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The Effect of Altruistic Behaviors on Psychological Resilience and Care Burden in Caregivers

Bakım Vericilerde Özgecilik Davranışlarının Psikolojik Dayanıklılık ve Bakım Yüküne Etkisi

ABSTRACT

Objective:
This study was conducted to investigate the predictive effect of altruistic behaviors on psychological resilience and care burden in caregivers of cancer patients.

Material and Methods:
The study consisted of 194 caregivers of 194 patients with cancer who were treated at the Hematology-Oncology Service, Day Treatment Center and General Surgery Service of Dokuz Eylül University Hospital. The study data were collected by using four data collection tools, namely Patient and Caregiver Information Form, Altruism Scale, Resilience Scale for Adults, and Clinically Adapted Zarit Caregiver Burden Scale. The mean score of caregivers was 74.96±12.02 on the total Altruism Scale, 129.86±23.72 on the total Resilience Scale for Adults and 30.20±13.05 on the total Zarit Caregiver Burden Scale.

Results:
A statistically significant and positive correlation was found between caregivers' scores on the altruism scale and resilience scale ($p<0.01$). The increase in altruistic behavior scores increased the resilience score ($p<0.05$). It was found that 24.1% of the variance in the level of caregivers' resilience was caused by the variance in the level of their altruistic behavior. A statistically significant and negative correlation was found between caregivers' scores on the Altruism Scale and the Zarit Care Burden Scale ($p<0.01$). An increase in altruistic behavior scores caused a decrease in the level of caregiver burden ($p<0.05$). It was determined that 13.2% of the variance in the level of caregivers' care burden was caused by the variance in their altruistic behavior.

Conclusion:
It was concluded that altruistic behaviors in caregivers of patients with cancer increased psychological resilience and reduced the burden of care. Nurses can take on an active role in increasing altruistic behavior that has an important role in the provision of effective care by caregivers.

Key Words:
Caregivers, Altruism, Psychological resilience, Care burden, Nursing

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ÖZ

Amaç:

Bu çalışma, kanser hastalarının bakım vericilerinde özgecilik davranışlarının psikolojik dayanıklılık ve bakım yüküne yordayıcı etkisini incelemek amacıyla yapıldı.

Gereç ve Yöntemler:

Araştırmaya Dokuz Eylül Üniversitesi Hastanesi Hematoloji-Onkoloji Servisi, Gündüz Tedavi Merkezi ve Genel Cerrahi Servisi'nde tedavi gören 194 kanser hastasının 194 bakım vericisi alınmıştır. Çalışmada veri toplama formu olarak, Hasta ve Bakım Verici Tanıtım Formu, Özgecilik Ölçeği (ÖÖ), Yetişkinler İçin Psikolojik Dayanıklılık Ölçeği (YPDÖ) ve Kliniğe Uyarlanan Zarit Bakım Yükü Ölçeği (ZBYÖ) olmak üzere dört veri toplama aracı kullanılmıştır.

Bulgular:

Bakım vericilerin Özgecilik Ölçeği toplam puan ortalaması 74,96±12,02, Yetişkinler İçin Psikolojik Dayanıklılık Ölçeği toplam puan ortalaması 129,86±23,72 ve Zarit Bakıcı Yük Ölçeği toplam puan ortalaması 30,20±13,05 olarak bulunmuştur. Bakım vericilerin; özgecilik ölçeği puanları ile psikolojik dayanıklılık ölçeği puanları arasında istatistiksel olarak anlamlı ve pozitif yönlü bir ilişki bulunmuştur ($p<0,01$). Özgecilik davranışı puanlarında meydana gelen artışın psikolojik dayanıklılık puanını artırdığı saptanmıştır ($p<0,05$). Bakım vericilerde meydana gelen psikolojik dayanıklılık düzeyindeki değişimin %24,1'inin bakım vericilerin özgecilik davranışları düzeyinde meydana gelen değişimden kaynaklandığı tespit edilmiştir. Bakım vericilerin Özgecilik Ölçeği puanları ile Zarit Bakım Yükü Ölçeği puanları arasında ise istatistiksel olarak anlamlı ve negatif yönlü bir ilişki bulunmuştur ($p<0,01$). Özgecilik davranışı puanlarında oluşan bir artışın bakım yükü düzeyinde azalmaya neden olduğu saptanmıştır ($p<0,05$). Bakım vericilerin bakım yükü düzeyinde meydana gelen değişimin %13,2'sinin bakım vericilerin özgecilik davranışları düzeyinde meydana gelen değişimden kaynaklandığı tespit edilmiştir.

Sonuç:

Kanser hastalarının bakım vericilerinde özgecilik davranışlarının psikolojik dayanıklılık düzeyini artırdığı, bakım yükü düzeyini ise azalttığı sonucuna ulaşılmıştır. Hemşireler bakım vericilerin etkin bakım vermelerinde önemli rolü bulunan özgecilik davranışlarının bakım vericilerde görülmesinde etkin rol alabilirler.

Anahtar Sözcükler:

Bakım vericiler, Özgecilik, Psikolojik Dayanıklılık, Bakım yükü, Hemşirelik

INTRODUCTION

Cancer is a disease that disrupts harmony, creates stress, and affects the quality of life for patients who are diagnosed with this disease and their families (1). A caregiver is a person who helps a person that is in need of physical care and struggles with a disease free of charge. Due to the uncertainty of the course of the disease and the treatment process, people who provide care for the patient as well as patients with cancer are affected physically, emotionally, and socially. Factors such as the extension of care given to the patient and the patient's condition negatively affect the care provided for the patient and reduce the quality of life of caregivers (2). The involvement of caregivers in a holistic care approach is a very distressing and challenging process for caregivers. The caregiver can take on an unrequited self-sacrifice role when he/she feels intimacy and love towards the sick person (3,4).

The concept of altruism, which is integrated into the concept of sacrifice, is a moral attitude and view that accepts self-sacrifice for the good of others as a principle without expecting a benefit and is based on the idea and belief that the main responsibility of each person is to devote themselves to society and other people. At the same time, it involves behaviors that the person exhibits autonomously of his/her own will only for the benefit of others without expecting anything in return. The idea of sacrificing oneself to help others has long attracted attention (5,6). The origin of the concept of altruism, which is at the center of medical practice, goes back to the Hippocratic Oath. The concept of altruism, which was first introduced by the French positivist philosopher Auguste Comte in the early nineteenth century, is also a fundamental component of most religious traditions (6,7). Altruism is influenced by factors, such as "empathy", "degree of kinship", "attachment styles", "helpfulness", "voluntariness", "compassion", and "tolerance". This concept is praised by all major religions. For example, in Deuteronomy, the fifth book of the Torah, the 15th verse reads "You will open your hand for him and you will certainly meet his needs" (5). In some studies, it has been argued that high kinship supports altruism. Regarding this, Darwin said, "I believe the difficulty, though overwhelming, is lessened or disappears when it is remembered that the choice can be applied to the family" (5).

Altruistic individuals engage in many positive social behaviors, such as helping others, taking responsibility, making donations, self-sacrificing, devoting themselves to others and society, being compassionate, being fair and democratic, having tolerance, being responsible, and being charitable (6). All these factors affect the concepts of resilience and burden of care in caregivers.

The concept of resilience is defined as the ability of individuals to positively adapt to negative situations, such as exposure to significant health problems, a past trauma or threat, or familial or relational problems, to keep things under control, to overcome the problem, and to continue living in a positive way (8,9). Various studies have shown that patients with cancer, as well as their relatives, experience depression, anxiety, and psychological distress. In a study, it was found that lack of social support and depression affected resilience negatively (10). Altruistic behavior is an important factor in coping with unfavorable conditions healthily and increases resilience. There is a positive relationship between altruistic behavior and life satisfaction, and the predictor of life satisfaction is altruism. Therefore, while exhibiting an altruistic attitude, the individual simultaneously contributes to his mental health and becomes more resilient and satisfied with his current life. It has been determined that altruistic behavior has a positive relationship with psychological well-being (11). Üzar-Özçetin and Dursun reported that resilience had direct and indirect effects on the quality of life and care burden in caregivers (12).

Depression and anxiety are negative effects of care burden. The term caregiver burden is expressed as the physical, psychosocial, or financial responses that can be experienced during the provision of care (13). Provision of home care for patients with cancer disrupts the routines of family members and causes the disease to enter the lives of family members completely. Therefore, the balance of the family may deteriorate and a role change or loss of role may occur in family members. This situation may increase the stress in the family of the patient with cancer (14). Family member caregivers have reported problems that may occur in various situations, such as uncertainty about social roles, limitations in daily activities, nervousness in marriage and family relationships, distress, and deterioration in physical health (13). In a study by Branstatter et al., it was found that increased sacrifice in family member caregivers of palliative care patients was a meaning-preserving factor in the lives of caregivers (15). In the study of Parmaksız (2020), it was found that altruism increased resilience (11).

Holistic care service forms the basis of nursing, which is a profession that helps maintain and develop the health of the family and the individual in society and aims to treat illness, rehabilitate the sick, and improve the quality of life in any case. Identification of factors affecting altruism, resilience, and the burden of care by the nurse who provides care for patients with cancer and is in constant communication with the caregivers of patients with cancer, and accordingly, conduction of interventions to increase altruistic behavior in caregivers of patients with cancer may be effective in increasing the resilience of caregivers and reducing the burden of care. It is thought that the altruistic behavior of individuals who provide care for patients with cancer will have a predictive effect on individuals' resilience and care burden. However, there are no research results on this subject. Therefore, this study will provide new data on this topic for the literature. This study was conducted to examine the predictive effect of altruistic behavior on resilience and care burden in caregivers of patients with cancer.

MATERIAL and METHODS

Ethical Considerations:

In accordance with the principles of the Helsinki Declaration, at the outset, necessary permissions were obtained from Dokuz Eylül University Ethics Committee for Non-Interventional Studies (date: April 12, 2021; protocol number: 6116-GOA; decision number: 2021/12-10), the head of the department of the related clinics where the research was conducted, and the authors who conducted the Turkish validity and reliability studies of the scales that were used in the study. In addition, oral and written consent of the caregivers who volunteered to participate in the research were obtained after they were informed about the purpose of the research before the scales were applied. This study was conducted in accordance with research and publication ethics.

Design and Sample

This article was produced from the specialization thesis of Ayşegül Özge Şen at Dokuz Eylül University Oncology Nursing Department under the supervision of Ezgi Karadağ. The study data were collected via face-to-face interviews from the caregivers of patients with cancer treated at the Hematology-Oncology Service, Day Treatment Center, and General Surgery Service of a University Hospital in western Turkey between April and September 2021. The population of the study consisted of caregivers of all patients with cancer treated at the centers mentioned above, and the sample consisted of patient relatives who volunteered to participate in the study and met the inclusion criteria between April and September 2021. According to the inclusion criteria, the caregivers who could speak and understand Turkish, were literate, provided care for a patient with cancer for the first time, had been providing care for their patient for at least three months, were a family member of the patient, had no history of psychiatric disorder, and voluntarily participated in the study were included in the study. To determine the sample size, a power analysis was performed on the G*Power-3.1.9.2 software package. In the power analysis, it was determined that 194 individuals needed to be reached to achieve 99% power at a significance level of 0.05 and a confidence interval of 95%. The sample of the study consisted of 194 patients and their caregivers who met the study criteria.

Data collection tools

Data collection tools included a Patient and Caregiver Information Form, the Altruism Scale, the Resilience Scale for Adults, and the Clinically Adapted Zarit Caregiver Burden Scale.

The Patient and Caregiver Information Form

This form is a 20-item questionnaire that was created by the researcher based on a literature review. It consists of questions about the sociodemographic characteristics of patients and caregivers (16-19).

The Altruism Scale

This scale was developed by Perry London and Robert K Bower and was adapted into Turkish by Cantez, Aşkın, and Akbaba in 1991. The scale, which consists of a total of 20 questions, was designed to measure four dimensions: family dimension, social dimension, benevolence dimension, and responsibility dimension. Each dimension consists of 5 items. A high score on the family sub-dimension indicates that the individual perceives his/her relatives, himself, and his family as helpful; a high score on the benevolence sub-dimension indicates that the person is helpful; a high score on the responsibility sub-dimension indicates that the person takes responsibility at a high rate; a high score on the social sub-dimension indicates that the person participates in social activities. In the reliability study of the Altruism Scale in Turkey, the relationship between even- and odd-numbered questions on the scale was examined, and the correlation coefficient between them was found as 0.81 and significant (p<0.01) (20,21). In this study, Cronbach's alpha coefficient was found as 0.866.

The Resilience Scale for Adults

This scale was developed by Friborg et al. (2005) and adapted into Turkish by Basım and Çetin (2011). During the adaptation study, confirmatory factor analysis was performed on the scale by using two different samples (university students and bank employees) to increase the generalizability level of the study findings, and the 6-dimensional structure suggested by Fribog et al. was confirmed ($\chi2=1104$, df=480, $\chi2/df=2.3$; RMSEA=0.055; TLI=0.90; CFI=0.91). The sub-dimensions of the 33-item scale are perception of self, planned future, structured style, social competence, family cohesion, and social resources. Cronbach's alpha reliability values of the sub-dimensions ranged between 0.66 and 0.81 for the student sample and between 0.68 and 0.79 for the employee sample. Cronbach's alpha coefficient for the total scale was found as 0.86 for both samples. In addition, test-retest reliability was found to range between 0.68 and 0.81. The answers are scored between 1 and 5, and items 1, 3, 4, 8, 11, 12, 13, 14, 15, 16, 23, 24, 25, 27, 31, and 33 are reverse scored. High scores on the scale indicate high levels of resilience (22,23). In this study, Cronbach's alpha coefficient was found as 0.937.

The Clinically Adapted Zarit Caregiver Burden Scale

The validity and reliability of the Turkish version of the ZCBS, which was developed by Zarit, Reever, and Bach-Peterson in 1980, was conducted by Özer, Yurttaş, and Akyıl (2012). The scale was adapted to family caregivers of inpatients in internal medicine and surgery clinics. The eigenvalue of the ZCBS, which was reduced to 18 items, was found as 5.71 and the variance as 55.05. Cronbach's alpha value of the ZCBS is .82 for the test and .87 for the retest items. The test-retest coefficient of stability (validity of the scale) is .72. Each item is scored between 0 and 4, with 0 = never, 1 = rarely, 2 = sometimes, 3 = quite often, and 4 = almost always. Total scores range from 0 to 72. The higher the total score is, the higher the caregiver burden is. The scores are interpreted as follows: <30, no burden; 30-59, moderate level of burden; ≥60, high level of burden (24,25). In our study, Cronbach's alpha coefficient was found as 0.942.

Statistical Analysis

The data obtained in the research were analyzed on the SPSS (Statistical Package for Social Sciences) for Windows 25.0 software package. Descriptive statistical methods (numbers, percentages, means, and standard deviation values) were used in data analysis. The normality of the data was checked by using normality tests and kurtosis and skewness values. The analyses included independent samples t-test, F test for comparison of more than two groups, one-way analysis of variance (ANOVA), Bonferroni test for post-hoc comparisons, Cronbach's alpha coefficient, Pearson correlation analysis, and linear regression analysis.

RESULTS

In our study, 75.3% of caregivers were female and 24.7% were male. The mean age of caregivers was 41.68±13.19, the mean duration of the care was calculated as 400.84±54.38 (days). Also, 75.3% of caregivers had high school education or above, 68% were married, and 32% were single. It was found that 45.9% of them were employed and that 54.1% were not employed. Regarding the relation between the patient and the caregiver, 28.4% of them were spouses, 37.6% were the patient's son or daughter, and 6.2% were the patient's daughter-in-law or son-in-law. It was also found that 51.5% of the caregivers were self-sufficient in caregiving, 46.9% received support, and 50.5% of the caregivers had another dependent. In addition, 19.6% of caregivers had a chronic disease, and the most common chronic disease was hypertension. Apart from these, 64.4% of caregivers lived in the same house with the patient and 59.8% considered providing care as a duty, 42.3% as a sacrifice, and 25.8% as an obligation. Furthermore, 7.2% thought that providing care exhausted the caregiver (Table I).
The mean total scores obtained from scales were 74.96±12.02 for Altruism Scale, 129.86±23.72 for the RSA, and 30.20±13.05 for the ZCBS (Table II).

According to the analysis of the altruism scale, the social sub-dimension scores showed a statistically significant difference according to education level (p<0.05). The scores of the caregivers with a high school or above education were higher (p: 0.048; t: -2.011). The responsibility sub-dimension scores showed a statistically significant difference according to the marital status of the caregivers (p<0.05). The scores of married caregivers were higher than those of the single (p: 0.031; t: 2.182). The benevolence sub-dimension scores showed a statistically significant difference according to the self-sufficiency status of caregivers while they are giving care (p<0.05). It was determined that the caregivers who stated that they were self-sufficient while giving care had higher scores (p: 0.005; t: 2.844). The scores of caregivers on the social (p: 0.043; t: -2.035) and benevolence (p: 0.002; t:-3.166) sub-dimensions showed a statistically significant difference according to whether they received support while giving care. The scores of the caregivers who received support for care were lower. The scores of the caregivers who had other dependents in addition to the patient who they provided care for on the benevolence sub-dimension showed a statistically significant difference (p<0.05). The scores of the caregivers who had other dependents were higher (p: 0.037; t: 2.106). The scores of caregivers on the sub-dimensions of the altruism scale showed a statistically significant difference according to whether they had chronic diseases (p<0.05). The scores of the caregivers without chronic diseases were higher (p: 0.002; t: -3.149). The social sub-dimension scores of caregivers who considered giving care as an obligation showed a statistically significant difference (p<0.05).

Table I : Descriptive and care-related characteristics of caregivers (n: 194)

Characteristics	n	%
Gender		
Famale	146	75.3
Male	48	24.7
Age groups		
18-39	86	44.3
≥55	72	37.1
40-54	36	18.6
Education		
Literate	7	3.6
Primary school	41	21.1
High school and above	146	75.3
Marital status		
Married	132	8
Single	62	32
Working status		
Working	89	45.9
Non-working	105	54.1
Duration of care (min-maks / X̄±SS) (4,0-3650,0 / 400,84±54,38)		
Degree of kinship with the patient		
Spouse	55	28.4
Son/daughter	73	37.6
Son-in-law/dougher-in-law	12	6.2
Other family rember	54	27.8
Self-sufficiency status of the caregivers		
Sufficient	100	51.5
Insufficient	94	48.5
Whether the caregivers receive support while giving care		
Yes	91	46.9
No	103	53.1
Other dependents		
Yes	98	50.5
No	96	49.5
Presence of a chronic disease		
Yes	38	19.6
No	156	80.4
Chronic diseases		
Hypertension	19	9.8
Diabetes	12	6.2
Asthma	4	2.1
Cardiovascular diseases	3	1.5
Other diseases	14	7.2
Characteristics	**n**	**%**
Whether the caregivers live in the same house with the patient		
Yes	125	64.4
No	69	35.6
Seeing caregiving as a duty		
Agree	116	59.8
Disagree	78	40.2
Seeing as a sacrifice		
Agree	82	42.3
Disagree	112	57.7
Seeing caregiving as an obligation		
Agree	50	25.8
Disagree	144	74.2
Thinking that caregiving exhausts the caregiver		
Agree	14	7.2
Disagree	180	92.8

Table II: Descriptive statistics and reliability levels of the scores of caregivers obtained from the altruism scale, the resilience scale for adults, and the Zarit caregiver burden scale adapted to the clinic (n:194)

Scales	Mean±SS	Min- Max	α
Altruism Scale	74.96±12.02	41-100	0.866
Resilience Scale for Adults	129.86±23.72	56-165	0.937
Zarit Caregiver Burden Scale Adapted to the Clinic	30.20±13.05	0-69	0.942

α : Cronbach's alpha coefficient

The scores of the caregivers who considered giving care as an obligation were lower (p: 0.015; t:-2.460) (Table III).

In this study, the scores of caregivers on the total ZCBS showed a statistically significant difference according to caregivers' education status, employment status, relation with the patient, chronic disease status, and what it meant to provide care for their patients (p<0.05). It was found that the burden of caregivers who had primary school or below education was higher (p: 0.000; t: 3.699). Caregivers who did not work were found to have a higher burden of care (p: 0.019; t: -2.367). In cases where the caregiver was the patient's daughter- or son-in-law, the burden of care was found to be higher than in other relations (p: 0.001; F: 5.363). The burden of caregivers who stated that they were not self-sufficient in providing care was higher (p: 0.005; t: -2.848). The burden of caregivers who received caregiving support was higher (p: 0.038; t: 2.087). It was found that caregivers with chronic diseases had a higher burden of care (p: 0.006; t: 2.768). Individuals who considered giving care as a duty (p: 0.000; t: 3.915), who saw it as an obligation (p: 0.001; t: 3.341), and who thought that providing care exhausted the caregiver (p: 0.004; t: 3.300) had higher care burden (Table III).

In this study, the scores of caregivers on the total RSA (p: 0.028; t: 2.211) and structured style (p: 0.000; t: -3.631) and perception of self (p: 0.006; t: -2.793) sub-dimensions showed a statistically significant difference according to their education level (p<0.05). The scores of the caregivers with high school or above education were higher. The scores on the family cohesion sub-dimension of the RSA showed a statistically significant difference according to the marital status of the caregivers (p<0.05). The resilience scores of married caregivers were higher than those of the single (p: 0.011; t: 2.554). The scores of caregivers on the structured style (p: 0.045; t: 2.016), planned future (p: 0.036; t: 2.110), and perception of self (p: 0.006; t: 2.726) sub-dimensions showed a statistically significant difference according to their employment status (p<0.05). The scores of working caregivers were higher than those of non-working ones. The scores of caregivers on the total RSA and all its sub-dimensions showed a statistically significant difference according to whether they had a chronic disease (p<0.05). The scores of caregivers with chronic diseases were lower. The scores of the caregivers who considered giving care as a duty on the total RSA (p: 0.023; t: -2.299), structured style (p: 0.018; t: -2.387), perception of self (p: 0.041; t: -2.053), and social resources (p: 0.004; t: -2.914) sub-dimensions showed a statistically significant difference (p<0.05). The scores of those who stated that giving care was a duty were lower. The scores of the

Tablo III: Comparison of the mean scores of caregivers on the total and sub-dimensions of the altruism scale and the total Zarit caregiver burden scale adapted to the clinic according to their descriptive and care-related characteristics (n:194)

Descriptive and care-related characteristics of caregivers		Altruism Scale		Family Dimension		Social Dimension		Benevolence Dimension		Responsibility Dimension		Zarit Caregiver Burden Scale	
		$\bar{X}$±SS	p value	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value
Gender	Male	74.72 ±12.21	0.629	20.86 ±3.53	0.802	15.99±5.11	0.352	17.23 ±4.39	0.544	20.65±3.19	0.867	30.62 ±13.19	0.433
	Famale	75.69 ±11.49		20.71±3.58		16.75 ±4.28		17.67 ± 4.23		20.56 ±3.06		28.92±12.68	
Age	18-39	74.57 ±11.85		21.09±3.88		16.13 ±4.75		16.85±4.29		20.5±2.75		29.02±12.94	
	40-54	75.69 ±12.43	0.807	20.6±3.25	0.362	16.4±5.03	0.847	17.78 ±4.66	0.376	20.92 ±3.41	0.607	31.19±12.85	0.535
	≥55	74.42 ±11.84		20.61±3.25		15.83±5.21		17.61±3.8		20.36±3.54		31.03±13.85	
Education	Primary or below	20.02 ±3.17	0.191	20.02 ±3.17	0.071	14.75±6.01	0.048*	17.1±4.77	0.672	20.83 ±3.33	0.605	35.48±10.69	0.000*
	High school or above	21.08 ±3.62		21.08 ±3.62		16.64±4.43		17.41±4.21		20.56±3.1		28.47±13.32	
Marital status	Married	75.45 ±12.59	0.410	20.9± 3.51	0.639	16.08 ±4.95	0.682	17.52±4.24	0.382	20.95 ±3.26	0.031*	30.53±13.59	0.609
	Single	73.92 ±10.72		20.65 ±3.6		16.39 ±4.88		16.94±4.57		19.95±2.81		29.50±11.89	
Working status	Working	76.38±11.7	0.129	21.04 ±3.51	0.415	16.84 ±4.45	0.082	17.62±4.28	0.405	20.88±3.18	0.315	27.82±12.89	0.019*
	Non-working	73.75±12.21		26.63 ±3.56		15.61 ± 5.24		17.1±4.41		20.42±3.12		32.22±12.91	
Degree of kinship	Spousa	74.44±12.85		20.47±3.55		16.11 ±5.31		17.45±4.13		20.4±3.42		30.56±13.77	
	Son/daughter	74.47±10.07	0.360	20.79 ±3.59	0.676	16.34 ±4.38	0.412	17.04±4.38	0.536	20.29 ±2.8	0.222	31.34±11.46	0.001*
	Son/doughter-in-law	70.92±15.02		20.5±3.15		13.92± 5.71		16.17±4.93		20.33±2.96		41.17±9.55	
	Other family member	77.06±12.1		21.28±3.75		16.52±5.02		17.87±4.42		21.39±3.3		25.85±13.48	
Chronic disease	Yes	72.05±11.97	0.097	19.24 ± 3.19	0.002*	15.21±5.22	0.178	17.16 ±4.57	0.780	20.45±3.16	0.181	35.37±12.64	0.006*
	No	75.48±11.96		21.21±3.52		16.41±4.83		17.38±4.3		20.67±3.16		28.94±12.88	
Lives in the same house with the patient	Yes	75.22±12.12		20.82 ±3.49		16.28 ±5.03		17.42±4.32		20.7±3.3		29.56±13.31	
	No	74.48±11.9	0.680	20.81±3.64	0.981	15.99 ±4.74	0.981	17.17±4.41	0.702	20.51±2.87	0.691	31.36±12.58	0.359

*p<0.05 , independent samples t-test, independent samples variance analysis

Descriptive and care-related characteristics of caregivers	Altruism Scale		Family Dimension		Social Dimension		Benevolence Dimension		Resposibility Dimension		Zarit Caregiver Burden Scale	
	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value
Status of receiving support												
Yes	73.23±12.63	0.060	20.99±3.5	0.532	15.41±5.43	0.043*	16.31±4.22	0.002*	20.53 ± 3.13	0.675	32.26 ±12.28	0.038*
No	76.49±11.29		20.67±3.57		16.85 ±4.33		18.24±4.27		20.47±3.17		28.38 ±12.49	
Status of self-sufficiency												
Sufficient	76.57±11.38	0.054	20.87±3.38	0.838	16.74 ±4.39	0.101	18.18±4.25	0.005*	20.78 ±3.14	0.492	27.66±12.76	0.005*
Insufficient	73.24±12.29		20.77 ±3.71		15.57 ±5.38		14.44±4.29		20.47± 3.17		32.90±12.88	
Other dependents												
Yes	75.96±12.14	0.242	20.8 ±3.69	0.925	16.26 ±4.97	0.820	17.98 ±4.14	0.037 *	20.93 ±3.37	0.181	30.86±12.85	0.481
No	73.94±11.87		20.84±3.38		16.09±4.89		16.68±4.47		20.32±2.89		29.53±13.29	
Seeing caregiving as a duty												
Agree	73.91±12.27	0.137	20.67 ±3.35	0.481	15.82 ±5.21	0.219	16.89±4.51	0.081	20.53±3.06	0.580	33.10±12.82	0 .000*
Disagree	76.53±11.53		21.04±3.81		16.71±4.43		18.0±4.03		20.78±3.29		25.88±12.24	
Seeing caregiving as a sacrifice												
Agree	75±11.73	0.968	20.43 ± 3.53	0.186	16.21±4.82	0.938	17.62 ±4.63	0.433	20.74 ±2.94	0.655	31.60±11.31	0.188
Disagree	74.93±12.27		21.11 ± 3.52		16.15 ±5.01		17.13 ±4.14		20.54 ±3.31		29.18±14.56	
Seeing caregiving as an obligation												
Agree	72.94±12.48	0.169	20.44±3.04	0.379	14.72±4.91	0.015 *	16.74± 4.79	0.262	21.04±3.1	0.285	35.38±9.76	0.001*
Disagree	75.66±11.82		20.95 ±3.69		16.68± 4.84		17.54±4.18		20.49 ±3.17		28.40±13.59	
Thinking that caregiving exhauts the caregiver												
Agree	74.86±13.96	0.974	21.29±2.87	0.610	15.29 ± 5.33	0.484	17.07±4.7	0.814	21.21±3.47	0.472	38.29±9.18	0.004*
Disagree	74.97±11.9		20.78 ±3.59		16.24±4.9		17.36±4.33		20.58 ±3.13		29.57±13.11	

p<0.05 , independent samples t-test

caregivers who considered giving care as an obligation on the total RSA (p: 0.0453; t: -2.036), planned future (p: 0.041; t: -2.057), and family cohesion (p: 0.023; t: 2.296) showed a statistically significant difference (p<0.05).

The scores of those who considered giving care as an obligation were lower (Table IV).

Tablo IV: Comparison of the mean scores of caregivers on the total and sub-dimensions of the resilience scale for adults according to their descriptive and care-related characteristics (n:194)

Descriptive and care-related characteristics of caregivers		Resilience Scale of Adults		Structured Style		Planned Future		Family Cohesion		Perception of Self		Social Competence		Social Resources	
		$\bar{X}$±SS	p value	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value
Gender	Male	129.73±22.37	0.900	14.73 ±2.91	0.705	15.70±3.55	0.351	23.46 ±4.36	0.856	24.01±4.68	0.529	23.75 ±4.68	0.861	28.09±5.88	0.922
	Famale	130.23±27.67		14.54±2.96		16.08 ±4.07		23.52 ± 5.87		24.52 ±5.29		23.60±5.47		28.19±6.62	
Age	18-39	130.51 ±23.32		14.69±3.14		15.99 ±3.76		23.12±4.77		20.55±4.72		23.72±4.89		28.45±5.57	
	40-54	131.57 ±23.82	0.326	15±2.88	0.264	16.04±3.47	0.221	23.94 ±4.69	0.498	24.26±4.72	0.228	24.18±4.96	0.357	28.14 ±6.47	0.607
	≥55	124.86 ±24.44		14.03±2.32		14.83±3.82		23.08±4.94		22.92±3.33		22.75±4.64		27.25±6.37	
Education	Primary or below	123.35 ±23.31	0.028*	13.40 ±2.51	0.000*	14.90±3.96	0.051	23.13±4.56	0.625	22.48 ±5.06	0.006 *	22.63±4.67	0.075	26.83±6.06	0.091
	High school or above	131.99 ±23.54		15.10 ±2.92		16.09±3.54		23.51±4.84		24.68±4.64		24.07±4.90		28.53±6.01	
Marital Status	Marriage	131.47 ±24.03	0.167	14.64 ± 2.75	0.800	16.00±3.68	0.255	24.01±4.61	0.011*	24.24 ±5.08	0.665	24.08±5.01	0.129	28.5±6.15	0.195
	Single	126.42 ±22.85		14.76 ±3.26		15.35 ±3.67		22.16±4.88		23.92±4.28		22.94±4.5		27.29±5.8	
Working Status	Working	133.36±22.10	0.058	15.13 ±2.80	0.045*	16.39 ±3.37	0.036*	23.91±4.40	0.185	25.15±4.23	0.006*	24.08±4.84	0.335	28.70±5.87	0.217
	Non-working	126.89±24.72		14.30 ±2.97		15.29 ± 5.86		23.00±5.03		23.29±5.15		23.4±4.9		27.62±6.18	
Degree of Kinship	Spouse	126.69±24.36		14.44±2.62		15.29 ±3.69		22.96±4.82		23.45±5.11		23.31±4.71		27.24±6.23	
	Son/daughter	129.51±21.86	0.328	14.84±2.86	0.373	15.78 ±3.67	0.256	23.34±4.28	0.632	23.92 ±4.32	0.124	23.44±4.72	0.663	28.19±5.88	0.388
	Son/daughter-in-law	125.58±25.34		13.5±2.58		14.83± 4.06		22.92±4.62		22.92±5.98		24.33±5.03		27.08±5.66	
	Other family member	134.5±25.00		14.98±3.31		16.54±3.55		24.09±5.38		25.41±4.80		24.35±5.25		29.13±6.17	
Chronic disease	Yes	118.66±22.89	0.001*	13.84 ± 2.50	0.048*	14.34±3.754	0.006*	21.37±4.40	0.003*	21.79±4.94	0.001*	21.63±4.87	0.003 *	25.68±6.18	0.005*
	No	132.58±23.18		14.88±2.98		16.15±3.63		23.92±4.73		24.71±4.64		24.22±4.75		28.71±5.89	
Live in the same house with patient	Yes	128.91±24.65		14.78 ±2.91		15.57 ±3.82		23.32±5.08		23.56±4.92		23.40±4.98		27.83±6.18	
	No	131.57±21.99	0.457	14.51±2.93	0.540	16.20 ±3.38	0.250	23.59±4.15	0.702	25.00±4.58	0.634	24.36±458	0.232	28.62±5.82	0.385

*p<0.05 , independent samples t-test, independent samples variance analysis

Descriptive and care-related characteristic of caregivers	Resilience Scale of Adults		Structured Style		Planned Future		Family Cohesion		Perception of self		Social Competence		Social Resouces	
	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value	$\bar{X}$±SS	p value
Status of receiving support														
Yes	128.9±22.78	0.600	14.37±2.56	0.163	15.76±3.62	0.900	23.47±4.77	0.880	23.93 ±4.65	0.580	23.49 ±4.87	0.561	27.87±5.88	0597
No	130.7±24.59		14.95±3.18		15.83 ±3.74		24.32±4.87		24.32±5.00		23.90 ±4.97		28.33±6.22	
Status of self-sufficiency														
Sufficient	131.42±23.74	0.345	14.94±3.28	0.197	15.93 ±3.66	0.596	23.65±4.67	0.485	24.41 ±4.91	0.422	23.94±4.85	0.502	28.55±5.85	0.301
Insufficient	128.19±23.71		14.40 ±2.46		15.65 ±3.70		23.17±4.87		23.85± 4.76		23.47±4.91		28.33±6.22	
Other dependent														
Yes	132.41±23.61	0.130	14.96 ±2.92	0.176	16.02±3.74	0.387	23.97 ±4.65	0.103	24.69±4.56	0.106	24.19±4.98	0.164	28.57±6.24	0.288
No	127.25±23.66		14.40±2.89		15.56±3.62		22.85±4.83		23.57±5.05		23.22±4.73		27.65±5.85	
Seeing caregiving as a duty														
Agree	126.68±23.68	0.023*	14.28 ±2.67	0.018*	15.45 ±3.66	0.111	22.91±4.80	0.068	23.56±4.92	0.041 *	23.40±4.98	0.274	27.09±6.07	0.004*
Disagree	134.58±23.12		15.28±3.17		16.31±3.65		24.18±4.63		25.00±4.58		24.18±4.69		29.63±5.74	
Seeing care as a sacrifice														
Agree	127.61±22.96	0.260	14.29 ± 2.83	0.113	15.57±3.57	0.476	24.41±4.49	0.994	23.54 ±4.79	0.137	23.13±4.88	0.159	27.66±6.09	0.372
Disagree	131.50±24.22		14.96± 2.95		15.96 ±3.76		23.42 ±4.97		24.58 ±4.83		24.13±4.84		28.45±6.0,3	
Seeing caregiving as an obligation														
Agree	124.02±23.91	0.0453*	14.34±2.80	0.339	14.88±3.55	0.041 *	22.10± 4.88	0.023*	23.02±4.79	0.057	22.86±4.90	0.152	26.82±6.04	0.079
Disagree	131.88±23.39		14.80 ±2.95		16.11±3.68		23.88±4.65		24.53 ±4.80		24.01±4.84		28.56±6.01	
Thinking that caregiving exhauts the caregiver														
Agree	125.21±25.56	0.449	13.50±2.24	0.116	14.71 ± 3.77	0.255	22.93±5.23	0.691	23.29±5.38	0.494	23.79±5.59	0.953	27.00±5.46	0.476
Disagree	13.22±23.61		14.77±2.94		15.88±3.67		23.46±4.74		24.21±4.79		23.71±4.83		28.20±6.10	

*p<0.05 , independent samples t-test

There was a statistically significant and positive relationship between caregivers' altruism and resilience ($p<0.01$: $r= 0.495$). As the total scores of caregivers on the altruism scale increased, their total resilience scores increased, as well. There was a statistically significant and negative correlation between caregivers' altruistic behaviors and care burden ($p<0.01$: $r=-0.369$). As the total score of the caregivers on the altruism scale decreased, their total burden of care score increased. A statistically significant and negative correlation was found between caregivers' burden of care and resilience ($p<0.01$: $r=-0.524$). As caregivers' total burden of care scores decreased, their total resilience scores increased (Table V).

Table V: The Relationship between the scores of caregivers on the altruism scale, the resilience scale, and the Zarit caregiver burden scale (n:194)

	1	**2**	**3**
1)Zarit Caregiver Burden Scale		-0.369*	-0.524*
2) Altruism Scale	-0.369*		0.495*
3) Resilience Scale of Adults	-0.524*	0.495*	

Correlation analysis, *p<0.01

In this study, regression analysis was performed to determine the predictive effect of altruistic behaviors in caregivers of patients with cancer on caregivers' resilience. When the results were examined, it was found that F=62.331 in the first model and that models were found to be statistically significant ($p<0.05$). It was determined that caregivers' altruistic behaviors had an effect on their resilience and that an increase in caregivers' altruistic behavior scores increased their resilience score statistically ($p<0.05$). In addition, it was determined that 24.1% of the variance in the resilience level of caregivers was due to the variance in the level of their altruistic behaviors (R2=0.241). In the second model, it was found that F=30.344 and that models were statistically significant ($p<0.05$). It was determined that caregivers' altruistic behaviors had an effect on the burden of care and that an increase in caregivers' altruistic behavior scores caused a statistical decrease in the level of their burden ($p<0.05$). In addition, it was found that 13.2% of the variance in the level of caregivers' care burden was due to the variance in the level of their altruism (R2=0.132) (Table VI).

Table VI: The predictive effect of altruistic behaviors on the resilience and care burden of caregivers of patients with cancer (n:194)

Dependent variable: Resilience	**Beta**	**Std error**	**t**	**p value**	**VIF value**	**F value**	**Model p**	**R^2 value**
Model 1								
Constant	56.610	9.395	6.025	0.000		62.331	0.000*	0.241
Altruism Scale	0.977	0.124	7.895	0.000				
Dependent variable: Care burden	**Beta**	**Std error**	**t**	**p value**	**VIF value**	**F value**	**Model p**	**R^2 value**
Model 2								
Constant	60.280	5.530	10.901	0.000		30.344	0.000*	0.132
Altruism Scale	-0.401	0.073	-5.509	0.000				

Linear regression analysis, *p<0.05

DISCUSSION

In our study, 59.8% of the caregivers stated that they saw providing care for their patients as a duty, while 42.3% saw it as a sacrifice. Although the majority of caregivers considered providing care for their patients as a duty, the number of caregivers who stated they saw it as a sacrifice was also quite high. There are studies in the literature that support both findings. For example, the results of Tarı-Selçuk and Avcı (2016), Kristani et al. (2019), and Yeşil et al. (2016) show parallelism with our study in terms of these findings (26-28). The reasons for seeing providing care as duty may include cases where the caregiver is the patient's son/daughter or spouse, he/she takes on the burden of care conscientiously, and he/she thinks that they have to take care of the spouse or mother/father who is sick due to the feudal cultural structure and Muslim origin of Turkey, and because there is no one else to take care of the patient. Reasons for seeing the provision of care as a sacrifice may include cases where the caregiver is compassionate and volunteering, he/she provides care for the patient willingly, or he/she loves the patient very much. In our study, when the caregivers were asked what it meant to care for their patient, they used expressions such as "We promised in sickness and in health", "I love my mother very much", "I would do anything for her", and "I would give my life for my child if necessary". These statements show the sacrifices of caregivers. In Turkey, caregivers with a traditional family structure see themselves as religiously responsible for providing care for their family members who are sick, and they are merciful, compassionate, helpful, and self-sacrificing as also required by Islam. In our study, the total mean score of caregivers on the altruism scale was found to be 74.96±12.02. It is seen that caregivers scored above the average. When the literature is examined, although there is no study that measures altruistic behaviors of caregivers in Turkey, in the study of Lök et al. (2015), caregivers compared the concept of caregiving to the example of a 'devoted individual', while in the studies of Tayaz (2018) and Zaybak (2012), it was stated that caregivers assumed the role of unconditional self-sacrifice (4,29,30). There are also examples from foreign literature. In their study with family-member caregivers, Klemz et al. (2015) found that cultural norms guided altruism and that medical and non-medical expenditures physically distanced the caregiver from the sick individual and reduced altruistic behaviors (31). In our study, reasons for high mean total altruism scores were found to possibly stem from factors such as giving care to loved ones, providing care devotedly and willingly, thinking that giving care is a sacrifice, level of close kinship with the person who is given care, and altruistic behaviors.

The mean score of caregivers on the total resilience scale was high (129.86±23.72). The mean score obtained from the total RSA was determined as 119.38±24.26 in the study of Uğurtay (2019), 130.93±14.60 in the study of Erkan (2019), and 129.98 in the study of Kahraman (2019) (32-34). Liu et al. (2018) found a high level of resilience in family members who provided care for their patients with cancer, and this was consistent with our findings (35). At this point, besides social support, it is possible to talk about the importance of giving care to the loved one, providing care voluntarily and devotedly, good family solidarity, and the belief of the caregiver that the patient will recover faster if he/she gives quality care to his/her patient.

In our study, the mean score of the ZCBS was found as 30.20±13.05. In other studies conducted with caregivers, the mean score on the total Zarit Caregiver Burden Scale was found as 42.35 ± 20.26 by Altay et al. (2018), 32.61±14.83 by

Özkan-Tuncay et al. (2015), 29.49±9.83 by Tayaz and Koç (2018), and 36.24±12.65 by Kars-Fertelli and Özkan-Tuncay (2019) (4, 36-38). The mean scores for care burden vary in studies. In our study, 52.6% of the caregivers stated that they felt a moderate level of care burden. Decadt et al. (2021) also found that caregivers experienced moderate levels of care burden (39). This result is consistent with our study. The reasons for mainly moderate levels of care burden felt by the caregivers in our study compared to the results of other studies may have been because the caregivers in our study had high levels of altruistic behaviors and resilience, the number of caregivers with chronic diseases was less, and the duration of care ranged between 3 to 12 months. In addition, it can be said that the external support received by caregivers who were not self-sufficient while they were providing care played an important role in the moderate levels of care burden.

There was a statistically significant and positive relationship between caregivers' altruistic behaviors and resilience (p<0.01; r= 0.495). As the mean scores of caregivers on the total altruism scale increased, their mean scores on the total resilience scale increased, as well. Çetin et al. (2015) reported that when people had high levels of cohesion, even if conditions were not appropriate, they showed helpfulness, their resilience increased, and that there was a similar relationship between empathy and resilience (40). In the study of Lök et al. (2015), caregivers who believed that caregiving could not be performed without sacrifice said, “I usually forget myself; I think this is sacrifice. It cannot be done without sacrifice” (29). In the study conducted by Uğurtay (2019), a positive and significant relationship was found between the total score on the resilience scale and the mean score on the empathic thinking subscale. The “empathic thinking” subscale includes showing compassion and emotional empathy (32). Since altruistic behaviors include prosocial behaviors, it can be interpreted that caregivers' altruistic behaviors shown by helping, empathizing, and sacrificing may have increased their resilience. In Turkey, care is given to the sick individual selflessly, also as a requirement of Muslim origin, and because of the cultural structure. Especially in crowded families, the sick person is provided care by family members on a completely voluntary basis. It can be interpreted that the resilience of caregivers is high since this situation motivates them. In this study, a statistically significant and negative correlation was found between caregivers' altruistic behaviors and care burden (p<0.01: r= -0.369). As the mean score of caregivers on the total altruism scale decreased, their total score on the burden of care increased. Although there was no study in the literature that was conducted with caregivers on altruistic behavior and caregiver burden, Ming Yeh and Yuanmay Chang (2015) reported that altruistic behavior reduced the burden of care (41). In the study conducted by Arslantaş and Adana (2012), extreme self-sacrifice and control behaviors by relatives in their relationships with the patient, the evaluation of warmth/closeness towards the patient, and the inability to separate their inner world from that of the patient were defined as emotional expression and it was concluded that as the emotional expression score of caregivers increased, the scores for the burden of care increased, as well (42). This result is not consistent with our study. It can be said that the burden of care increased because the evaluation of care as only a duty or a task that caregivers had to fulfill may have caused them to display attitudes away from self-sacrifice and benevolence, lacking empathy and compassion. The examination of the results of the regression analysis in our study indicated that altruistic behaviors of caregivers had an effect on their resilience and that an increase in caregivers' scores on altruistic behavior increased their resilience score statistically (p<0.05). It was determined that 24.1% of the variance in the level of caregivers’ resilience was due to the variance in the level of their altruistic behavior (R2=0.241). Caregivers who provide care voluntarily, devotedly, and without expecting anything in return will be individuals with better psychological well-being and coping mechanisms. Therefore, these caregivers may have higher levels of resilience. In this study, the results of the regression analysis indicated that altruistic behavior of caregivers had an effect on the burden of care and that an increase in the altruistic behavior scores of caregivers caused a statistical decrease in the level of caregiver burden (p<0.05). It was found that 13.2% of the variance in the level of caregivers’ burden was due to the variance in the level of their altruism (R2=0.132). In the study conducted by Ming Yeh and Yuanmay Chang (2015), family caregivers stated that one of their perceptions of caregiving was self-sacrifice, and it was found that family caregivers with better relationship quality, psychological well-being, and caregiving knowledge had a lower care burden (41).

Limitation of the Study

The results of the findings regarding the predictive effect of altruistic behaviors on resilience and care burden in caregivers of patients with cancer are limited only to the hospital where the data were collected and include the caregivers of patients with cancer in this hospital. In this study, the predictive effects of resilience and care burden in caregivers of patients with cancer were investigated. It does not include caregivers of patients diagnosed with other diseases.

CONCLUSIONS and RECOMMENDATIONS

Altruism consists of prosocial behaviors characterized by positive social behaviors. In our study, it was determined that the altruistic behaviors seen in the caregivers of patients with cancer significantly affected their resilience and care burden. The concepts of benevolence, compassion, mercy, self-sacrifice, and empathy which are seen in caregivers gained importance in our study. The altruistic behaviors seen in caregivers while they are providing care will both increase the quality of care and reduce the burden on the caregiver. For this reason, it is recommended to inform and educate caregivers about positive social behaviors. In addition, since the increase in the resilience of caregivers will also affect their altruistic behaviors, it can be recommended to design training programs for caregivers on coping mechanisms, effective psychological support, communication techniques, and coping with potential problems. It is recommended that health professionals should identify the problems and care burden of caregivers during caregiving, observe their altruistic behavior, and revise their shortcomings.

In the literature, there is limited research into the predictive effects of altruistic behaviors on resilience and care burden of caregivers of patients with cancer. Therefore, it is recommended to conduct quantitative, qualitative, and experimental studies on the topic. Moreover, it is thought that there is a need for experimental studies that will contribute to the development of altruistic behavior of caregivers in Turkey and the world and investigate the effects of these behaviors on other factors.

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Ethics Committee Approval:
This research complies with all the relevant national regulations, institutional policies and is in accordance with the tenets of the Helsinki Declaration and has been approved by the Dokuz Eylül University Ethics Committee for Non-Interventional Studies (date: April 12, 2021; protocol number: 6116-GOA; decision number: 2021/12-10).

Informed Consent:
All the participants' rights were protected and written informed consents were obtained before the procedures according to the Helsinki Declaration.

Author Contributions:
Concept – A.Ö.Ş., E.K.; Design – A.Ö.Ş., E.K.; Supervision – A.Ö.Ş., E.K.; Resoucers – A.Ö.Ş.; Materials – A.Ö.Ş., E.K.; Data Collection and/ or Processing – A.Ö.Ş.; Analysis and/ or Interpretation – A.Ö.Ş.; Literature Search – A.Ö.Ş.; Writing Manuscript – A.Ö.Ş.; Critical Review – A.Ö.Ş., E.K.

Conflict of interest:
The authors declare that there is no conflict of interest in this study.

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