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The effect of depression, anxiety and stress levels on the quality of life and self-care agency of patients with gynecological cancer: cross-sectional study

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Abstract

Objective This study aimed to examine the effects of depression, anxiety and stress levels on quality of life and self-care agency of patients with gynecological cancer.

Methods The cross-sectional study was conducted with 182 gynecological cancer patients who applied to the Gynecology and Pediatrics Clinic and the Gynecology and Pediatrics Service of Marmara University Pendik Training and Research. Research data were obtained using Personal Information Form, Depression, Anxiety, Stress Scale (DASS-21), Quality of Life Index Cancer Adaptation-III (QOL-CV) and Self-Care Agency Scale (SCAS).

Results A statistically significant and negative correlation was found between the patients' self-care agency and the levels of stress (r=-.446), anxiety (r=-.491) and depression (r=-.549) (p<.001). A statistically significant and negative correlation was found between the level of quality of life and the levels of stress (r=-.529), anxiety (r=-.451) and depression (r=-.597) (p<.001). A multiple linear regression model was applied with the stepwise method to determine the independent variables affecting the patients' depression, anxiety, stress, self-care agency and quality of life levels, and it was found that the independent variables in the model explained 62.2%, 22.7%, 20.4%, 53.6% and 73.7% of the total change in the dependent variable, respectively.

Conclusion The depression, anxiety and stress levels of gynecological cancer patients increase, their quality of life and self-care ability decrease. It is recommended that women's health and diseases nurses assess depression, anxiety and stress, quality of life and self-care ability during the diagnosis, treatment and follow-up processes of gynecological cancer patients and plan, implement, and evaluate nursing care processes accordingly.

Keywords Gynecologic neoplasms, Depression, Anxiety, Stress, Quality of Life, Self-care

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Introduction

Cancer is defined by the World Health Organization (WHO) as a broad group of diseases characterized by the uncontrolled growth of abnormal cells, which may begin in any organ or tissue of the body, invade adjacent parts beyond normal boundaries, and/or spread to other organs [1]. Overall, the incidence and mortality burden of cancer is rapidly increasing worldwide [2]. According to Global Cancer Observatory (GLOBOCAN) 2022 data, the top 10 cancer types in both men and women combined account for 60% of newly diagnosed cancer cases and over 70% of cancer-related deaths. In the global population, lung cancer (12.4%) is the most frequently diagnosed, followed by female breast cancer (11.6%), colorectal cancer (9.6%), prostate cancer (7.3%), and gastric cancer (4.9%) [2]. National data from the Turkish Health Statistics Yearbook (2022) indicate that breast (48.6%), thyroid (22.1%), colorectal (14.7%), corpus uteri (11.1%), trachea–bronchus–lung (10.9%), stomach (6.5%), and ovarian (6.5%) cancers are the most prevalent malignancies among women [3].

Gynecological cancers, one of the cancers that negatively impact women's lives, are defined as malignant tumors originating from the female reproductive organs, including the cervix, ovaries, endometrium (uterus), fallopian tubes, vagina, and vulva. This classification is based on internationally accepted oncology references, which categorize gynecologic malignancies anatomically, according to the organ of origin within the female reproductive system [4, 5]. In addition, GLOBOCAN 2022 highlights the substantial global burden of gynecological cancers. Cervical cancer remains the most prominent gynecological malignancy, with an estimated 661.021 new cases reported in 2022. Uterine (corpus uteri) cancer accounted for approximately 420.242 new cases, while ovarian cancer was responsible for 324.398 new diagnoses within the same year. Collectively, gynecological cancers—including cervical, corpus uteri, ovarian, vaginal, and vulvar cancers—comprised an estimated 1.471.803 new cases, underscoring their significant contribution to the global cancer burden [6].

Given the high prevalence and burden of gynecological cancers, the psychosocial dimensions of cancer care require special attention; depression, anxiety, and stress frequently coexist and can significantly impact patients' overall quality of life. Furthermore, these psychosocial factors are closely interrelated, forming a dynamic system where increased emotional distress can impair self-care ability and negatively affect functional health outcomes. Therefore, evaluating these variables within a unified conceptual framework allows for a more comprehensive understanding of how psychological well-being contributes to or negatively impacts the quality of life in individuals battling cancer [7, 8]. From the moment of diagnosis, untreated anxiety and depression in gynecological cancer patients are known to complicate the disease process and negatively affect quality of life [7, 8]. Patients with gynecological cancers often experience lower quality of life due to the profound effects of cancer diagnosis and treatment on sexual function, family life, social activities, and occupational engagement among survivors [9]. Furthermore, women undergoing treatment for gynecological cancers may enter menopause surgically, leading to increased susceptibility to depression, which is particularly high in this patient group [10].

The negative effects of gynecological cancers on women's health are multidimensional, with depression, anxiety, stress, and self-care agency being adversely impacted [11, 12]. In the study conducted by Shang et al., which examined quality of life, mood status, and associated factors in patients with gynecological cancer, good sleep was identified as a protective factor against anxiety and depression, whereas physical pain was determined to be a significant risk factor [13]. In the study by Nasution et al., which examined the effectiveness of spiritual intervention in overcoming anxiety and depression problems in gynecological cancer patients, a change in the mean anxiety and depression scores was observed in the intervention group after spiritual intervention applied by nurses, and differences were found in the mean anxiety and depression scores between the intervention and control groups [14]. As stated in the literature, the diagnosis and treatment processes of gynecological cancer patients affect their sexual identity, body image, and reproductive function, leading to significant health problems [11]. The meaning that each individual attaches to cancer diagnosis and treatment process affects how they cope with these health problems [15]. Especially in this process, the primary aim of the supportive care individuals receive is to improve the quality of self-care [16].

Reducing depression, anxiety, and stress levels, while supporting self-care agency and improving quality of life in gynecological cancer patients, is the responsibility of healthcare professionals through counseling and educational interventions. Nurses who utilize their independent roles and responsibilities can enhance the well-being of these patients by providing education and counseling [16]. The aim of this study was to examine the effects of depression, anxiety, and stress levels on quality of life and self-care agency among patients with gynecological cancer. The lack of studies in national and international literature addressing similar variables and evaluating their effects makes this research distinctive, and it is anticipated to contribute to the literature.

Research questions

1. What are the levels of depression, anxiety, stress, quality of life, and self-care agency among patients with gynecological cancer?
2. Is there a relationship between depression, anxiety, and stress levels and the quality of life and self-care agency in patients with gynecological cancer?
3. Do depression, anxiety, and stress levels affect the quality of life and self-care agency in patients with gynecological cancer?

Methods

Study design

This study was a cross-sectional design.

Setting

The research was conducted in the Gynecology Outpatient Clinic and Gynecology Inpatient Service of Marmara University Pendik Training and Research Hospital between February 20 and September 30, 2024.

Population and sample

A two-tailed hypothesis was established, and the sample size was calculated using G*Power 3.1.9.7 statistical software. Based on the mean score of the Quality of Life Index – Cancer Version III (QOL-CV) from the study by Menekli, Doğan, and Elkıran (2020) [17], a sample size of 182 women with gynecological cancer was determined, assuming 80% power, a 95% confidence level, and a 5% margin of error.

During the data collection period, 182 patients who met the inclusion criteria and agreed to participate were selected through simple random sampling.

Inclusion criteria

- Age ≥ 18 years.
- Literacy.
- Present and receiving treatment in the Gynecology Outpatient Clinic or Inpatient Service during the study period.
- Diagnosed with gynecological cancer (cervix, ovary, endometrium, fallopian tube, vagina, vulva).
- Voluntary participation.

Exclusion criteria

- Terminally ill patients or patients in intensive care units.
- Concurrent diagnosis of other primary malignancies.
- Patients with severe comorbid medical conditions.
- Refusal or inability to provide voluntary informed consent.
- Prior participation in the same study.

Data collection tools

Data were collected using the Personal Information Form, Depression, Anxiety, and Stress Scale (DASS-21), Quality of Life Index – Cancer Version III (QOL-CV), and Self-Care Agency Scale (SCAS).

Personal information form

Developed by the researchers in line with relevant literature and expert opinion, this form includes 34 questions on personal, obstetric, and disease-related characteristics of the participants [17, 18].

Depression, anxiety, and stress scale (DASS-21)

Developed by Lovibond and Lovibond in 1995 [19] and adapted into Turkish by Sarıçam (2018) [20], the DASS-21 consists of 21 items rated on a 4-point Likert scale, with subscales for depression, anxiety, and stress. In the scoring system of the scale, the thresholds indicating symptom severity vary across subscales. Scores of 0–4 for depression, 0–3 for anxiety, and 0–7 for stress correspond to the normal range. Mild symptoms are reflected by 5–6 points for depression, 4–5 points for anxiety, and 8–9 points for stress. Moderate severity is indicated by 7–10 points for depression, 5–7 points for anxiety, and 10–12 points for stress. Higher scores denote more pronounced symptoms; specifically, 11–13 points for depression, 8–9 points for anxiety, and 13–16 points for stress represent a severe level. Scores of 14 or above in depression, 10 or above in anxiety, and 17 or above in stress signify very severe symptomatology [21]. In the Turkish adaptation, Cronbach's alpha coefficients for the depression, anxiety, and stress subscales were 0.87, 0.85, and 0.81, respectively [20]. In the present study, Cronbach's alpha values for the total DASS-21, depression, anxiety, and stress subscales were 0.936, 0.947, 0.927, and 0.928, respectively.

Quality of life index – cancer version III (QOL-CV)

Developed by Ferrans and Powers in 1985 [22] and adapted into Turkish by Can, Durna, and Aydıner (2010) [23], the QOL-CV consists of 33 items on a 6-point Likert scale. The QOL scale evaluates both an individual's satisfaction with different life domains and the importance they attribute to those domains. Importance ratings serve to weight satisfaction scores, ensuring that the final results reflect how satisfied respondents are with the aspects of life they personally value. Items considered more important therefore contribute more strongly to the overall score. The instrument includes two sections: one assessing satisfaction with specific life areas and another assessing the perceived importance of those same areas. The total score ranges from 0 to 30, with lower scores

indicating a greater negative impact on quality of life [22]. In the Turkish adaptation, Cronbach's alpha values for the total and subscales ranged from 0.63 to 0.85 [22]. In the present study, Cronbach's alpha values were 0.981 for satisfaction, 0.970 for importance, and 0.992 for the total scale.

Self-care agency scale (SCAS)

Developed by Kearney and Fleischer in 1979 [24] and adapted into Turkish by Nahcivan in 1993 [25], the SCAS consists of 35 items rated on a 5-point Likert scale. Higher scores indicate greater self-care agency. Items 3, 6, 9, 13, 19, 22, 26, and 31 are reverse-coded [25]. The maximum possible score is 140. In the present study, the Cronbach's alpha for the total scale was 0.976.

Table 1 Personal characteristics of women with gynecological cancer ($n=182$)

Variables	Category	*n* (%)
Age (years)	Mean ± SD	53.85 ± 10.20
Education	Primary school	49 (26.9)
	Middle school	66 (36.3)
	Secondary education	46 (25.3)
	University	21 (11.5)
Working status	Works	36 (19.8)
	Doesn't work	146 (80.2)
Marital status	Married	161 (88.5)
	Single	21 (11.5)
Income	Income is less than expenses	29 (15.9)
	Income equals expenses	124 (68.1)
	Income is greater than expenses	29 (15.9)
Family type	Nuclear family	144 (79.1)
	Extended family	38 (20.9)
Health insurance	Yes	180 (98.9)
	No	2 (1,1)
Exercise	No	155 (85.2)
	Yes	27 (14.8)
Chronic disease	No	46 (25.3)
	Yes	136 (74.7)
Family history of cancer	No	106 (58.2)
	Yes	76 (41.8)
Age of first menstrual period (menarche)	< 12	60 (33.0)
	≥ 12	122 (67.0)
Number of pregnancies	Mean ± SD	3.52 ± 1.80
Number of live births	Mean ± SD	2.85 ± 1.56
Abortion	Yes	22 (12.1)
	No	160 (87.9)
Wanting to become pregnant in the future	No	174 (95.6)
	Yes	8 (4.4)
Menopause status	No	37 (20.3)
	Yes	145 (79.7)

Data collection procedure

Before data collection, eligible participants were informed about the study, and written consent was obtained via the Volunteer Information Form. Questionnaires and scales were administered in a suitable room in the outpatient clinic, ensuring that treatment schedules were not disrupted. Each participant completed the forms individually, with the process taking approximately 15 min.

Ethical considerations

Ethics approval was obtained from the Ethics Committee of Istanbul Gedik University (Date: 25.12.2023, No: 2023/11). Institutional permission was granted by the Istanbul Provincial Health Directorate. Written informed consent was obtained from all participants. The study was conducted in accordance with the Declaration of Helsinki. As a cross-sectional study, the STROBE guidelines were followed.

Data analysis

Statistical analysis was performed using SPSS version 27 (IBM Corp., Armonk, NY, USA). Skewness and kurtosis coefficients were calculated to assess normal distribution (acceptable range: −1.5 to +1.5). Descriptive statistics (n, %, mean, standard deviation), independent samples t-test, one-way ANOVA with Scheffé post-hoc test, and Pearson's correlation were used. Multiple linear regression analysis was performed to identify predictors of dependent variables. A significance level of $p<.05$ (two-tailed) was applied. Data analysis was conducted by a professional statistician.

Results

Table 1 presents the sociodemographic characteristics of the women diagnosed with gynecological cancer. The mean age of participants was 53.85 ± 10.20 years (range: 28–85). Most patients (63%) had an education level below high school, 80.2% were not employed, and 88.5% were married. A family history of cancer was reported by 41.8% of participants, and almost all (98.9%) had health insurance. The mean number of pregnancies was 3.52 ± 1.80, and the mean number of live births was 2.85 ± 1.56.

Table 2 presents the clinical characteristics related to gynecological cancers. Among the patients, 60% were diagnosed through medical screening, while 40% were diagnosed after noticing symptoms themselves. Negative emotional responses following diagnosis were reported by 92.9% of participants. Endometrial cancer was the most common diagnosis (46%), followed by ovarian cancer (39.6%), cervical cancer (18.1%), vulvar/vaginal cancer (2.2%), and fallopian tube cancer (2.7%). Cancer stage distribution was as follows: stage I (31%), stage II (44.5%),

Table 2 Characteristics of women with gynecological cancer related to gynecological diseases ($n = 182$)

Variables	Category	*n* (%)
Diagnosis*	Endometrial cancer	84 (46.2)
	Ovarian cancer	72 (39.6)
	Cervical cancer	33 (18.1)
	Vulva + Vaginal cancer	4 (2.2)
	Fallopian tube cancer	5 (2.7)
Multiple cancer diagnoses	Yes	18 (9.9)
	No	164 (90.1)
Stage	I	57 (31.3)
	II	81 (44.5)
	III $_{(n=40)}$/IV $_{(n=4)}$	44 (24.2)
Treatments received	Surgical	182 (100.0)
	Chemotherapy	107 (58.8)
	Radiotherapy	52 (28.6)
	Atom	0 (0.0)
Duration of treatment	1–6 months	122 (67.0)
	7–12 months	40 (22.0)
	≥ 13 months	20 (11.0)
Post-surgical supportive treatments	Yes	133 (73.1)
	No	49 (26.9)
Regular doctor check-ups	No	84 (46.2)
	Yes	98 (53.8)
Being informed about the disease	No	24 (13.2)
	Yes	158 (86.8)
Being informed about treatment	No	50 (27.5)
	Yes	132 (72.5)
Disease diagnosis method	Medical diagnosis	110 (60.4)
	Recognizing the symptom	72 (39.6)
Feelings after diagnosis	Negative emotion	169 (92.9)
	Uncertain feeling	13 (7.1)
Regular gynecological check-up	No	126 (69.2)
	Yes	56 (30.8)
HRT	No	76 (41.8)
	Yes	106 (58.2)

* Multiple options were selected

and stage III/IV (24%). All patients underwent surgery; 58.8% received chemotherapy, 28.6% received radiotherapy, 73% underwent adjuvant systemic therapies, and 58% received hormone therapy.

Table 3 presents descriptive statistics for the Depression, Anxiety, and Stress Scale (DASS-21), Self-Care Agency Scale (SCAS), and Quality of Life Index – Cancer Version III (QOL-CV), as well as correlations between these measures. The mean stress, anxiety, and depression scores were 11.14 ± 5.88 (53%), 9.97 ± 6.19 (47.5%), and 9.38 ± 5.89 (44.7%), respectively. The mean self-care agency score was 70.18 ± 35.42 (50%), and the mean total quality of life score was 19.31 ± 6.47 (64.4%). Examination of QOL-CV subscales revealed mean scores of 18.73 ± 6.76 (62.4%) for health and mobility, 15.81 ± 6.25 (52.7%) for socioeconomic aspects, 21.74 ± 7.08 (72.5%) for psychological and spiritual aspects, and 23.03 ± 7.25 (76.8%) for family relationships.

Statistically significant negative correlations were found between self-care agency and stress ($r = -.446$), anxiety ($r = -.491$), and depression ($r = -.549$) ($p < .001$). Similarly, quality of life was negatively correlated with stress ($r = -.529$), anxiety ($r = -.451$), and depression ($r = -.597$) ($p < .001$). A significant positive correlation was found between self-care agency and quality of life ($r = .814$; $p < .001$).

Table 4 shows the results of stepwise multiple linear regression analysis for predictors of self-care agency. The final model (step 6) explained 53.6% of the variance in self-care agency (*adjusted* $R^2 = 0.536$). Higher depression ($\beta = -0.222$; $p = .003$), anxiety ($\beta = -0.253$; $p < .001$), cancer stage ($\beta = -0.248$; $p < .001$), and menopausal status ($\beta = -0.155$; $p = .006$) were associated with lower self-care agency, while being employed ($\beta = 0.179$; $p = .002$) and being informed about the disease ($\beta = 0.170$; $p = .009$) predicted higher self-care agency.

Table 5 presents the results for predictors of quality of life. The final model (step 4) explained 73.7% of the variance in quality of life (*adjusted* $R^2 = 0.737$). Higher stress ($\beta = -0.146$; $p = .001$) and receiving hormone therapy (β

Table 3 Descriptive statistics and correlations between the Depression, Anxiety and Stress Scale, Self-Care Agency Scale, and Quality of Life Index Cancer Adaptation-III total and sub-dimension scores of women with gynecological cancer

No	Scales and Sub-Dimensions	Mean ± SD	1	2	3	4	5	6	7	8
1	Anxiety	11.14 ± 5.88	UD							
2	Depression	9.97 ± 6.19	0.663 *							
3	Stress	9.38 ± 5.89	0.416 *	0.623 *						
4	Self-Care Abilities Scale (SCAAS)	70.18 ± 35.42	−0.491 *	−0.549 *	−0.446 *					
5	QOL-CV-Total	18.73 ± 6.76	−0.451 *	−0.597 *	−0.529 *	0.814 *				
6	QOL-CV-Health and Mobility	15.81 ± 6.25	−0.459 *	−0.582 *	−0.493 *	0.802 *	0.973 *			
7	QOL-CV-Social and Economic	21.74 ± 7.08	−0.435 *	−0.529 *	−0.460 *	0.811 *	0.945 *	0.885 *		
8	QOL-CV-Psychological and Religious	23.03 ± 7.25	−0.424 *	−0.609 *	−0.554 *	0.773 *	0.961 *	0.907 *	0.889 *	
9	QOL-CV-Family	19.31 ± 6.47	−0.363 *	−0.547 *	−0.528 *	0.677 *	0.915 *	0.847 *	0.830 *	0.871 *

* $p < .001$, Pearson correlation test, *UD* Not applicable

Table 4 Analysis of the results of the independent variables related to the self-care agency of women with gynecological cancer

Dependent Variable = Self-care agency								
					Changing Statistics			
Model	***R***	**R2**	**Adjusted R^2**	**SE Estimate**	**R2**	**F**	***P* change in F test**	**Durbin-Watson**
1	0.549	0.301	0.297	29.687	0.301	77.615	< 0.001	
2	0.642	0.412	0.405	27.319	0.110	33.551	< 0.001	
3	0.689	0.475	0.466	25.876	0.063	21.525	< 0.001	
4	0.710	0.504	0.492	25.234	0.029	10.175	0.002	
5	0.730	0.533	0.520	24.539	0.030	11.166	0.001	
6	0.742	0.551	0.536	24.130	0.018	7.017	0.009	1,812
Unstandardized Coefficients			**Standardized Coefficients**			**Collinearity statistics**		
Independent Variables (Model 6)	**B**	**SE**	**Beta(β)**	**t**	***P* value**	**Tolerance**	**VIF**	
(Constant)	118.062	16.153		7.309	< 0.001			
Depression	−1.336	0.447	− 0.222	−2.990	0.003	0.465	2.151	
Anxiety	−1.450	0.394	− 0.253	−3.678	< 0.001	0.540	1.851	
Stage	−11.816	2.855	− 0.248	−4.139	< 0.001	0.714	1.401	
Entering menopause	−13.626	4.879	− 0.155	−2.793	0.006	0.830	1.205	
Actively employed *(Yes−No**)*	15.841	5.012	0.179	3.160	0.002	0.803	1.246	
Being informed about treatment *(Yes−No**)*	13.469	5.084	0.170	2.649	0.009	0.621	1.610	

SE Standard error, *VIF* Variance Inflation Factor, **Reference value

Table 5 Analysis of the results of independent variables related to the quality of life of women with gynecological cancer

Dependent Variable = Quality of Life								
					Changing Statistics			
Model	**R**	**R2**	**Adjusted R^2**	**SE Estimate**	**R2**	**F**	**P change in F test**	**Durbin-Watson**
1	.814	.663	.661	3.767	.663	354.021	<.001	
2	.844	.712	.709	3.490	.049	30.678	<.001	
3	.855	.731	.726	3.386	.018	12.126	.001	
4	.862	.743	.737	3.320	.012	8.231	.005	1.902
Unstandardized Coefficients				**Standardized Coefficients**			**Collinearity statistics**	
Independent Variables (Model 4)		**B**	**SE**	**Beta(β)**	**t**	***P* value**	**Tolerance**	**VIF**
(Constant)		7.362	1.895		3.886	<.001		
Self-care power		.119	.008	.650	14.604	<.001	.734	1.362
Being informed about the disease (Yes-No**)		3.243	.835	.170	3.884	<.001	.759	1.318
Stress		-.160	.049	-.146	−3.303	.001	.749	1.336
HRT (Yes-No**)		−1.571	.548	-.120	−2.869	.005	.830	1.205

SE Standard error, *VIF* Variance Inflation Factor

**Reference value

= −0.120; p =.005) predicted lower quality of life, while higher self-care agency (β = 0.650; p <.001) and being informed about the disease (β = 0.170; p <.001) predicted higher quality of life.

Table 6 summarizes the regression results for predictors of depression, anxiety, and stress. For depression, the final model (step 4) explained 62.2% of the variance (*adjusted* R^2 = 0.622). Higher anxiety (β = 0.440; p <.001) and stress (β = 0.393; p <.001) predicted higher depression, while being informed about the disease predicted lower depression (β = −0.149; p =.003). For anxiety, the final model (step 2) explained 22.7% of the variance (adjusted R^2 = 0.227). Higher stress (β = 0.430; p <.001) and older age (β = 0.250; p <.001) predicted higher anxiety. For stress, the final model (step 3) explained 20.4% of the variance (*adjusted* R^2 = 0.204). Receiving chemotherapy (β = 0.156; p =.023) predicted higher stress, while being informed about treatment (β = −0.284; p =.001) and being informed about the disease (β = −0.168; p =.045) predicted lower stress.

Discussion

In this study, depression, anxiety, and stress levels among patients with gynecological cancer were found to be moderate (Table 3). Similarly, in the study by Menti et al. (2021), the mean depression score was 5.18 ± 5.13, the mean anxiety score was 5.41 ± 4.49, the mean stress score was 8.21 ± 5.83, and the total mean score was 18.93 ± 14.21, indicating moderate levels of depression, anxiety, and stress [26]. Wang et al. (2019), who examined the risk factors for anxiety and depression in Chinese patients undergoing surgery for endometrial cancer, found that 15.55% experienced anxiety and 32.77% experienced depression [27]. In the study by Bae and Park (2016) investigating sexual function, depression, and quality of life in patients with cervical cancer, 45.4% of women were found to have moderate to severe depression [28]. Beyond the numerical similarity, these findings can be explained through biopsychosocial mechanisms: cancer disrupts bodily integrity and reproductive identity, accelerates fears about prognosis, and places individuals under demanding treatment regimens, all of which provoke emotional distress. Psychological responses may also stem from the perception of cancer as a life-threatening condition, uncertainties regarding fertility and sexuality, and reduced autonomy during treatment. In the Turkish context, while family-based support systems are generally strong, stigma related to cancer and discussions about reproductive or sexual health may hinder open emotional expression and delay psychological help-seeking, contributing to moderate yet persistent distress levels.

In the present study, quality of life in patients with gynecological cancer was found to be at a moderate level (Table 3). Afiyanti et al. (2021) reported a high mean total quality of life score of 76.4 ± 16.5 among gynecological cancer survivors [29]. Chen et al. (2021) reported a moderate mean total score of 63.96 ± 22.24 [30], and Keleş et al. (2023) found a mean score of 63.64 ± 24.61 [31]. In the study by Çakır and Nazik (2022), the mean total score was 5.60 ± 1.13, also indicating moderate quality of life [32]. In Türkiye, the chronic nature of cancer treatment, disruptions to daily living, and long-term side effects (e.g., fatigue, neuropathy, menopausal symptoms) often challenge patients' physical, emotional, and social well-being [33, 34]. Cultural norms emphasizing family caregiving may buffer some impacts but may also increase patient dependency, reducing perceived autonomy and negatively affecting quality of life.

Self-care agency among patients in this study was also moderate (Table 3). Küçükkaya and Alptekin (2024) found a mean self-care agency score of 117.40 ± 26.67 among hysterectomy patients [35]. Çolu (2023) reported a mean score of 133.23 ± 31.48 among women diagnosed with gynecological cancer [36]. Moderate self-care capacity may result from biopsychosocial strain: physical fatigue from treatment, cognitive burden related to complex medical instructions, and limited confidence in managing health-related tasks. In Türkiye, although families often assist with daily activities, this assistance may unintentionally reduce patients' engagement in independent self-care, especially among older women or those adhering to traditional gender roles [37, 38]. Limited access to structured patient education programs in some healthcare settings may further contribute to reduced self-care agency.

This study found that as depression, anxiety, and stress levels increased, quality of life and self-care agency decreased (Table 3). Kim et al. (2021) found that increased depression was associated with lower quality of life in patients undergoing chemotherapy for gynecological cancer [39]. Klapheke et al. (2020) reported lower health-related quality of life in older gynecological cancer patients with depressive symptoms [40]. Papathanasiou et al. (2020) observed that higher depression, anxiety, and stress were associated with poorer quality of life among patients with hematological malignancies [41]. The co-occurrence of psychological distress and diminished quality of life is well documented; however, the association with self-care agency is less frequently studied [42, 43]. This study therefore expands the literature by highlighting how emotional burden may impair cognitive processing, motivation, and perceived competence—key determinants of self-care behaviors. In the Turkish sociocultural context, psychological symptoms are often somatized, potentially delaying recognition of distress and intensifying its impact on daily functioning, including self-care [44].

Table 6 Analysis of the results of independent variables related to depression, anxiety and stress in women with gynecological cancer

Dependent Variable = Depression								
Changing Statistics								
Model	**R**	**R2**	**Adjusted R^2**	**SE Estimate**	**R2**	**F**	**P change in F test**	**Durbin-Watson**
1	.663	.439	.436	4.421	.439	140.953	<.001	
2	.765	.585	.580	3.814	.146	62.826	<.001	
3	.782	.612	.605	3.699	.027	12.354	.001	
4	.794	.630	.622	3.621	.018	8.763	.003	1.842
	Unstandardized Coefficients		**Standardized Coefficients**			**Collinearity statistics**		
Independent Variables (Model 4)	**B**	**SE**	**Beta(β)**	**t**	***P* value**	**Tolerance**	**VIF**	
(Constant)	1.197	2.629		.455	.649			
Anxiety	.418	.050	.440	8.410	<.001	.764	1.308	
Stress	.394	.055	.393	7.207	<.001	.702	1.425	
Being informed about the disease (Yes-No**)	−2.588	.868	-.149	−2.979	.003	.834	1.199	
Age	.083	.028	.143	2.960	.003	.890	1.124	
Dependent Variable = Anxiety								
					Changing Statistics			
Model	**R**	**R2**	**Adjusted R**	**SE Estimate**	**R2**	**F**	**P change in F test**	**Durbin-Watson**
1	.416	.173	.168	5.642	.173	37.675	<.001	
2	.485	.235	.227	5.441	.062	14.601	<.001	1.995
	Unstandardized Coefficients		**Standardized Coefficients**			**Collinearity statistics**		
Independent Variables (Model 2)	**B**	**SE**	**Beta(β)**	**t**	***P* value**	**Tolerance**	**VIF**	
(Constant)	−3.251	2.348		−1.385	.168			
Stress	.453	.069	.430	6.575	<.001	.997	1.003	
Age	.152	.040	.250	3.821	<.001	.997	1.003	
Dependent Variable = Stress								
					Changing Statistics			
Model	**R**	**R2**	**Adjusted R^2**	**SE Estimate**	**R2**	**F**	**P change in F test**	**Durbin-Watson**
1	.414	.171	.167	5.363	.171	37.253	<.001	
2	.446	.199	.190	5.287	.028	6.220	.014	
3	.466	.217	.204	5.242	.018	4.077	.045	1.680
	Unstandardized Coefficients		**Standardized Coefficients**			**Collinearity statistics**		
Independent Variables (Model 3)	**B**	**SE**	**Beta(β)**	**t**	***P* value**	**Tolerance**	**VIF**	
(Constant)	21.914	2.386		9.185	<.001			
Being informed about treatment (Yes-No**)	−3.732	1.090	-.284	−3.425	.001	.638	1.567	

Table 6 (continued)

	Unstandardized Coefficients		Standardized Coefficients			Collinearity statistics	
Independent Variables (Model 3)	**B**	**SE**	**Beta(β)**	**t**	***P* value**	**Tolerance**	**VIF**
Chemotherapy (Yes-No**)	1.855	.808	.156	2.295	.023	.954	1.049
Being informed about the disease (Yes-No**)	−2.906	1.439	-.168	−2.019	.045	.637	1.57

Regression analyses showed that higher depression, anxiety, cancer stage, and menopausal status predicted lower self-care agency, while being employed and being informed about the disease predicted higher levels (Table 4). Similar findings were reported by Yang et al. (2014) [45]. These outcomes support a biopsychosocial interpretation: advanced disease and menopausal symptoms impose physiological strain, while employment may enhance social engagement, self-efficacy, and routine maintenance. Being informed about the disease likely mitigates fear and uncertainty, enabling more active participation in self-care. In Türkiye, variation in health literacy and reliance on healthcare providers for decision-making may moderate these relationships, emphasizing the need for tailored patient education [46, 47].

Regarding predictors of quality of life (Table 5), higher stress and receiving hormone therapy were associated with lower scores, whereas higher self-care agency and adequate disease-related information predicted better quality of life. Azizi et al. (2023) reported that increased stress was associated with lower quality of life among patients with cervical cancer [48]. Karawekpanyawong et al. (2021) found that depression and stress reduced quality of life in Thai women with cervical cancer [49]. Stress negatively affects physical and psychological functioning through dysregulated hypothalamic–pituitary–adrenal (HPA) axis responses, while hormonal treatments may exacerbate vasomotor symptoms and mood fluctuations. Patients with better self-care skills may manage symptoms more effectively, demonstrating how fostering self-efficacy can have downstream benefits for quality of life. In the Turkish context, education-based interventions are increasingly integrated into oncology care, yet disparities remain between urban and rural areas, likely influencing patient outcomes [50, 51].

For depression, higher stress and anxiety were significant predictors, while being informed about the disease predicted lower depression (Table 6). Similar results were reported by Tosic Golubovic et al. (2022), Chen et al. (2021), and Marcus et al. (2021) [30, 52, 53]. Psychological theories such as cognitive load and emotion regulation frameworks suggest that stress heightens vulnerability to depressive symptoms by overwhelming coping resources. Access to accurate disease information may counteract catastrophic thinking and promote adaptive coping. For anxiety, higher stress and older age predicted increased scores, consistent with Wang et al. (2022) [54] and Yang et al. (2014) [45]. Among older patients, concerns about comorbidities, treatment tolerance, and functional limitations may amplify anxiety. Stress was further predicted by receiving chemotherapy, while being informed about the lowered disease stress levels. Chemotherapy's unpredictability, side effects, and association with disease severity likely intensify fear responses. In Türkiye, where extended family involvement is common, chemotherapy may also impose emotional strain on relatives, indirectly affecting the patient [55, 56].

Limitations

This study has several limitations. First, the findings are based on participants' self-reported data, which may be subject to recall or reporting bias. Second, women who were illiterate or unable to communicate in Turkish were excluded from the study, which may limit the generalizability of the results. Finally, the study was conducted in a single center, which may further restrict the applicability of the findings to broader populations.

Conclusion

As depression, anxiety, and stress levels increase in patients with gynecological cancer, both quality of life and self-care agency decrease. In this context, it is recommended that women's health and obstetrics nurses routinely assess these variables, provide targeted education and counseling interventions, and enhance patient awareness. Furthermore, health professionals should develop and evaluate experimental and evidence-based interventions that address the impact of psychological distress on quality of life and self-care agency in this patient population.

In addition to these clinical implications, this study offers a distinct contribution to the existing body of

research by simultaneously examining three psychological variables-depression, anxiety, and stress—together with two key patient outcomes, quality of life and self-care agency, within the same analytical framework. Prior research has primarily focused on psychological distress and quality of life, whereas the relationship between psychological factors and self-care agency in gynecologic cancer patients has been insufficiently explored. By addressing this gap, the present study provides quantitative evidence clarifying the direction and magnitude of these associations. Moreover, it contributes context-specific data derived from a population that is underrepresented in global literature, thus offering culturally relevant insights for women's health nursing. The study further advances clinical practice by identifying psychosocial predictors that can be integrated into routine assessment and care pathways in gynecologic oncology. Collectively, these elements highlight the study's unique value and its potential to inform the development of targeted, evidence-based interventions aimed at improving both psychosocial well-being and self-care capacity among women with gynecological cancer.

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CRediT authorship contribution statement
Contributions of the authors to the study: Idea: EY, BK; Design: EY, BK; Supervision: BK; Data collection and processing: EY; Analysis and interpretation: EY, Literature review: EY; Writing: EY, BK; Critical review: BK.

Author contributions
Contributions of the authors to the study: Idea: EY, BK; Design: EY, BK; Supervision: BK; Data collection and processing: EY; Analysis and interpretation: EY, Literature review: EY; Writing: EY, BK; Critical review: BK.

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Data availability
Data is available from the corresponding author upon resonable request.

Declarations

Ethics approval and consent to participate
Ethical approval was obtained from the Istanbul Gedik University Ethics Committee (Date: 25.12.2023 and Number: 2023/11) before the study began. After ethical committee approval, a work permit was obtained from the Istanbul Provincial Health Directorate to conduct the study at Marmara University Pendik Training and Research Hospital. Written consent was obtained from the women participating in the study using a Voluntary Informed Consent Form during the data collection phase. Permission to use the scales was obtained from the authors via email. The Helsinki Declaration was adhered to throughout the study. As this was a cross-sectional study, the STROBE criteria were followed.

Consent for publication
Not applicable

Competing interests
The authors declare no competing interests.

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