3(10.3)	
Breast	5(16.7)	2(6.7)	
Lung	5(16.7)	11(36.7)	
Unknown primary	5(16.7)	2(6.7)	
Cancer Duration			
1 year ↓	11(36.6)	10(33.3)	0.359
1-5 year	11(36.7)	7(23.3)	
5 year and ↑	8(26.7)	13(43.4)	
Total	30(100.0)	30(100.0)	

Sixty patients were studied. Most of the patients were male and were between 40 and 60 years of age. Nearly all of the patients were married.

Table 2 The Frequency of Symptoms of the Patients

The Frequency of Symptoms			
Symptoms	**Intervention Group (n=30) n(%)**	**Control Group (n=30) n(%)**	**p**
Nausea and vomiting before treatment	9(31.0)	10(33.3)	0.994
Nausea after treatment	18(60.0)	18(60.0)	0.325
Vomiting after treatment	13(43.3)	15(50.0)	0.414
Constipation	9(30.0)	17(56.7)	0.018
Diarrhea	5(16.7)	11(36.7)	0.563
Pain	10(33.3)	16(53.3)	0.563
Shortness of breath	8(26.7)	12(40.0)	0.199
Signs of infection	10(33.3)	14(46.7)	0.893
Bleeding or bruising	7(23.3)	7(23.3)	0.635
Pins and needles/numbness of hands and feet	11(36.7)	14(46.7)	0.199
Problems with the skin and nails	12(40.0)	15(50.0)	0.100
Hair loss	16(53.3)	15(50.0)	0.745
Problems of mouth and throat	14(48.3)	19(63.3)	0.132
A change in appetite	17(56.7)	15(50.0)	0.655
Weight gain or loss	12(40.0)	16(53.3)	0.371
Problems with eyes	7(23.3)	13(43.3)	0.245
Fealing weak	20(66.7)	24(80.0)	0.723
Feeling unusual fatique	20(66.7)	25(83.3)	0.859
Difficulty sleeping	16(53.3)	16(53.3)	0.805
Headaches	10(33.3)	9(30.0)	0.908
Feeling distressed/anxious	6(20.0)	12(40.0)	0.207
Feeling pessimistic/unhappy	8(26.7)	12(40.0)	0.664
Change in sexual life	10(33.3)	11(36.7)	0.664
Irregular periods (female patients)	8(66.7)	6(85.7)	0.602

Nearly half of the patients in the intervention group and most of the patients in the control group had graduated from primary schools. Forty percent of the women in the intervention group and the control group were housewives and 26.6% of the patients in the control group were retired. Twenty percent of the patients in the intervention group had gastrointestinal cancers, and 20.0% of them had genitourinary cancer. The control group had 36.7% of the patients with lung cancer and 33.3% of them had GIS cancer. Cancer duration for 36.7% of patients in the intervention group was between 1-5 years while it was over ≥ 5 years for 43.4% of those in the control group. There were not any significant differences in descriptive and disease-related-characteristics between the patients in the intervention group and those in the control group (p> 0.05) (Table 1).

One interesting finding was that the intervention group patients had a reduced frequency of the "constipation" symptom (p=0.018) (Table 2).

Tablo 3 The Severity of Symptoms of the Patients

The Severity of Symptoms					
Symptoms	**Intervention Group (n=30) Median**	**25-75%**	**Control Group (n=30) Median**	**25-75%**	**p**
Nausea and vomiting before treatment	2.0	1.0-3.0	2.0	2.0-3.0	0.569
Nausea after treatment	1.0	1.0-2.0	2.0	1.0-2.0	0.194
Vomiting after treatment	1.0	1.0-2.0	2.0	2.0-3.0	0.016
Constipation	2.0	1.0-2.0	2.0	2.0-3.0	0.188
Diarrhea	2.0	1.0-2.0	2.0	2.0-2.0	0.394
Pain	2.0	2.0-3.0	2.0	1.0-3.0	0.514
Shortness of breath	2.0	2.0-3.0	2.0	1.0-3.0	0.459
Signs of infection	1.0	1.0-2.0	1.0	1.0-2.0	0.621
Bleeding or bruising	2.0	1.0-2.0	1.0	1.0-2.0	0.298
Pins and needles/numbness of hands and feet	2.0	2.0-3.0	2.0	1.0-2.0	0.210
Problems with the skin and nails	2.0	2.0-3.0	1.0	1.0-2.0	0.146
Hair loss	3.0	3.0-3.0	3.0	3.0-3.0	0.293
Problems of mouth and throat	1.0	1.0-2.0	2.0	1.0-3.0	0.013
A change in appetite	2.0	2.0-3.0	2.0	2.0-3.0	0.315
Weight gain or loss	2.0	2.0-3.0	3.0	2.0-3.0	0.156
Problems with eyes	1.0	1.0-2.0	2.0	1.0-2.0	0.229
Fealing weak	2.0	2.0-2.0	2.0	1.0-3.0	0.657
Feeling unusual fatique	2.0	2.0-2.0	2.0	2.0-2.0	0.784
Difficulty sleeping	2.0	2.0-2.0	3.0	1.0-3.0	0.487
Headaches	2.0	2.0-3.0	2.0	2.0-3.0	0.894
Feeling distressed/anxious	2.0	2.0-2.0	3.0	2.0-3.0	0.124
Feeling pessimistic/unhappy	2.0	2.0-2.0	3.0	2.0-3.0	0.194
Change in sexual life	2.0	2.0-3.0	2.0	1.0-3.0	0.499
Irregular periods (female patients)	2.0	2.0-3.0	3.0	3.0-3.0	0.082

Note: 0.0: None; 1.0: Mild; 2.0: Quite a lot; 3.0: Excessive.

For patients in the intervention group, there were statistically significant decreases in the severity of "vomiting after treatment" symptoms (p=0.016) and "problems of mouth and throat" symptoms (p=0.013) as compared with those in the control group (Table 3).

Among the patients in the intervention group, there were statistically significant decreases in degree of discomfort of the symptoms of "vomiting after treatment" (p=0.002), "pain" (p=0.046), "infection signs" (p=0.042), "problems of mouth and throat" (p=0.003), "change in appetite" (p=0.001), "feeling weakness" (p=0.031), "feeling unusual fatigue" (p=0.043), "feeling distressed/anxious" (p=0.037) and "feeling pessimistic and unhappy" (p=0.025) as compared with those in the control group (Table 4).

Table 4 The Degree of Discomfort from Symptoms of the Patients

The Degree of Discomfort from Symptoms					
Symptoms	**Intervention Group (n=30) Median**	**25-75%**	**Control Group (n=30) Median**	**25-75%**	**p**
Nausea and vomiting before treatment	2.0	1.0-3.0	2.0	1.0-2.0	0.553
Nausea after treatment	1.0	1.0-1.0	1.0	1.0-2.0	0.054
Vomiting after treatment	1.0	1.0-1.0	2.0	1.0-3.0	0.002
Constipation	1.0	1.0-3.0	2.0	1.0-3.0	0.193
Diarrhea	1.0	1.0-2.0	2.0	1.0-2.0	0.393
Pain	2.0	1.0-2.0	3.0	2.0-3.0	0.046
Shortness of breath	2.0	1.0-2.0	2.0	1.0-3.0	0.240
Signs of infection	1.0	0.0-1.0	1.0	1.0-2.0	0.042
Bleeding or bruising	1.0	1.0-2.0	1.0	0.0-2.0	0.836
Pins and needles/numbness of hands and feet	2.0	1.0-3.0	2.0	1.0-2.0	0.603
Problems with the skin and nails	1.0	1.0-2.0	1.0	1.0-2.0	0.456
Hair loss	1.0	1.0-3.0	3.0	2.0-3.0	0.930
Problems of mouth and throat	1.0	0.0-1.0	2.0	1.0-3.0	0.003
A change in appetite	1.0	1.0-2.0	3.0	2.0-3.0	0.001
Weight gain or loss	2.0	2.0-3.0	3.0	2.0-3.0	0.156
Problems with eyes	1.0	0.0-1.0	2.0	1.0-2.0	0.113
Fealing weak	1.0	1.0-2.0	2.0	1.0-3.0	0.031
Feeling unusual fatique	1.0	1.0-2.0	2.0	1.0-2.0	0.043
Difficulty sleeping	1.0	1.0-2.0	2.0	1.0-3.0	0.185
Headaches	2.0	2.0-3.0	2.0	1.0-2.0	0.346
Feeling distressed/anxious	1.0	1.0-2.0	2.0	2.0-3.0	0.037
Feeling pessimistic/unhappy	1.0	1.0-2.0	2.0	2.0-3.0	0.025
Change in sexual life	2.0	1.0-3.0	2.0	1.0-3.0	0.941
Irregular periods (female patients)	2.0	2.0-3.0	3.0	3.0-3.0	0.820

Note: 0.0: None; 1.0: Mild; 2.0: Quite a lot; 3.0: Excessive.

DISCUSSION

Our study showed that the patients in the intervention and control group experienced "nausea-vomiting before treatment". Other studies have reported that most cancer patients may experience nausea-vomiting during palliative cancer care.[1,5,18,19,20] The finding that severity and degree of discomfort of the symptoms of "nausea after treatment" and "vomiting after treatment" were reduced in the intervention group corresponded to the finding of the Aslan study which indicated that nausea and vomiting were kept under control due to the training of patients who had received chemotherapy.[3]

Chemotherapy drugs have been reported to be associated with the problem of constipation in cancer patients.[21] Our study results indicated that the frequency of the "constipation" symptom decreased for patients in the intervention group. Erdogan also identified a decrease in the frequency, severity and degree of discomfort of the constipation symptoms among the cancer patients who had taken part in the symptom-control training.[5]

Our study also found that patients in the intervention group experienced pain less frequently than those in the control group; there was also a decrease in the degree of discomfort for the "pain" symptom. Anderson et al. noted that pain was experienced less often among the cancer patients who used the relaxation technique.[22]

Although the patients in the intervention group experienced shortness of breath less often than patients in the control group, no significant differences were found between the groups in terms of frequency, severity and degree of discomfort of "shortness of breath". Our study concurred with the documented studies in the literature which offer proof that many practices used in nursing training, such as breathing techniques, positioning, and planning activities may also relax patients with shortness of breath.[1]

Our study revealed that patients in the intervention group had a much lower degree of discomfort of the "infectious signs" symptom. Other studies have also found that cancer patients can benefit greatly from the instruction on proper hand-washing techniques, since these offer one of the most effective ways to prevent infections.[23,24]

Additional findings of our study indicated no significant differences between the intervention group and the control group in terms of frequency, severity and degree of discomfort of "bleeding or bruising". Similarly, the studies of Aslan and Erdogan found that training provided to the cancer patients receiving chemotherapy did not make an important difference in frequency, severity and degree of discomfort of thrombocytopenia.[1,5]

Chemotherapy-related peripheral neuropathy steadily worsens with each repeated chemotherapy cycle.[15] Although there were not any significant differences between the intervention group and the control group in the frequency, severity and degree of discomfort of "pins and needles/numbness in hands and feet" symptom, patients of the intervention group experienced this symptom less often as compared with patients of the control group. Tofthagen et al. also found that 36-55% of the patients who underwent chemotherapy suffered from loss of balance, muscle weakness and numbness in their extremities.[25]

Our study also determined that 40.0% of the patients in the intervention group and half of the patients in the control group (50.0%) suffered from "problems with the skin and nails". The current literature reports that 50-100% of the patients who receive chemotherapy have skin rash similar to acne, excessive skin dryness, pruritus and changes in nails.[1,18,19]

The "hair loss" symptom was experienced equally by both the intervention and the control group. Indeed, the literature reports that one of the major and the most encountered of three toxicities of chemotherapy is alopecia.[18,26]

In our study; after the patients in the intervention group participated in a nurse-led training about mouth hygiene and mouth care during chemotherapy, significant decreases were detected in the frequency, severity and degree of discomfort of "problems of mouth and throat" symptom among this group. Various studies have reported that the use of special mouth care protocols during chemotherapy significantly reduced the frequency of mucositis, healed oral mucosa, and decreased the incidence of oral complications.[5,18,27]

One study indicated that one of the most severe symptoms seen in cancer patients was lack of appetite. In order to lessen the severity of patients' symptoms, recommendations called for nurses to have an effective nursing plan in place.[5] Our study found that patients in both the intervention and the control group experienced "change in appetite", and a significant difference was found in the degree of discomfort between the groups.

In our study, 23.3% of patients in the intervention group experienced "problems with eyes" whereas 43.3% in the control group had this problem. Yet no significant difference was seen between the groups in the frequency, severity and degree of discomfort with the "problems with eyes" symptom. The Aslan study found no statistically important decrease in the severity of "problems with eyes" after chemotherapy.[1]

The "feeling weakness" and "feeling unusual fatigue" symptoms were felt by 66.7% in the intervention group, whereas 80.0% of the control group reported "feeling weakness" and 83.3% of this same group experienced "feeling unusual fatigue". Barsevick et al. studied cancer patients receiving treatment and the effect of interventions in maintaining energy and activity management among them, and they determined that the patients experienced a significantly lower level of fatigue.[28]

Results of our study also revealed that patients of both the intervention and control groups experienced the same frequency level with sleeping difficulties. However, no significant difference existed between the groups in terms of frequency, severity and degree of discomfort with the "difficulty sleeping" symptom. Lafcı's study reported that 70.8% of the cancer patients in the intervention group were unable to sleep at all, and 66.7% of patients had difficulty falling asleep.[29]

Studies indicate that two-thirds of cancer patients suffer from emotional problems after the treatment.[30] Twenty percent of the intervention group and 40.0% of the control group in our study felt anxious or distressed, and 26.7% of the intervention group and 40.0% of the control group felt pessimistic or unhappy. Studies have reported that cancer patients suffer intensely from such psychological symptoms as anger, anxiety, and nervousness.[3,30]

This current study showed that although both the intervention and control groups experienced changes in their sexual life, patients in the intervention group were affected to a lesser degree. However, no significant difference existed between the groups in terms of frequency, severity and degree of discomfort with the "changes in sexual life" symptom. Demirsoy indicated that the information and training given to the cancer patients to prevent sexual problems was beneficial in easing patients' anxieties about any sexual problems or changes which might develop during their chemotherapy treatments.[31]

Although our study did not find any significant differences between the intervention group and the control group in terms of the frequency, severity and degree of discomfort of "irregular periods (female patients)" symptom, we found that the patients in the intervention group had irregular periods less frequently than the patients in the

control group. Similarly, the study of Aslan (2003) did not demonstrate any significant difference in terms of frequency, severity and degree of discomfort of the "irregular periods (female patients)" symptom among the cancer patients.

Limitations

Limitations of the current study are as follows: (a) inclusion of the patients who had received the second cycle of chemotherapy (b) the results of the study can be generalized only to those patients living in the eastern Black Sea region of Turkey because the study was undertaken there.

CONCLUSION AND IMPLICATIONS FOR PRACTICE

Our study has demonstrated that the training given to the cancer patients to manage their chemotherapy symptoms was an effective nursing intervention to lessen and or alleviate chemotherapy symptoms. In addition, planned and continuous training about chemotherapy symptoms may reinforce patients' ability to effectively manage and cope with these symptoms. Training is an effective method in controlling chemotherapy symptoms among cancer patients.

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