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**Original Article**

# Effect of Empowerment Program on Quality of Life, Self-Efficacy, and Stress in Cancer Patients

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### What is already known on this topic?

- *Family-centered empowerment program increases the knowledge and skills of individuals about their diseases.*
- *Empowering interventions for the patient and family during chemotherapy can guide healthcare professionals.*

### What does this study add on this topic?

- *The general well-being and self-efficacy of patients who participated in the empowering program increased during the chemotherapy.*
- *Empowerment may be positively associated with physical, psychological, social, and global health-related quality of life.*

## ABSTRACT

**Objective:** Patient empowerment is important in chronic disease management. The aim of this research was to determine the effects of a family-centered empowerment program on quality of life, self-efficacy, and stress in patients with cancer.

**Methods:** This study used a pretest–posttest quasi-experimental design with a control group. A total of 51 patients who received adjuvant chemotherapy for the first time between July 2020 and August 2021 were included in the study. For the empowerment group, an education program, relaxation exercises, counseling, and follow-up were conducted according to the family-centered empowerment model. Data were collected using the Introductory Form, the European Organization for Research and Treatment of Cancer Quality of Life–C30, the General Self-Efficacy Scale, and the Perceived Stress Scale. A repeated-measures ANOVA test was used to determine whether the pretest–posttest mean scores of the groups changed over time and to determine the effect of group time.

**Results:** The general well-being scores and cognitive function mean scores of the empowerment group were higher than the control group, and the time and groups interaction were statistically significant ($F = 5.298$, $P = .023$; $F = 6.624$, $P = .012$). It was found that the mean scores of the total general self-efficacy were significantly higher in the empowerment group than in the control group ($F = 7.162$; $P = .09$). The mean scores of the total stress scale did not differ significantly between groups ($P > .05$).

**Conclusion:** As a result of this study, it was observed that the general well-being and self-efficacy of patients who participated in the empowerment program increased during the chemotherapy process. Using empowering interventions for the patient can guide healthcare professionals and improve patients' quality of life and self-efficacy.

**Keywords:** Chemotherapy, empowerment, quality of life, self-efficacy, stress

## Introduction

Cancer is one of the most common diseases that causes high mortality rates worldwide. According to a Globacan report, there were 240 013 new cancer cases and 129 672 cancer-related deaths in Türkiye in 2022, and the number of patients diagnosed with cancer is increasing daily.[1,2] Thanks to significant advances in early diagnosis and treatment, cancer is now treated as a chronic disease that requires regular monitoring and treatment.[3] This result, on the other hand, necessitated that the patient and family take a more central role in the treatment of cancer and that healthcare professionals work in concert with patients who are willing to share responsibility.[4,5]

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Empowering patients during chemotherapy (CT) is of particular importance. This is because, in addition to being therapeutic, CT induces many symptoms/distresses (nausea/vomiting, lack of appetite, mucositis, pain, fatigue, anxiety) and many physical and psychosocial difficulties for the individual/family at each stage. Studies conducted with patients receiving chemotherapy reported that patients' self-efficacy in coping with the disease and the side effects of treatment during chemotherapy was low and their quality of life was significantly impaired.[3,6-8] On the other hand, it is known that high self-efficacy in cancer patients decreases the level of stress and anxiety, increases adaptation to illness and quality of life.[9] Therefore, it is very important to empower the patients and improve their self-management in coping with the disease.

Patient empowerment is a process that defines and develops a person's ability to meet their own needs and mobilize the resources necessary to take control of their lives.[3,5] Empowerment programs aim to help patients develop process-specific management skills, bring about changes in their health behaviors, and achieve desired health-related goals. Programs are based on building self-confidence in patients' ability to manage their own health and lead an active life.[4,10] The family-centered empowerment model is one of the ways to empower chronic patients and their families. This model provides patients with the opportunity to take an active role in health care rather than being a passive recipient of care. The model consists of 4 steps. The first step in the model is to increase the level of knowledge with training sessions or methods. The second step is the development of self-efficacy and practices for it. The third step is to increase self-esteem through participation in education. The fourth and final step includes the evaluation process during and after the empowerment steps.[11-13]



Patient empowerment is a process that provides patients with the opportunity to take an active, rather than passive role in their care. Therefore, it is critical for healthcare professionals to empower patients. Empowerment is also essential for the development of the therapeutic relationship between nurses and patients.[4,12,13] Empowering patients and families through inclusion and care is also stated as a nursing responsibility in the Nursing Regulation. Nurses must inform, educate, and counsel patients about their needs throughout the cancer process, and empower individuals.[14]

Empowerment is an essential feature of the relationship between patients and healthcare professionals.[4,14,15] Although the problems of cancer patients are frequently discussed in the literature, it has been noted that the number of intervention studies aimed at empowering patients is limited and the effectiveness of an empowerment program in patients receiving chemotherapy has not been demonstrated in Türkiye.[6,7,15] It is important to use family-supported empowerment models in which patients and their families take a more central role in care in order to assess and meet the social, spiritual, emotional, and physical needs of cancer patients with a holistic approach. The aim of this study was to assess the effect of the empowerment program specifically designed for patients receiving CT on quality of life, self-efficacy, and stress. Research questions:

- Does an empowerment program for cancer patients reduce perceived stress?
- Does an empowerment program for cancer patients increase self-efficacy?
- Does an empowerment program for cancer patients improve quality of life?

## Methods

### Study Design and Sample

In this study, non-randomized pretest–posttest control group design was used. The research population consisted of patients who received CT in the chemotherapy unit of a hospital in Türkiye. The research sample covered individuals aged above 18 years receiving chemotherapy for the first time, who had no communication problems, could be reached by phone and gave consent to participate in the study. Those who had a history of cancer recurrence, who had mental and psychiatric illnesses, who were receiving hormone therapy, who had previously received chemotherapy, and who had not consented to participate in the study were not included in the study.

Power analysis was done with G Power 3.1.4 program to calculate the number of samples. Studies that evaluated the effectiveness of the empowerment program were examined, and the analysis results of the study by Sona et al were used to calculate the sample size.[16] The minimum sample size at 80% power range and 95% CI (effect level: 0.78) was found to be 50 (empowerment group: 25; control group: 25). Considering the possible loss of data during the study, it was planned to include 30 patients in each group. However, during the data collection process, 5 patients in the control group (1 patient died, 2 patients were unavailable during follow-up and monitoring period, 1 patient changed his/her treatment center, 1 patient could not complete the posttests) and 4 patients in the empowerment group (2 patients reported not using the prescribed empowerment program, 1 patient's treatment was interrupted due to infection with CoVID-19, 1 patient was unavailable during follow-up and monitoring period) were excluded from the study. Therefore, the study was completed with 25 patients in the control group and 26 patients in the empowerment group.

### Interventions

Patients in the empowerment and control groups were matched according to age, diagnosis, and CT protocol in this study. Individuals were included in the empowerment or control group according to whether they were under 65 or over 65 years of age. The first individual was included in the empowerment group, and the second individual was included in the control group with a similar diagnosis, chemotherapy protocol, and age range as the first patient. Thus, a similarity was achieved between the empowerment and control groups. The steps of the family-centered empowerment model were used as the basis for creating the steps related to the empowerment process.[4,17]

First step: Informing is a key element of the empowerment process. Therefore, educational materials on the CT process were prepared by the researchers. The training material consists of 2 parts, including the CT process (e.g., diet during chemotherapy, home care, etc.) and the assessment and control of the side effects of CT (infections, fatigue, mouth sores, xerostomia, nausea/vomiting, diarrhea, constipation, appetite loss, alopecia, skin reactions, sexuality, etc.). The opinions of 5 experts, including 1 oncologist, 2 academic nurses, and 2 oncology nurses, were considered in evaluating the prepared training material for content, readability, and ease of use. The training material was evaluated using the Quality Criteria for Consumer Health Information form.[18] The patients and their families were trained by the researchers for approximately 25-30 minutes on the day of their first CT, and a training booklet was given to them after the training. The training was given face-to-face in 1 session, but training sessions continued during the CT process (Figure 1).

Second step: The second step was aimed at reducing stress and promoting self-efficacy. Firstly, muscle relaxation exercises were performed to improve coping with stress in this stage. When performing the relaxation exercises, the audio recording of the relaxation exercises prepared by the Turkish Psychologists Association (the first 10 minutes consist of explaining what relaxation is, 30 minutes consist of relaxation instruction with audio) was used. All patients were given an MP3 player with audio recordings and music for the relaxation exercises,

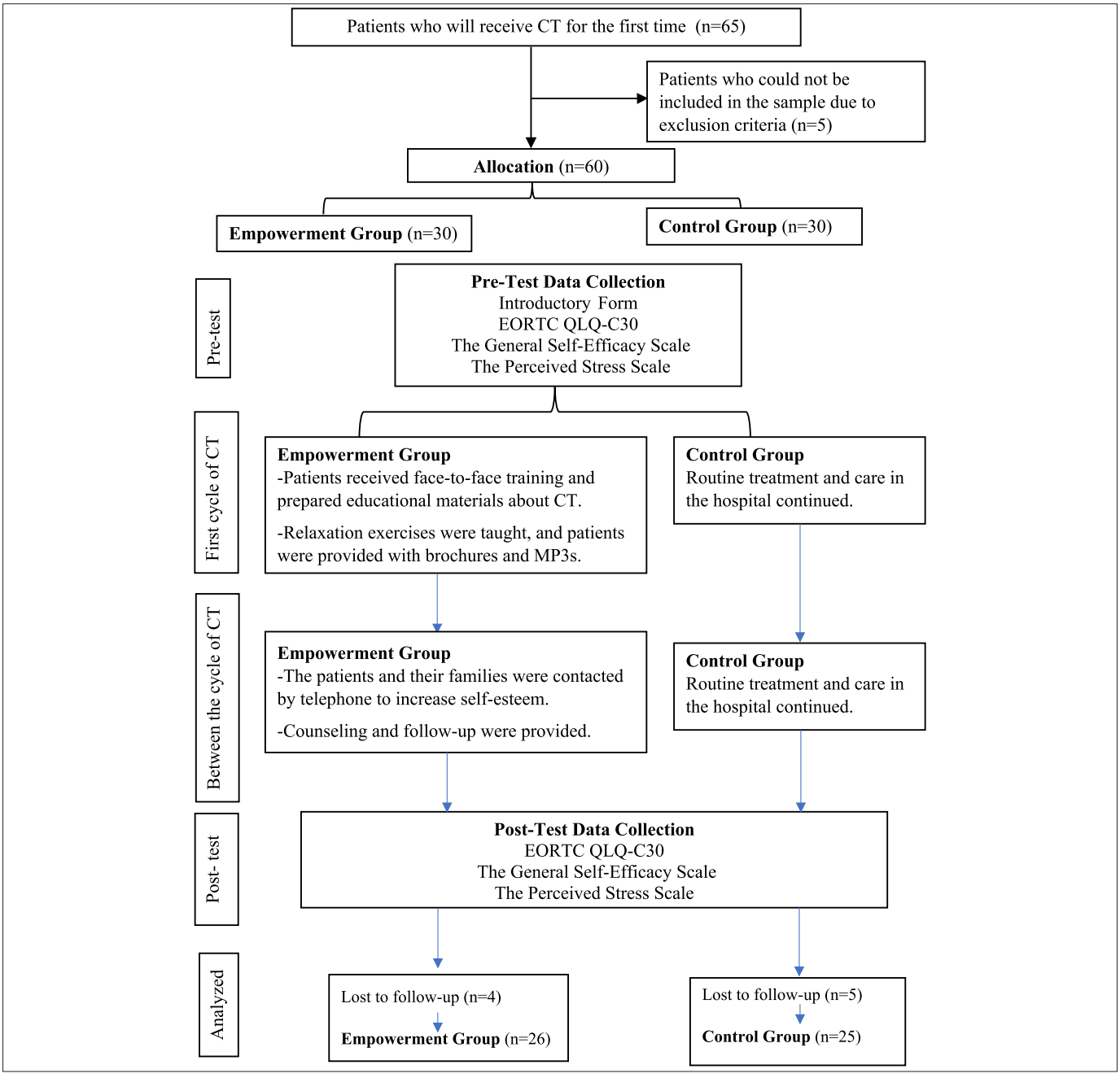


**Figure 1.** Research flow chart.

headphones, and an informational brochure that included photographs of the muscle stretching-relaxation movements on the first day of CT, and the patients were taught relaxation exercises. It is aimed to increase problem-solving skills through methods such as understanding how to prevent and reduce the symptoms experienced, teaching skills such as exercise, and making written planning (Figure 1).

Third step: In this step, it was aimed to increase self-esteem through participation in education. Between the cycle of CT, the patients and their families were contacted by telephone to share information about the cycle of CT, symptom management, patients' experiences, and feelings during CT to uncover sources of weakness. Defining the problems experienced by the patients and presenting solution suggestions were discussed and prioritized, and then the patients were informed of the steps to problem-solving, and the steps to problem-solving were added at the end of the training material (Figure 1).

Fourth step: This step consists of the evaluation process. Each patient in the empowerment group was called between CT cycles by researchers. Additionally, patients and their families called researchers when they needed. Collaboration with the oncology team was ensured for counseling issues, and follow-up was provided (Figure 1).

Control group: Standard treatment and care practices were continued and no further treatments were given for individuals in the control group. In standard care, oncology nurses only give face-to-face training to patients on the first course of chemotherapy.

### Data Collection

The research data were collected in the chemotherapy unit of a hospital in Türkiye between July 2020 and August 2021. Data collection forms were applied to the patients in the empowerment and control groups twice, at the beginning of the first CT (pretest) and at the end

of CT (posttest). Introductory Form, developed by the researchers, asks questions about patients' demographic and disease characteristics (age, sex, chronic disease, diagnosis, year of diagnosis, previous treatment).[4,12,13,15]

### European Organization for Research and Treatment of Cancer Quality of Life–C30

The European Organization for Research and Treatment of Cancer Quality of Life–C30 (EORTC QLQ-C30) scale consists of 3 sections (the general well-being, the functional scales, and the symptom scales) and 30 items. Functional scales cover physical, emotional, social role, and cognitive functions. Symptom scales, on the other hand, assess fatigue, pain, appetite loss, nausea or vomiting, constipation, diarrhea, dyspnea, and insomnia symptoms. The total scale scores range from 0 to 100. A high score for general health and functional scales indicates good health, while a high score on the symptom scale indicates an excess of symptoms. The Turkish validity and reliability study of the EORTC QLQ-C30 was conducted by Güzelant et al[19] and the cronbach alpha coefficient was calculated as 0.90. In this study, the cronbach alpha score of the scale was found to be 0.86.

### The General Self-Efficacy Scale

The General Self-Efficacy Scale consists of 17 items and 3 subscales (initiative, effort, persistence). The 'Initiative' subscale assesses the situation and the extent to which one is unable to start a task in time when it comes to difficult and complex tasks and unexpected problems. The total scale score ranges from 17 to 85. A higher score shows a high level of self-reliance belief in initiating work against difficulties or challenges. The Turkish validity and reliability research of the scale was conducted by Yıldırım & İlhan and the Cronbach alpha coefficient was calculated as 0.80.[20] In this study, the cronbach alpha score of the scale was found to be.82.

### The Perceived Stress Scale

The Perceived Stress Scale consists of 2 subscales, perceived stress and perceived coping, and 8 items. The scale is scored on both the total score and the subscale scores. The scale has a minimum score of 0 and a maximum score of 32. A high total score indicates a greater perceived stress level. A high subscale score indicates a negative situation. Turkish validity and reliability of the scale was conducted by Bilge et al[21] and the cronbach alpha coefficient was calculated as 0.81. In this study, the cronbach alpha score of the scale was found to be 0.82.

### Ethical Approval

Ethical approval was obtained from Amasya University Non-Clinical Research Ethics Committee (date: February 27, 2020; no.: 5709) and written permission from the institution where the research was conducted. Written and verbal informed consents were obtained from the patients participating in the study. This study was performed in line with the principles of the Declaration of Helsinki.

### Statistical Analysis

The IBM SPSS Statistics 21.0 was used to analyze the data. Parametric tests were used according to Kolmogorov–Smirnov test results. Percentage, mean, minimum, and maximum values were used to summarize descriptive statistics. The independent samples *t*-test and chi-square test were used to analyze the differences between demographic characteristics of the empowerment and control groups. Repeated measures ANOVA test was used to analyze the effect of the empowerment intervention in the empowerment and control groups (group and time interaction). A *P*-value less than .05 was considered statistically significant.

## Results

The mean age of patients was 59.48 ± 11.47 years, 56.8% were female and 86.3% had primary education. It was found that 54.9% of the

**Table 1.** Descriptive Characteristics of the Patients

| Characteristics | Empowerment Group (n = 26) n (%) | Control Group (n = 25) n (%) | Total (n = 51) n (%) | Test Statistics | *P* |
|---|---|---|---|---|---|
| Age (mean ± SD) | 61.64 ± 12.28 | 58.96 ± 15.72 | 59.48 ± 11.47 | 0.679[a] | .789 |
| Gender | | | | | |
| Female | 14 (53.8) | 15 (60) | 29 (56.8) | 0.473[b] | .854 |
| Male | 12 (46.2) | 10 (40) | 22 (43.2) | | |
| Marital status | | | | | |
| Married | 23 (88.5) | 22 (88) | 45 (88.2) | 0.959[b] | .649 |
| Single | 38 (11.5) | 3 (12) | 6 (11.8) | | |
| Educational level | | | | | |
| Primary school | 21 (80.8) | 23 (72) | 44 (86.3) | 3.162[b] | .357 |
| High school | 38 (11.5) | 2 (8) | 5 (9.8) | | |
| Undergarduate | 2 (7.7) | 0 (0) | 2 (3.9) | | |
| Last treatment | | | | | |
| Surgery | 13 (68.4) | 6 (66.7) | 19 (76) | 3.065[b] | .578 |
| Radiothreapy | 6 (31.6) | 3 (33.3) | 9 (24) | | |
| Chronic disease | | | | | |
| Yes | 10 (38.5) | 12 (48) | 22 (43.2) | 0.492[b] | .678 |
| No | 16 (61.5) | 13 (52) | 29 (56.8) | | |
| Diagnosis | | | | | |
| Breast | 10 (38.5) | 6 (24) | 16 (31.3) | 3.187[b] | .305 |
| Colorectal | 5 (19.3) | 7 (28) | 12 (23.5) | | |
| Pancreas, stomach | 4 (15.4) | 3 (12) | 7 (13.7) | | |
| Lung | 3 (11.6) | 3 (12) | 6 (11.7) | | |
| Prostate, bladder | 2 (7.6) | 3 (12) | 5 (9.8) | | |
| Gynecological cancers | 2 (7.6) | 3 (12) | 5 (9.8) | | |
| Diagnosis time (months) (Mean ± SD) | 4.80 ± 3.41 | 3.84 ± 3.59 | 4.02 ± 2.27 | 0.971[a] | .649 |

[a]Independent sample *t*-test.
[b]Chi-square test.

**Table 2.** Distribution of European Organization for Research and Treatment of Cancer Quality of Life–C30 Scores According to Pretest and Posttest

| EORTC QLQ-C30 | Group | Pretest | Posttest | Time (*P*) | Group × Time** (*P*) |
|---|---|---|---|---|---|
| General well-being | Control | 65.33 ± 12.19 | 51.33 ± 15.89 | .002* | .023* |
| | Empowerment | 64.10 ± 8.42 | 61.85 ± 13.97 | | |
| Physical function | Control | 69.33 ± 25.76 | 56.66 ± 20.97 | .004* | .929 |
| | Empowerment | 81.41 ± 17.20 | 67.94 ± 25.35 | | |
| Role function | Control | 74.66 ± 30.47 | 60.66 ± 19.17 | .001* | .114 |
| | Empowerment | 85.25 ± 15.86 | 56.41 ± 25.85 | | |
| Cognitive function | Control | 92.84 ± 10.72 | 87.97 ± 19.70 | .610 | .012* |
| | Empowerment | 88.00 ± 14.04 | 94.00 ± 12.61 | | |
| Emotional function | Control | 87.50 ± 11.84 | 72.11 ± 22.60 | .08* | .052 |
| | Empowerment | 81.33 ± 15.07 | 79.66 ± 11.55 | | |
| Social function | Control | 81.33 ± 19.58 | 63.33 ± 18.58 | .858 | .876 |
| | Empowerment | 81.41 ± 14.39 | 51.41 ± 14.39 | | |
| Dyspnea | Control | 12.33 ± 14.25 | 14.33 ± 19.25 | .061 | .380 |
| | Empowerment | 15.84 ± 10.86 | 6.23 ± 10.55 | | |
| Nausea/Vomiting | Control | 4.66 ± 10.22 | 12.00 ± 18.33 | .121 | .363 |
| | Empowerment | 7.05 ± 10.72 | 8.97 ± 18.39 | | |
| Appetite loss | Control | 14.66 ± 25.60 | 30.66 ± 30.30 | .031* | .446 |
| | Empowerment | 14.10 ± 19.25 | 21.79 ± 32.58 | | |
| Insomnia | Control | 12.00 ± 21.25 | 33.33 ± 25.45 | .001* | .061 |
| | Empowerment | 10.25 ± 18.30 | 24.35 ± 30.63 | | |
| Pain | Control | 12.00 ± 17.02 | 24.66 ± 19.31 | .007* | .305 |
| | Empowerment | 8.97 ± 11.76 | 14.74 ± 18.45 | | |
| Fatigue | Control | 35.64 ± 19.65 | 53.77 ± 18.28 | .001* | .380 |
| | Empowerment | 33.77 ± 13.78 | 45.29 ± 21.52 | | |
| Constipation | Control | 16.00 ± 21.77 | 20.33 ± 20.67 | .546 | .538 |
| | Empowerment | 14.53 ± 16.17 | 11.53 ± 18.71 | | |
| Diarrhea | Control | 2.33 ± 6.66 | 6.00 ± 11.05 | .549 | .536 |
| | Empowerment | 4.12 ± 12.26 | 6.12 ± 12.26 | | |

EORTC QLQ-C30, European Organization for Research and Treatment of Cancer Quality of Life–C30.
*$P \leq .05$.
**Repeated-measures ANOVA.

patients had received other treatment before chemotherapy and 67.8% of the patients who had received previous treatment had a surgical operation. Of the patients receiving CT, 31.3% were diagnosed with breast cancer and 23.5% with colorectal cancer. There was no difference between the empowerment and control groups according to the introductory characteristics (Table 1).

The comparison of the pretest–posttest scores of the groups according to the sub-dimensions of the EORTC QLQ-30 scale is shown in Table 2. It was seen that the general well-being scores of the empowerment group were higher than those of the control group in the posttest, and the interaction of time and groups was found to be statistically significant ($F = 5.298$; $P = .023$) (Table 2).

The time interaction of the physical function, role function, and emotional function was statistically significant. However, there was no significant difference between group pretest–posttest scores of the physical function, role function, emotional function, and social function. It was determined that the cognitive function mean scores in the empowerment group were higher than the control group in the posttest. The time and groups interaction were statistically significant for cognitive function scores ($F = 6.624$; $P = .012$) (Table 2).

It was found that the "Initiative" dimension time interaction was statistically significant, but the time and groups interaction was not statistically significant ($P > .05$). It was also found that the time and groups interaction for "Persistence," "Effort," and "General Self-efficacy" was statistically significant ($P < .001$). It is indicated that the family-centered empowerment program had a significant effect on increasing the general self-efficacy levels of cancer patients receiving chemotherapy (Table 3).

**Table 3.** Distribution of General Self-Efficacy Scale According to Pretest and Posttest

| General Self-Efficacy Scale | Group | Pretest | Posttest | Time Effect (*P*) | Group × Time** (*P*) |
|---|---|---|---|---|---|
| Initiative | Control | 44.40 ± 4.35 | 35.84 ± 2.74 | .001* | .591 |
| | Empowerment | 45.03 ± 5.47 | 37.34 ± 3.04 | | |
| Persistence | Control | 15.44 ± 2.39 | 16.20 ± 2.82 | .001* | .010* |
| | Empowerment | 13.88 ± 2.76 | 17.38 ± 2.49 | | |
| Effort | Control | 7.28 ± 2.30 | 7.48 ± 2.61 | .001* | .002* |
| | Empowerment | 6.23 ± 1.50 | 9.07 ± 1.74 | | |
| Total general self-efficacy | Control | 58.88 ± 5.64 | 59.52 ± 5.46 | .002* | .009* |
| | Empowerment | 57.07 ± 6.53 | 63.80 ± 5.23 | | |

*$P \leq .05$.
**Repeated-measures ANOVA.

**Table 4.** Distribution of Perceived Stress Scale According to Pretest and Posttest

| Perceived Stress Scale | Group | Pretest | Posttest | Time (*P*) | Group × Time** (*P*) |
|---|---|---|---|---|---|
| Perceived stress | Control | 5.19 ± 3.11 | 7.19 ± 4.55 | .029* | .029* |
| | Empowerment | 6.28 ± 2.77 | 7.24 ± 2.63 | | |
| Perceived coping | Control | 7.40 ± 2.06 | 6.48 ± 2.20 | .001* | .001* |
| | Empowerment | 8.61 ± 2.26 | 5.88 ± 2.10 | | |
| Total perceived stress | Control | 13.68 ± 3.15 | 13.72 ± 4.05 | .686 | .686 |
| | Empowerment | 13.80 ± 3.16 | 13.07 ± 6.08 | | |

*$P \leq .05$.
**Repeated measures ANOVA.

In this study, it was found that the mean scores of "perceived stress" and "perceived coping" and the mean scores of the total stress scale did not differ significantly between the groups ($P > .05$) (Table 4).

## Discussion

Empowerment program applied to the cancer patients increased their general well-being in this study. It is important that patients have sufficient knowledge and power to manage the cancer process successfully.[5,11] In this context, empowering patients and families to self-manage, increasing their participation in decision-making, and using strategies that make patients feel in control have been reported to improve patients' quality of life.[4,16] In a study conducted with breast cancer survivors, it was found that survivors participating in a self-help group increased their sense of empowerment, which positively affected their quality of life.[4] Vahedian-Azimi et al[22] found that the empowerment model increased the quality of life of adults with chronic diseases. There are other studies in the literature that show that empowerment interventions increase quality of life in people with chronic diseases.[23-25] The reason for the improvement in general well-being in patients receiving chemotherapy may be associated with the increase in patients' knowledge, self-control, and coping skills.

Although it is stated that the empowerment program has positive effects on physical and social aspects, it was found that there was no significant difference between the groups in this study. However, ıt was found that the mean posttest cognitive function scores in the empowerment group were significantly higher in this study. In a study conducted with leukemia patients, it was found that the empowerment program applied to the patients resulted in a significant increase in physical, psychological, social, and spiritual subscales of quality of life.[12] Shirvani et al[13] revealed that the empowerment model applied to women with breast cancer improved general function (physical, role, cognitive, emotional, and social) and specific function (excluding aspects of body image, sexual performance, and sexual pleasure). In this study, the reason for the increase in cognitive function of the patients in the empowerment group could be due to the relaxation exercises administered to the patients and the education and counseling provided for symptom management. Because there are many studies in the literature showing that stress reduction interventions and exercise interventions are effective in improving cognitive symptoms associated with cancer.[26,27] Education and self-management programs tailored to the target population have been shown to be a tool for improving patients' quality of life. Nurses with significant patient education responsibilities are encouraged to incorporate these models into their care practices.

This study showed that there was no significant difference in symptom scale scores between groups. An empowerment program was implemented in women aged 35-55 who had undergone mastectomy due to breast cancer and had undergone at least 1 CT session in a study. The results showed that the implementation of empowerment focusing on improving quality of life in general and specific functional scales (excluding aspects of body image, sexual function, and sexual pleasure) was effective.[16] In another study, patients aged 18-64 years who received chemotherapy and had a definitive diagnosis of breast cancer (stages 1, 2, and 3) were included in the study. It was reported that the telephone counseling and follow-up program used with the patients reduced cancer symptoms, specific symptoms of breast cancer.[28] The lack of a difference in symptom scores in this study may be due to the patients undergoing CT for the first time and their symptom management skills not being fully developed. Longer-term studies on the effect on symptom control are recommended.

It was found that general self-efficacy scores of the patients in the empowerment group were significantly higher than the control group after the family-centered empowerment program in this study. The family-centered empowerment model is one of the health models based on Bandura's theory for curing chronic diseases.[11-13] Empowerment supports the development of self-management, autonomy, and health responsibility by providing motivation to the patients.[29,30] In this study, the steps of the empowerment program include problem-solving and focused stress management, motivation, and coping strategies in patients receiving chemotherapy. These practices may have contributed to the promotion of self-management. It is noted that empowerment initiatives in these areas help individuals to better cope with the problems they experience and increase their self-management skills and thus empowerment.[10,31] Enhancing patient self-management plays a crucial role in chronic disease management. It is crucial for nurses to meet patients' needs, as well as enhance their coping skills and self-management through empowerment training. In this regard, it may be recommended that nurses use empowerment models in care.

No significant decrease in the perceived stress scores of the participants was found. Since cancer is a stressor and the patient's reactions need to be processed, it is necessary to increase the ability to cope during and after treatment and to remove the psychological pressure on the individual.[32] A study examining the effectiveness of the Family Link Education Program for caregivers revealed that the program was effective in reducing worry and displeasure.[31] It was found that the family-centered empowerment model reduced stress levels and that empowerment of parents of children with cancer was effective in reducing the burden of caregiving.[17] In this study, the use of only relaxation exercises to cope with stress may be the reason why no difference was found in stress scores between the groups.

### Limitations and Strengths

The limitations of the study are that the study was conducted in a single center, the sample size was relatively small, and a randomized controlled trial design was not used. Other limitations of the study include the lack of face-to-face interaction in all interventions, patient follow-ups conducted by telephone, and reliance on subjective patient assessments for follow-up evaluations. Hence, further studies with larger samples and longer time settings are needed to validate the results.

This study is the first in the country to evaluate the effectiveness of a family-centered empowerment program. This model offers patients the opportunity to be active partners in care rather than a passive role. The combined use of holistic approaches, such as information, increased self-management, relaxation, and stress reduction, during the CT process is a strength of the study.

## Conclusion

Cancer-related clinical guidelines state that increased education of cancer patients as part of routine care will improve quality of care and quality of life. As a result of this study evaluating the effect of the empowering program specifically designed for patients receiving chemotherapy, it was noted that the general well-being and self-efficacy of patients who participated in the empowering program increased during the chemotherapy process, while their perceived stress level did not change. In order to cope with the difficulties during the treatment process and to positively influence their state of health, it is important to provide knowledge, skills, and motivation to empower patients. In the diagnosis and treatment process, education and self-management programs designed in accordance with the target audience should be used to identify and meet the physical and psychosocial needs of the patients. Patient empowerment is essential for the development of the therapeutic relationship. Patient empowerment can be achieved through education and counseling to encourage patients to explore their needs, assess their problems, and find solutions. In this regard, nurses are the healthcare professionals who play the most active role in providing accurate information to patients and supporting them in the care, treatment, and decision-making processes. Therefore, it is recommended that supportive coping interventions be planned for patients with cancer, and that nurses utilize care models in the services they provide.

**Data Availability Statement:** The data that support the findings of this study are available on request from the corresponding author.

**Ethics Committee Approval:** Ethical committee approval was received from the Non-clinical Research Ethics Committee of Amasya University (Approval No.: 5709; Date: February 27,2020).

**Informed Consent:** Written informed consent was obtained from the patients who agreed to take part in the study.

**Peer-review:** Externally peer-reviewed.

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