

Investigation of the Relationship Between Care Dependency and Self-Care Behaviors in Chemotherapy Patients

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Abstract

BACKGROUND/AIMS: The symptoms experienced by patients receiving chemotherapy reduce their ability to perform daily life activities, adversely affect their quality of life, and make them dependent on care to meet their care needs. This study was conducted to examine the relationship between care dependency and self-care behaviors in patients undergoing chemotherapy.

MATERIALS AND METHODS: This descriptive and correlational study was conducted with 100 patients in Türkiye between November 2018 and February 2019. Ethics committee approval, institution permit, and patient consent were obtained to conduct the study. Data were collected by face-to-face interviews using the Patient Information Form, Care Dependency Scale, and Self-care Behavior Scale according to Self-Care Inability Theory in Patients Receiving Chemotherapy. In the analysis of the data, t-test, Mann-Whitney U test, Kruskal-Wallis test, Pearson correlation test, and regression analysis were used in independent groups.

RESULTS: It was found that 74% of the patients who participated in the study were male, 48% were between 39 and 58 years old, 38% were diagnosed with lung cancer, and 63% received 2-4 cycles of chemotherapy. The mean scores of "Care Dependency Scale" (68.98 ± 15.89) and "Self-care Behavior Scale According to Self-Care Inability Theory in Patients Receiving Chemotherapy" (69.54 ± 13.20) were at a moderate level. It was determined that the patients' care dependency scores accounted for the change in the total score of self-care behaviors at a rate of 21%.

CONCLUSION: As a result, the study found that self-care behavior increased as the care dependency of chemotherapy patients decreased, and self-care behaviors were affected by care dependency at a low rate.

Keywords: Care dependency, chemotherapy, self-care

INTRODUCTION

The incidence of cancer, which ranks second among the causes of death in the world, is 225.1 per hundred thousand based on 2018 data published by the International Agency for Cancer Research.¹ Based on the Turkish Health Statistics Annual report for 2015, this rate was 247.6 per hundred thousand in men and 177.5 per hundred thousand in women in Türkiye, while it increased to 259.9 in men and increased to 183.2 in women based on the report published in 2016.^{2,3} These data show that the need for chemotherapy, which is considered an

important part of cancer treatment, has also increased.⁴ Because of the large number of patients today, chemotherapy treatment is carried out on an outpatient basis or in a hospital for a short time. Patients experience many symptoms that develop after treatment at home without the support of health professionals. Therefore, it is essential to develop self-care in order for patients to cope with the symptoms.^{5,6}

Care dependency, a dynamic process that is directly affected by illness or defectiveness, is defined as "a process in which a patient who has reduced self-care and is dependent on another person in meeting care

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needs is professionally supported”.⁷ The main objective of this support is to restore the independence of an individual in self-care practices.^{8,9} The symptoms experienced by patients receiving chemotherapy reduce their ability to perform daily life activities, adversely affect their quality of life, and make them dependent on care to meet their care needs. Therefore, patients have difficulty meeting their self-care needs.⁹ There are studies that report low and moderate levels of self-care in patients receiving chemotherapy.^{10,11}

It is known that nurses have important roles in restoring self-care abilities in patients.⁷ Nurses help manage this process better by developing individualized care strategies by reducing patients’ anxiety before and during treatment, providing information about expected symptoms, and following the treatment process.⁴ In a study conducted by Breen et al.¹² in hematologic cancer patients in Australia, a remote healthcare application controlled by nurses was used to allow patients to manage the side effects of chemotherapy, and the authors concluded that patients managed their symptoms better. In a study that used the customized Chemo-Support application to reduce chemotherapy-associated symptoms, patients’ symptom severity and distress were reduced.¹³ In the study of Wang et al.¹⁴, self-care education was provided to breast cancer patients who underwent chemotherapy, and the authors found that the education reduced the frequency of symptoms significantly.

Patients who receive chemotherapy often develop care dependency in relation to cancer, chemotherapy, and additional diseases.¹⁵ In the literature, patients who have care dependency are often reported to have problems in providing self-care.¹⁶ Accordingly, as patients who undergo chemotherapy become care-dependent, their self-care can be affected.¹¹ However, no study investigating this relationship was found in the literature. Therefore, the purpose of this study was to examine the relationship between care dependency and self-care behaviors in patients undergoing chemotherapy. Findings of this study can contribute to better identification of patients’ needs and planning appropriate nursing interventions.

Study Questions

1. What are the mean scores of patients on the Self-care Behavior Scale according to Self-Care Inability Theory in Patients Receiving Chemotherapy?
2. What are the mean scores of patients on the Care Dependency Scale?
3. What is the relationship between “Self-care Behavior Scale According to Self-Care Inability Theory in Patients Receiving Chemotherapy” and “Care Dependency Scale” scores and other independent variables?

MATERIALS AND METHODS

Design and Sampling

This descriptive and correlational study was conducted in an outpatient chemotherapy unit of a university hospital located in Central Anatolia, Türkiye, between November 2018 and February 2019. The sample of the study consisted of 100 patients who were receiving chemotherapy. Data were collected from 30 patients to determine the sample size, and it was determined that the sample size should be at least 100 patients with 5% alpha margin of error and 80% power in the G*Power software. The sample size was sufficient based on the post-hoc power analysis conducted at the end of the study (100%). Patients aged

18 years and older who were capable of self-feedback and received at least one course of chemotherapy were included in the study, whereas patients receiving chemotherapy and radiotherapy simultaneously were not included.

Data Collection

Data for the study were collected using a face-to-face interview method. Prior to the initiation of drug treatment in patients who arrived at the chemotherapy unit, the investigator explained the purpose of the study to the patients, and written and verbal consents were obtained. “Patient Information Form”, “Care Dependency Scale” and “Self-care Behavior Scale According to Self-Care Inability Theory in Patients Receiving Chemotherapy” were used in the data collection. Filling out the forms took approximately 20 min.

Patient Information Form

It was created by investigators based on a literature review.^{4,17} The form consisted of a total of 16 questions, including 11 questions on the descriptive characteristics of the patients and 5 questions related to the disease.

Care Dependency Scale

“Care Dependency Scale” was developed by Dijkstra in 1998 to assess the level of care dependency of patients, and a validity and reliability study of the scale in Türkiye was conducted by Yönt et al.⁸ in 2010. “Care Dependency Scale” is rated based on a 5-point Likert scoring system and consists of 17 items that include daily life activities. The rating is as follows: 1 “completely dependent”, 2 “Quite dependent”, 3 “partially dependent”, 4 “very little dependent” and 5 “nearly/completely independent”. The lowest score on the scale is 17, and the highest score is 85. Higher scores on the scale indicate that the patient is independent in meeting self-care needs, and lower scores indicate that the patient is dependent on others in meeting self-care needs. The Cronbach’s alpha value of the scale was 0.91.⁸ In this study, the Cronbach’s alpha value was 0.97.

Self-Care Behavior Scale According to the Self-Care Inability Theory in Patients Receiving Chemotherapy

Developed by Karadağlı and Alpar⁹, the scale is a 5-point Likert scale consisting of 24 items. The scale is a Likert scale based on scoring between 5 “always” and 1 “never”. The highest score on the scale is 120, and the lowest score is 24. As the score on the scale increases, the self-care behaviors of individuals increase positively. The scale questions consisted of six factors: individual care, sleep pattern, maintaining respiration, activity and movement, dietary habits, and coping with problems. Cronbach’s alpha coefficient of the scale was calculated as 0.88.⁹ In this study, Cronbach’s alpha reliability coefficient was 0.83 for the entire scale.

Ethical Considerations

Ethics committee approval was obtained from the Ethics Committee for Non-Drug and Medical Device Research of a university hospital (approval number: 2018/1391). Institutional permission was obtained from the hospital where the study was conducted, and permission was obtained from the authors to use the scales. In addition, the participants were informed about the study, and verbal and written consent was obtained.

Table 1. Distribution of description and disease characteristics of patients (n=100)

Features	n	%
Gender		
Woman	26	26.0
Male	74	74.0
Age		
19-38 years old	11	11.0
39-58 years old	48	48.0
59-69 years old	27	27.0
≥70 years old	14	14.0
Marital status		
Single	12	12.0
Married	88	88.0
Educational status		
Elementary school	87	87.0
High school and above	13	13.0
Evaluation of monthly income		
Low	31	31.0
Middle	69	69.0
Working status		
Working	40	40.0
Not working	60	60.0
Place of residence		
Provincial	49	49.0
County/village-town	51	51.0
Health insurance		
Yes	85	85.0
No	15	15.0
Medical diagnosis		
Lung cancer	38	38.0
Stomach cancer	13	13.0
Breast cancer	10	10.0
Colon cancer	7	7.0
Other*	32	32.0
Presence of chronic diseases		
No	61	61.0
Yes	39	39.0
Received cure		
2-4 cycles	63	63.0
5-7 cycles	19	19.0
≥8 cycles	18	18.0
Presence of metastases		
No	37	37.0
Yes	63	63.0

*Other cancers: adenocarcinoma, lymphoma, larynx, bladder, mesenchymal, multiple myeloma, colon, pancreas, cervix, testis.

Statistical Analysis

SPSS 22 software was used to evaluate the data. Number, percentage, mean, and standard deviation were used as descriptive statistics, and variables were found to have a normal distribution according to Skewness and Kurtosis. The t-test, Mann-Whitney U test, Kruskal-Wallis test, and simple multiple regression analysis were used to compare the mean scores of independent groups in the Self-Care Behavior Scale according to the Self-Care Inability Theory in patients receiving chemotherapy according to demographics and disease characteristics. The relationship between scale scores was analyzed with Pearson correlation analysis. $P < 0.05$ level was considered statistically significant.

RESULTS

74% of the patients undergoing chemotherapy were male, 48% were in the age range of 39-58 years, 88% were married, 87% were primary school graduates, 69% had a middle-income level, 60% did not work in any job, 51% lived in county/village-town, 85% had health insurance, 38% were diagnosed with lung cancer, 61% had no other chronic disease, 63% received 2-4 cycles of chemotherapy, and 63% had metastases (Table 1).

Table 2 presents the total mean scores of patients on the scales. Patients scored 68.98 ± 15.89 points in the "Care Dependency Scale" and 69.54 ± 13.20 in "Self-care Behavior Scale According to Self-Care Inability Theory in Patients Receiving Chemotherapy" (Table 2). When examining the relationship between total scale scores, there was a moderate, positive, and highly significant relationship between them ($r=0.46$), ($p < 0.001$) (Table 3).

In the primary analysis, it was determined that educational status, presence of chronic disease, and mean score of the Care Dependency Scale had an effect on the total score of "Self-Care Behavior Scale According to Self-Care Inability Theory in Patients Receiving Chemotherapy". In the multiple regression analysis conducted to assess the effect of these three independent variables together, two independent variables, the presence of chronic disease and educational status, were excluded from the regression analysis as they did not have an adequate effect ($p > 0.05$). Regression analysis results showing the effect of the "Care Dependency Scale" mean score variable ($p < 0.001$) are provided in Table 4. The analysis was started with the multiple regression model, and the analysis was concluded with a simple regression model because there was only one variable left in the model. It was determined that the care dependency mean scores of the patients accounted for the change in the total score of self-care behaviors at a rate of 21% (Table 4).

DISCUSSION

Symptoms that develop because of chemotherapy cause physical, mental, and social problems and affect self-care behaviors.⁵ The purpose of this study was to examine the relationship between care dependency and self-care behaviors in patients undergoing chemotherapy. The results are discussed below.

In the study, it was found that patients' dependency on care was moderate (Table 2). We believe that this result is associated with the fact that the mean number of chemotherapy cycles was 2-4 for 63% of the sampled patients who were included in the sample because the presence of symptoms and dependency on care increase as

the number of cycles increases in chemotherapy. Consistent with these study results, Bilgin et al.¹⁸ found in their study with patients hospitalized in the oncology clinic that the patients' care dependency was moderate. In the study by Piredda et al.¹⁵ investigating the perception of care dependency in patients with advanced-stage cancers, care dependency was mostly negatively perceived by patients, but this was seen as a natural phenomenon.

The study found that the patient's self-care behavior was moderate (Table 2). In a similar study conducted by Koç and Şener¹⁹, they found that oncology patients had a moderate level of self-care strength scale mean scores. Furthermore, in a study conducted by Küçükkaya and Erçel¹¹ in gynecological oncology patients, it was reported that the patients' self-care power was at a moderate level. In a similar study, the self-care power of patients was found to be moderate.¹⁰ Unlike these study results, there are studies reporting high self-care power in cancer patients.^{20,21} We believe that this difference was caused by factors such as age, educational status, presence of chronic diseases, number of cycles, and culture of patients in the sample group.

The study found that as the care dependencies of patients decreased, self-care behavior increased (Table 2). There has been no study in the literature comparing care dependency and self-care behaviors in patients undergoing chemotherapy. However, based on this result, it can be concluded that the care needs of patients with fewer

complications are fewer, and therefore their self-care is better. Cancer patients are most afraid of losing control and being dependent during chemotherapy.²⁰ In these patients, the quality of care, self-sufficiency, and quality of life are increased by reducing the dependency on care by meeting basic requirements such as bathing, dressing, nutrition, mobility, and communication.^{22,23} In the pilot study by Shams et al.⁵ in Pakistan, as a result of the attempts to support self-care behavior in the patient group receiving chemotherapy, it was observed that the physical and mental side effects decreased and the quality of life increased. In studies with chemotherapy patients, it has been noted that providing information and training about side effects before treatment facilitates the management of side effects and increases patient self-care.^{4,10,12}

In this study, it was found that self-care behaviors were affected by care dependency at a low rate (21%) (Table 4). However, in the literature, patients who have care dependency are often reported to have problems in providing self-care.¹⁶ Because of prolonged cancer treatment processes in cancer patients and the presence of comorbidities, development of care dependency is highly likely.¹⁵ Patients in this study had medium-level dependencies, which may have led to different results. This may be due to the moderate dependency of patients. In addition, this result may have been affected by Türkiye's sociocultural structure. Taking care of the sick, looking after them, and helping them is part of Turkish culture. We may have come to this conclusion because the patient's relatives met the needs that were not met by the patients.

Table 2. Distribution of scores in "Care Dependency Scale" and "Self-Care Behavior Scale According to the Theory of Self-Care Disability in Patients Receiving Chemotherapy" and the relationship between them (n=100)

Scale and sub-dimensions	Minimum-maximum	$\bar{x} \pm SD$	Cronbach's alpha
"Care Dependency Scale" total score	26-85	68.98±15.89	0.97
"Self-Care Behavior Scale" total score	38-101	69.54±13.20	0.83
1. Individual care	6-19	12.24±2.87	
2. Sleep pattern	5-20	10,65±3.75	
3. Maintaining respiration	4-20	10.86±3.82	
4. Activity and movement	4-18	9.10±2.73	
5. Dietary habits	8-25	17.87±4.70	
6. Coping with problems	3-15	8.82±2.73	

SD: Standard deviation.

Table 3. Relationship between the "Care Dependency Scale" and "Self-Care Behavior Scale According to the Theory of Self-Care Disability in Patients Receiving Chemotherapy" scores of patients (n=100)

	"Self-Care Behavior Scale" total score; (69.54±13.20)	
	r	p
"Care Dependency Scale" total score; (68.98±15.89)	0.46	0.001

r: Pearson correlation analysis.

Table 4. Effect of independent variables on the "Self-Care Behavior Scale According to the Theory of Self-Care Disability in Patients Receiving Chemotherapy" scores: results of regression analysis (n=100)

Independent variables	B	S.E.	β	T	p	95% CI for (B)	
"Self-Care Behavior Scale" total score							
(Fixed)	43.04	5.26		8,179	0.001	32.60	53.48
Care Dependency Scale Score	0.38	0.07	0.46	5,167	0.001	0.24	0.53

R=0.46, R²=0.21, F=26.70, p=0.001, Durbin-Watson: 0.64, S.E.: Standard error, CI: Confidence interval.

Study Limitations

The study had the following limitations: People over 65 years of age were included in the study, chemotherapy complications varied from person to person, and there were differences in chemotherapy processes (diagnosis, cancer stage, treatment protocol, and number of chemotherapy sessions).

CONCLUSION

This study found that care dependency and self-care behaviors of patients undergoing chemotherapy were moderate, self-care behaviors increased as care dependency decreased, and self-care behavior was affected by care dependency at a low rate. In line with these results, it is recommended to evaluate care dependency as well as self-care in patients who receive chemotherapy who have a high level of dependency and are supported more with education and monitored, and that studies with larger samples should be conducted and experimental studies should be conducted on this subject.

MAIN POINTS

- Care dependency and self-care behaviors of patients undergoing chemotherapy were moderate.
- The care dependencies of patients decreased and self-care behavior increased.
- Self-care behavior was affected by care dependency at a low rate.

ETHICS

Ethics Committee Approval: Ethics committee approval was obtained from the Ethics Committee for Non-Drug and Medical Device Research of a university hospital (approval number: 2018/1391).

Informed Consent: The participants were informed about the study, and verbal and written consent was obtained.

Peer-review: Externally and internally peer-reviewed.

Authorship Contributions

Concept: N.E.K., S.S., Design: N.E.K., S.S., Supervision: N.E.K., S.S., Fundings: N.E.K., S.S., Materials: N.E.K., S.S., Data Collection or Processing: N.E.K., Analysis or Interpretation: N.E.K., S.S., Literature Search: N.E.K., S.S., Writing: N.E.K., S.S., Critical Review: S.S.

DISCLOSURES

Conflict of Interest: The authors declared that they have no conflict of interest.

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