

Original Article

## Determination of Postoperative Care Dependency and Anxiety Levels of Older Cancer Patients

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### Abstract

**Aims:** The majority of older cancer patients undergo surgical intervention for treatment purposes and their needs for postoperative nursing care increase due to physiological and psychological changes. The aim of this research is to determine the post-operative care dependency and anxiety levels of older cancer patients.

**Design:** Descriptive research.

**Methods:** This research was conducted between April 2015 – March 2018, at the General Surgery Clinic of a university hospital with 68 patients who underwent elective surgical intervention due to cancer. In the data collection, patient identification form, Care Dependency Scale and State-Trait Anxiety Inventory were used.

**Results:** It was determined that postoperative care dependency and anxiety levels of older cancer patients were moderate and the care dependency levels increase as their anxiety increases. The patients were most dependent on hygiene, daily activities, recreational activities, getting dressed and undressed, body posture and mobility needs. It was found that sensory impairment, intravenous fluid therapy, indwelling urinary catheterization, immobility, and major surgical intervention increased the care dependency levels of older patients. Furthermore, intravenous fluid therapy, indwelling urinary catheterization, immobility, and major surgical intervention were found to increase anxiety levels.

**Conclusion:** In accordance with these results, we recommend the planning of nursing care and performing interventions for reducing the post-operative care dependency and anxiety levels of older cancer patients.

**Keywords:** Anxiety, Cancer surgery, Care dependency, Nursing care, Older patient.

### Introduction

The number of the older adult in the world is increasing and it is expected to constitute 10% of the world population by reaching 800 million in 2025. In Turkey, while older adults (65 years of age and above) population rate was 7.7% in 2013, it is estimated to reach 10.2% in 2023 and Turkey will be among countries with “most older adult” population (Turkish Statistical Institute, 2014).

Together with increasing age, the incidence of cancer-specific risk factors such as sun exposure of individuals, ionizing radiation, contact with alcohol, tobacco and air pollution, poor eating habits and infectious diseases are increasing (American Cancer Society, 2017; Danaei et al., 2005). Also, the weakening of the immune system with old age makes individuals more susceptible to cancer (Danaei et al., 2005). Between 1990-2013, an absolute increase at a 35.6% rate has been reported in cancer incidence

associated with aging (Global Burden of Disease Cancer Collaboration, 2015). According to the data of World Health Organization, cancer is the second most important cause of death worldwide and it is estimated to be responsible for 9.6 million deaths in 2018 (World Health Organization, 2018). Sixty percent of cancer incidence and 70% of cancer deaths occur in adults over 65 years of age (Hurria, 2007). Cancer-related deaths in individuals over the age of 65 years are 43 times higher compared to individuals between the ages of 25-44 (Rosenthal, Zenilman, & Katlic, 2013).

Older adults are hospitalized for various reasons and experience surgical interventions (Aygin, Aslan, & Cengiz, 2012). Nowadays, the number of operations performed in older patients is increasing due to the increased rates of chronic diseases, cancer incidence with aging and improvements in the surgical field (Usta & Aygin, 2015). It has been determined that surgical interventions are performed more frequently as 190 patients in every 100.000 people over 65 years old compared to 136 patients in every 100.000 people between the ages of 40-60. Patients in this age group undergo approximately 20-24% of all surgical procedures (Bailes, 2000; Killewich, 2006; Litwack, 2000).

Syse, et al., (2012) stated that more than half of the cancer patients between the ages of 65-79 underwent surgical intervention for treatment. However, as the patient's age increases, postoperative complication rates, hospital and intensive care unit length of stay also increase (Korc-Grodzicki et al., 2014). In research conducted with patients over 70 years of age who underwent elective cancer surgery, it was determined that patients were dependent on activities of daily living, they experienced complications in the postoperative period and the length of hospital stay was increased (PACE participants, 2008).

In patients with cancer, anxiety and negative emotional states are reported to occur due to reasons such as the experience of continuous pain, physiological/psychological changes, poor holistic care and the effect of surgical interventions (Santos, Garcia, Pacheco, Vieira, & Santos, 2014; Shejila et al., 2014). In a research conducted by Jomar and de Souza Bispo (2014), it has been determined that anxiety, lack of information, lack of self-care, distortion of body image, acute or chronic pain, fear and sleep

disorder were found to be the most common nursing diagnoses in older cancer patients. Yolcu, Akın and Durna (2016) determined that patients at 60 years of age and above had more difficulty in mobility and they were more dependent in the postoperative period compared to younger patients. Amemiya et al. (2007) have stated that patients with gastric or colorectal cancer at 75 years of age and above become dependent on transfer, eating and drinking, toileting, incontinence, dressing and bathing activities in the postoperative period.

In older cancer patients, physiological/psychological changes with increasing age, the presence of chronic diseases, high-risk factors and postoperative problems increase the importance of nursing care before and after surgery (Usta & Aygin, 2015). Besides, social, functional and perceptual disability related to age complicates the nursing care management of older patients (Ershler, 2003).

In order to provide quality care for older cancer patients in the postoperative period, planning of nursing interventions by evaluating patients for meeting basic care requirements, care dependence and anxiety levels gain importance.

**Aim:** The aim of this research is to determine the postoperative care dependency and anxiety levels of older cancer patients.

## Methods

**Research design, Sample and setting:** This descriptive research was conducted between April 2015 – March 2018 at the General Surgery Clinic of a university hospital in Turkey.

Older cancer patients who underwent surgical intervention in general surgery clinics constituted the universe of the research. In the research of Dijkstra et al. (2015) titled "Health related quality of life and care dependency among elderly hospital patients: an international comparison", the care dependency mean total scale score of older patients staying at a hospital in Turkey was determined as  $62.90 \pm 15.20$ . The number of samples was calculated according to the data of this research and it was determined that 68 patients were needed to be included in the sample at a 95% confidence level, with 80% power in a way that tolerance rate should not exceed 0.05 of the related parameter. A total of 68 patients who were 65 years of age and above, had been diagnosed with cancer and underwent elective surgical intervention due to cancer, have

no hearing, speech and visual impairment, can stand up and walk in the preoperative period and volunteered to participate in the research constituted the sample of the research.

**Measurements:** In the data collection, patient identification form developed by the researchers was used to determine the characteristics of patients, Care Dependency Scale was used to evaluate care needs and dependence levels and State-Trait Anxiety Inventory was used to determine anxiety levels.

Care Dependency Scale; developed in 1996 by Dijkstra, Buist, and Dassen (1996). In Turkey, validity and reliability study for the scale was performed by Yont, Korhan, Khorshid, Eşer and Dijkstra (2010). The scale that determines the dependency levels of individuals consists of 17 items. In the scale rated with Likert-type scoring, the rating is as 1 = completely dependent, 5 = almost/completely independent. The lowest score of the scale is 17 while the highest score is 85. The high scale score indicates that the patient is independent to meet the care needs, the low scale score shows that the patient is dependent on others to meet the care needs (Yönt et al., 2010). In the Turkish validity and reliability study of the scale, Cronbach alpha value was found as 0.91 and it was determined as 0.97 for this research.

State-Trait Anxiety Inventory; developed by Spielberger et al. in 1970 and revised in 1983 to determine the feelings of individuals about a situation in a certain time and under certain conditions (Spielberger, et al., 1983). Turkish validity and reliability study was carried out by Oner and Le Compte (1983). State-Trait Anxiety Inventory consists of 20 items, 10 of which are inverted expressions. In the scale rated with Likert-type scoring, the rating is as 1 = not at all, 4 = very much so. In order to determine the total score of the scale; after separately finding the total weight scores of direct and inverted expressions, the total weight score of inverted expressions is subtracted from the total weight score obtained from direct expressions and a predetermined and unchanged value is added to this number. This unchanged value is "50" for the State-Trait Anxiety Inventory. The lowest score of the scale is 20 and the highest score is 80. A high scale score indicates the patient's high level

of anxiety while low score shows that the patient's anxiety level is low (Öner and Le Compte, 1983). In the scale's Turkish validity and reliability research, Cronbach's alpha value is determined to be between 0.94- 0.96. In this research, the scale's Cronbach's alpha is determined to be 0.95.

**Data collection:** In the general surgery clinic where the research was conducted, patients who carried the inclusion characteristics were visited in their rooms. The patients were informed about the aim of the research, the method of application and verbal consent was obtained from those who agreed to participate in the research. Data collection forms were filled out by the researchers in 15 minutes with a face-to-face interview method.

**Data analysis:** Data were analysed with SPSS (Statistical Package for Social Sciences 20.0) software by using descriptive analysis, Spearman Correlation analysis, the Mann-Whitney U test, and Student's t-test. The statistical tests were determined according to the normal distribution results of the data.  $p < 0.05$  value was considered as a statistical significance limit.

**Ethical considerations:** In order to conduct the research, written consents were obtained from X University Faculty of Medicine Scientific Research Ethics Committee (TÜTF- BAEK 2015/95, decision number: 09/02) and the related hospital (document number: 79056779/600-2594). At the clinic where the research was conducted, verbal consents of the clinic nurse manager, the clinical nurses and the patients included in the sample were obtained.

## Results

The mean age of patients who participated in the research was determined as  $70.96 \pm 5.49$ , the mean length of hospital stay as  $13.12 \pm 8.45$  days, the mean length of the postoperative length of stay as  $7.88 \pm 5.87$  days. From the participants, 52.9% was male, 85.3% was married and 97.1% had children. It was determined that 25% of patients had a sensory impairment, 72.1% received intravenous fluid therapy, 20.6% had an indwelling urinary catheter, 89.7% were mobile in the postoperative period, 88.2% underwent major surgical intervention (abdominal surgery).

**Table 1** The relationship between care dependency and anxiety levels of patients

Scales	X ± SD	p
Care Dependency Scale	54.76 ± 15.83	$r_s = -0,496^*$
State-Trait Anxiety Inventory	45.91 ± 11.47	$p = 0,001$

$r_s$  = Spearman Correlation analysis

**Table 2** Care Dependency Scale items' scores

	X ± SD
Eating and drinking	2.85 ± 1.19
Incontinence	2.84 ± 1.27
Body posture	2.56 ± 1.26
Mobility	2.57 ± 1.30
Day/night pattern	3.78 ± 1.12
Getting dressing and undressing	2.41 ± 1.17
Body temperature	3.68 ± 1.10
Hygiene	2.13 ± 1.11
Avoidance of danger	3.29 ± 1.09
Communication	4.34 ± 0.94
Contact with others	4.21 ± 1.02
Worship	2.81 ± 1.47
Sense of rules and values	3.94 ± 1.12
Daily activities	2.21 ± 1.23
Recreational activities	2.34 ± 1.28
Memory	4.41 ± 1.01
Learning ability	4.40 ± 0.99

**Table 3 Comparison of individual variables of the patients with the mean scores of Care dependency Scale and State-Trait Anxiety Inventory**

Variables		Care dependency Scale	Z and p	State-Trait Anxiety Inventory	t and p
<b>Sensory impairment</b>	Yes	44.94 ± 12.75	Z = -2.977*	45.00 ± 9.38	t = 0.376**
	No	58.04 ± 15.49	<b>p = 0.003</b>	46.22 ± 12.16	p = 0.708
<b>Intravenous fluid therapy</b>	Receive	52.16 ± 15.32	Z = -2.189*	47.84 ± 10.84	t = -2.292**
	Not receive	61.47 ± 15.53	<b>p = 0.029</b>	40.95 ± 11.83	<b>p = 0.025</b>
<b>Indwelling urinary catheterization</b>	Yes	43.86 ± 14.13	Z = -3.013*	52.79 ± 10.72	t = -2.624**
	No	57.59 ± 15.11	<b>p = 0.003</b>	44.13 ± 11.06	<b>p = 0.011</b>
<b>Mobilization Status</b>	Mobile	56.87 ± 15.12	Z = 3.232*	44.90 ± 10.84	t = 2.205**
	Immobile	36.43 ± 8.60	<b>p = 0.001</b>	54.71 ± 13.90	<b>p = 0.031</b>
<b>Type of Surgical Intervention</b>	Major abdominal surgical	52.70 ± 15.03	Z = 2.858*	46.98 ± 10.73	t = 2.167**
	Breast and Endocrine Surgery	70.25 ± 13.57	<b>p = 0.004</b>	37.88 ± 14.33	<b>p = 0.034</b>

\*Mann-Whitney U test, \*\* Student's t-test

The patients' Care Dependency Scale mean score was found as  $54.76 \pm 15.83$  and State-Trait Anxiety Inventory mean score was determined as  $45.91 \pm 11.47$ . A moderate negative correlation was found between the patients' Care Dependency Scale mean score and State-Trait Anxiety Inventory mean score ( $r = -0.496$ ,  $p < 0.001$ ), (Table 1). It was determined that patients were most dependent on hygiene ( $2.13 \pm 1.11$ ), daily activities ( $2.21 \pm 1.23$ ), recreational activities ( $2.34 \pm 1.28$ ), getting dressed and undressed ( $2.41 \pm 1.17$ ), body posture ( $2.56 \pm 1.26$ ) and mobility ( $2.57 \pm 1.30$ ) needs (Table 2). It was found that the mean scores of the Care Dependency Scale of the patients who had a sensory impairment, received intravenous fluid therapy, had an indwelling urinary catheter, were immobile in the postoperative period, and underwent major surgical intervention were significantly lower than the other patients ( $p < 0.05$ ). Also, It was determined that the mean scores of the State-Trait Anxiety Inventory of the patients who received intravenous fluid therapy, had an indwelling urinary catheter, were immobile in the postoperative period, and underwent major surgical intervention were significantly higher than the other patients ( $p < 0.05$ ), (Table 3).

## Discussion

In this research, it was determined that older cancer patients are dependent on care at a moderate level in the postoperative period. Kılıç, Cevheroğlu and Gorgulu (2017) were determined the care dependency level of patients who underwent a surgical intervention as a moderate level. Türk and Ustun (2018) found that patients with a chronic obstructive pulmonary disease who were 65 years of age and above had high levels of care dependency. In the research of Korhan et al. (2013) conducted with patients admitted to the internal and surgical clinics, it was determined that care dependency increased with increasing age and care dependency levels of patients with 80 years of age and above were high. Lawrence et al. (2004) determined that the functional dependence of older patients increased in the early postoperative period. Finlayson et al. (2012) determined that the patients who underwent surgical intervention due to colorectal cancer had a moderate level of dependence in their daily living activities during the postoperative period and increased compared to the preoperative period. The results of the studies show that older cancer patients are at moderate and high levels of care-dependent in the postoperative period. In this research, it was determined that

postoperative anxiety levels of older cancer patients were moderate and their care dependency levels increase as their anxiety increases. In general, surgical interventions cause patients to experience anxiety at various levels and this condition has also been demonstrated by researches. Shejila et al. (2014) determined that 80% of patients who underwent surgical intervention due to breast cancer experience anxiety at a moderate level and Santos et al. (2014) stated that 39.1% of patients who underwent surgical intervention due to rectal cancer experience anxiety. In the research conducted with the older adult, Wiesel et al. (2014) stated that the anxiety level of older cancer patients was 20.9%, Doroszkiewicz, Sierakowska and Muszalik (2018) indicated that older adults with high levels of care dependency were in a poorer emotional state. In the research of Gonzalez-Saenz de Tejada et al. (2016) performed with patients who underwent surgical intervention due to colorectal cancer, they determined that less improvement was found in anxiety and depression as functional dependence increases in the postoperative period. The results of the studies indicate that older cancer patients experience anxiety and the increase in their dependency level causes an increase in their anxiety levels.

In this research, it was found that older patients were most dependent on hygiene, daily activities, recreational activities, getting dressed and undressed, body posture and mobility needs. Lohrmann, Dijkstra and Dassen (2003) found that the inpatients of the geriatrics clinic are mostly dependent on daily activities, recreational activities, mobility, getting dressed and undressed and hygiene needs; Li, Wang, Liu and Tong (2017) stated that patients who underwent abdominal surgical intervention are mostly dependent on others in meeting their hygiene, learning ability, getting dressed and undressed needs. Koberich, Lohrmann and Dassen (2014) found that mobility, hygiene, getting dressed and undressed, Doroszkiewicz et al. (2018) stated that learning ability, recreational activities and mobility were the areas where older patients were most dependent. Koc, et al., (2016) determined that patients with lung cancer were completely dependent on others for meeting the needs of hygiene at 24.8% and getting dressed and undressed at 16.0%. Aydın and Gursoy (2019) found that 80.4% of patients with coronary artery bypass graft were completely dependent on bathing and 75.7% of the patients were partly dependent on the dressing. Similarly, Lawrence et al. (2004) determined that 50% of older patients became dependent on hygiene and dressing activities one week after major abdominal surgery. Although there are differences in the

results of the studies, the studies show that older patients are especially dependent on meeting the needs of hygiene, daily activities, recreational activities, mobility, getting dressed and undressed in the postoperative period. In this research, it was found that the care dependency levels of the patients who had a sensory impairment, had an indwelling urinary catheter, were immobile in the postoperative period, and underwent major surgical intervention were high.

Similarly, in the research conducted by Buttar, Blaum, and Fries (2001), it is stated that independence in daily life activities was reduced in patients who had a cognitive or sensory impairment. In the same study, urinary incontinence was found to be related to the dependency status of individuals and older people who worsened or died were more likely to have urinary incontinence. Although indwelling urinary catheterization is not among the indications, urinary catheters are still frequently inserted for urinary incontinence (Prieto et al., 2020). Patients have an indwelling urinary catheter may be considered to be more dependent, and urinary catheterization also reduces mobility and increases care dependence. Torpil et al. (2019) found that in their research conducted in older people with Alzheimer's disease, the problems of balance and gait functions increase, the level of dependence in patients' daily life activities also increases. In Suerdem's thesis study (2019), it was determined that patients who underwent major or cancer surgery such as ileostomy, splenectomy, and mastectomy were more dependent than other types of surgery. In the same research, although it was not statistically significant; the care dependency levels of the patients who underwent surgery for longer periods and under general anesthesia were higher than other patients. The results of these and other research show that factors such as sensory impairment, indwelling urinary catheterization, immobility, and major surgical intervention increase the care dependency levels of older patients.

The stability of the intravenous catheter decreases due to the low subcutaneous fat tissue of older peoples (Denat & Eşer, 2006). In this research, it was found that the care dependency levels of the patients who received intravenous fluid therapy were higher than patients who did not. It may be considered that receiving intravenous fluid therapy causes fear that the catheter will displace in older patients, thereby increasing dependence by limiting mobilization inside and outside the bed. In this research, it was found that the anxiety levels of the patients who received intravenous fluid therapy, had an indwelling urinary catheter, were immobile

in the postoperative period, and underwent major surgical intervention were high.

Intravenous catheterization is rather a difficult procedure in older patients and can cause anxiety in the patients (Denat & Eşer, 2006). In this study, anxiety levels of patients who received intravenous fluid therapy were determined to be high in parallel with the literature. In the postoperative period, movement and mobilization have health-improving effects on physical and psychological functions (Yolcu, Akın & Durna, 2016). In this research, anxiety levels of patients who were immobile in the postoperative period and underwent major surgical were found to be higher level than other patients. Tasdemir et al. (2013) found that post-operative anxiety levels of patients who underwent major surgical interventions increased compared to the preoperative period although the preoperative anxiety levels of patients who underwent minor surgical interventions decreased in the postoperative period. These results suggest that problems such as increased care dependency, organ loss, pain experience, and analgesic requirement cause anxiety in patients who are immobile and underwent major surgery.

**Conclusion:** In conclusion, the postoperative care dependency and anxiety levels of older cancer patients were found to be moderate and was determined that their care dependency levels increase as their anxiety increases. It was found that sensory impairment, intravenous fluid therapy, indwelling urinary catheterization, immobility, and major surgical intervention increased the care dependency levels of older patients. Furthermore, intravenous fluid therapy, indwelling urinary catheterization, immobility and major surgical intervention were found to increase anxiety levels. In accordance with these results, we recommend the planning of nursing care and performing interventions for reducing the postoperative care dependency and anxiety levels of older cancer patients.

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