Clinical and Experimental Health Sciences

The Relationship Between Cancer Worry and Gynecological Cancer Awareness in Women and Affecting Factors

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ABSTRACT

Objective: This study aims to determine the relationship between cancer worry and gynecological cancer awareness in women, as well as to investigate associated factors.

Methods: This is a correlational-descriptive study. The study population included women aged 20 to 65 who visited the outpatient clinics of a University Hospital. A total of 405 women were included in the final sample. Data were collected between February 28 and June 1, 2024, using the Descriptive Information Form, the Gynecological Cancer Awareness Scale, and the Cancer Worry Scale.

Results: A positive and statistically significant correlation was found between overall gynecological cancer awareness and its four subscales, as well as the level of cancer-related worry ($p<.05$). Higher awareness levels were observed among older women, those with higher levels of education, and those without a family history of cancer ($p<.05$). Additionally, women who regularly underwent Pap smears, performed breast self-examinations, and practiced vulva self-examinations demonstrated greater awareness ($p<.05$). On the other hand, cancer worry was found to be higher among older women, those with lower educational levels, women who had children, and those with a cancer history ($p<.05$).

Conclusion: This study identified a weak but statistically significant positive correlation between gynecological cancer awareness and cancer worry.

Keywords: Female, gynecology, mass screening, early detection of cancer, anxiety, health knowledge, attitudes, practice,

1. INTRODUCTION

Gynecological cancers are among the most important causes of morbidity and mortality in women (1). Women face reproductive health risks both during their reproductive years and in later stages of life (2). The types and prevalence of gynecological cancers vary between countries depending on their level of development and socioeconomic conditions (3). According to the Global Cancer Incidence (GLOBOCAN) 2022 data, 1,473,427 new cases and 680,372 deaths were reported worldwide. According to GLOBOCAN data, in Turkey, corpus uteri is among the top 5 most common cancer types in women, with 7,847 cases and an incidence rate of 7.3%. (4).

Raising awareness about gynecological cancers and promoting early diagnosis play a crucial role in improving treatment outcomes and increasing survival rates among women (5,6). Gynecological cancer awareness refers to the level of knowledge women have about gynecological cancers, including risk factors, symptoms, screening and early detection methods, and prevention strategies. This awareness is critical for promoting early cancer diagnosis and preventive behaviors, as increased awareness leads to higher participation in screenings and a greater likelihood of early intervention. There are several reasons for low awareness of gynecological cancers; this stems from women's lack of sufficient knowledge about risk factors, symptoms, and screening methods. Studies show that many women are unaware of the risk factors, early signs and symptoms of gynecological cancers, or which preventive screening tests should be performed; this lack of information leads to low cancer awareness (6,7).

Furthermore, individuals with lower levels of education and health literacy may have limited access to medical information and a poor ability to evaluate the available information properly, making it difficult for them to increase their awareness. Certain social and cultural factors, such as shame, fear, or health myths, can also reduce women's willingness to discuss gynecological issues and seek screening services; this negatively impacts early diagnosis and awareness levels.

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All these reasons explain why awareness of gynecological cancers remains low in society (8).

Low awareness of gynecological cancers is a significant factor negatively impacting women's participation in early diagnosis and regular screenings. Literature shows that while women's awareness levels of gynecological cancers are generally moderate to high, they do not reach the targeted level of awareness. Knowledge, particularly regarding the necessity of screening tests, risk factors, and symptoms, remains insufficient; this directly affects participation in screening programs and the pursuit of early diagnosis. For example, a study conducted in Turkey reported that women who underwent gynecological examinations and cervical smear tests had higher awareness scores; conversely, those who had not previously undergone screening tests had lower awareness scores, suggesting that a lack of information may reduce the likelihood of seeking screenings (9). Furthermore, another study revealed a significant positive correlation between women's awareness of gynecological cancers and their attitudes and participation in screening tests; as awareness increased, so did positive attitudes and participation in screening tests. (10). These findings demonstrate that awareness campaigns and educational interventions at the societal level play a critical role in increasing participation in screening. It should be considered that emotional responses such as anxiety and fear related to cancer can also influence health decisions, and that these feelings, particularly fear of screening, misinformation, or dramatic expectations, can lead women to avoid screening programs.

Although medical advances have greatly improved the early detection of many cancer types, cancer continues to be a leading cause of death. It remains a significant source of fear for many people (8). Cancer worry refers to the anxiety individuals may experience when they perceive themselves at risk for a serious, potentially fatal illness. Several factors can contribute to this worry, such as a family history of cancer, the presence of suspicious growths or symptoms, witnessing the journey of someone diagnosed with cancer, or grieving the loss of a loved one to the disease (7).

For some women, worry related to cancer may result in avoidance of cervical cancer screenings or reluctance to seek information about their risk levels (11). This emotional response can either encourage proactive health behaviors or hinder participation in cancer screening initiatives (12,13). While some research has found that women with heightened cancer-related worry are more likely to engage in screening activities (14,15), other studies suggest that fear of receiving a cancer diagnosis may discourage them from taking part in such programs (16,17). Cancer anxiety can influence health behavior in terms of avoidance or increased protective behavior. Awareness of gynecological cancers is also known to affect health behavior. Therefore, it is thought that there may be a relationship between cancer anxiety and awareness of gynecological cancers. Determining the direction and strength of the relationship between these two variables is important (18).

In Turkey, research on this topic remains limited. Few studies have explored the connection between gynecological cancer awareness and cancer-related worry-fear (5,19,20). Additionally, a study was conducted on social media in Türkiye examining the relationship between awareness of gynecological cancers and fear of cancer (7). Therefore, this study aims to determine the relationship between cancer worry and gynecological cancer awareness in women, as well as to investigate associated factors.

Research questions:

Which sociodemographic and health-related factors influence women's level of awareness regarding gynecological cancers?

Which sociodemographic and health-related factors are associated with cancer-related worry among women?

What is the relationship between women's gynecological cancer awareness and their level of cancer worry?

2. METHODS

This research employs a correlational-descriptive design. The study has been reported in accordance with the principles outlined in the "Strengthening the Reporting of Observational Studies in Epidemiology" (STROBE) guidelines. This study aims to determine the relationship between cancer worry and gynecological cancer awareness in women, as well as to investigate associated factors.

2.1. Study Population

The study consisted of women aged between 20 and 65 years who applied to the polyclinics of a University Hospital (Urology polyclinics, Orthopedics and Traumatology polyclinics, Internal Medicine polyclinics, and Gastroenterology polyclinics) and volunteered to participate in the study.

The sample size in our study was determined using G*Power. The sample size was calculated based on the relationship between two means in the G*Power analysis. The type I error rate (α) was 0.05, and the study power was 95%. In calculating the sample size, the results of the total score analysis on the presence of individuals with a diagnosis of gynecological cancer in the family, as determined in the 2020 study by Erenoğlu and Bayraktar (21) on gynecological cancer awareness in women, served as the basis. The sample size for this study was calculated to be at least 391. The study was completed with 405 women.

2.2. Data collection forms

The 'Descriptive Information Form, 'Gynecological Cancer Awareness Scale,' and 'Cancer Worry Scale' were used to collect research data. A 12-item Descriptive Information Form developed by the researchers based on the literature was used. Four questions in the form aimed at determining women's sociodemographic characteristics (age, educational status,

marital status, etc.). In comparison, eight questions were aimed at determining their gynecological and obstetric histories (7).

2.3. The Cancer Worry Scale (CWS)

The Cancer Worry Scale (CWS) was initially developed by Custers et al. in 2014 (22) to assess individuals' cancer-related concerns and anxiety. Uner and Korukcu carried out the Turkish adaptation of the scale in 2020 (23). This tool is a unidimensional scale composed of 8 items and follows a 4-point Likert format, with response options ranging from "rarely" to "usually." Total scores on the scale can range from 8 to 32, with higher scores indicating greater levels of cancer-related worry. The original version of the scale demonstrated good internal consistency, with a reported Cronbach's alpha of 0.87. The scale's reliability was confirmed in the current study, with a Cronbach's alpha coefficient calculated at 0.894.

2.4. The Gynecologıcal Cancer Awareness Scale (GCAS)

The Gynecological Cancer Awareness Scale (GCAS) was initially developed by Alp Dal and Ertem in 2017 in Turkey (3). It is a 5-point Likert-type instrument (ranging from "strongly disagree" to "strongly agree") designed to assess women's awareness regarding gynecological cancer risks, symptoms, routine check-ups, and early detection. The scale comprises 41 items distributed across four subdimensions: Awareness of Routine Control and Perception of Serious Disease (between 20 and 41 items), Awareness of Gynecological Cancer Risks (between 3 and 11 items), Awareness of Gynecologic Cancer Protection (between 14 and 19 items), Awareness of Early Diagnosis and Knowledge of Gynecologic Cancers (1, 2, 12, and 13 items). The possible total score ranges from 41 to 205, with higher scores indicating greater awareness. The scale has demonstrated strong internal consistency, with Cronbach's alpha coefficients for the subdimensions ranging from 0.70 to 0.97. The overall Cronbach's alpha for the original scale is reported as 0.94. In the present study, the internal consistency reliability (Cronbach's alpha) was calculated as 0.965, indicating excellent reliability.

2.5. Data collection

The sample for the study consisted of women aged 20-65 who voluntarily participated in the study and who visited the outpatient clinics at a University Hospital (urology outpatient clinics, orthopedics, and traumatology outpatient clinic, internal medicine outpatient clinics, and gastroenterology outpatient clinics). Before data collection, approval from the ethics committee, institutional approvals, and informed consent from participants were obtained. Data were collected using the informed consent form, the Demographic Information Form, the Cancer Worry Scale, and the Gynecological Cancer Awareness Scale. The questionnaire and scale were completed by women aged 20-65, as administered by the researchers. The study was conducted in the waiting areas of outpatient clinics. Women attending the clinics were approached by the researchers while they were waiting for their examination or at a convenient time after the examination. The participants were informed about the purpose of the study, and those who agreed to participate were given the questionnaires to complete. The completed questionnaires were collected by the researchers immediately after completion. The average time required to complete the questionnaires was approximately 10–15 minutes. Data collection was completed between February 28 and June 1, 2024.

2.6. Data Evaluation

Data obtained from the study were analyzed using SPSS version 24.0 (Statistical Package for the Social Sciences for Windows). Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize the data. Independent samples t-tests and one-way analysis of variance (ANOVA) were conducted to compare variables between groups. When significant differences were detected, the Bonferroni post hoc test was applied to determine the source of the differences. The normality of the data distribution was assessed by examining skewness and kurtosis coefficients. Pearson correlation analysis was performed to evaluate the relationship between the study variables and scale scores. The reliability of the scale used in the study was assessed using Cronbach's alpha coefficient. Statistical significance was set at $p < 0.05$.

2.7. Ethical Aspect of the Study

Ethical approval for the study was obtained from the Gazi University Ethics Committee (November 13, 2023, E-77082166-604.01.02-797707). Institutional permission was obtained from the institution (February 28, 2024, E-42000842.199.890196). The Helsinki Declaration conducted the study. By informing the patients about the study, they signed the informed consent form. No payment was made to participants for their participation in the study.

3. RESULTS

The average age of the women was 31.80 ± 12.77 years. The majority of participants were in the 20–29 age group (60.7%), and more than half had received a university education (66.9%). Among women aged 20–29, 88.2% reported a bachelor's degree or higher level of education, and among those aged 30–39, more than half (54.9%) had a bachelor's degree or higher. In the 40–49 age group, 41.8% of women were high school graduates. Among women aged 50–65, 43.4% had completed primary school education. A large proportion of the women were not employed in an income-generating job (64.1%). Most participants were single (66.2%) and had no children (69.4%). A small proportion of the women reported a personal history of cancer (3.0%), whereas nearly one-third had a family history of cancer (30.9%). The types of cancer reported by women with a personal history included breast cancer, uterine cancer, stomach cancer, colon cancer, and thyroid cancer. Regular gynecological examinations were reported by 21.7% of the

women, while regular Pap smear testing was reported by 15.6% of the women. Nearly half of the participants (49.4%) performed regular breast self-examinations, whereas 17.3% reported regular vulvar self-examinations. (Table 1).

Table 1. *Sociodemographic and Gynecological Characteristics of the Participants (n = 405)*

Characteristics	n	%
Age		
20-29	246	60.7
30-39	51	12.6
40-49	55	13.6
50-65	53	13.1
Education Level		
Primary education	47	11.6
High school	87	21.5
Bachelor's degree and above	271	66.9
Working Status		
Yes	145	35.9
No	260	64.1
Marital Status		
Married	137	33.8
Single	268	66.2
Having Children		
Yes	124	30.6
No	281	69.4
Cancer history		
Yes	12	3
No	393	97
Family history of cancer		
Yes	125	30.9
No	280	69.1
Relatives with a history of cancer (n: 125)		
Grandmother/grandfather	42	33.6
Mother	38	30.4
Aunt	26	20.8
Father	11	8.8
Brother/sister	8	6.4
Regular gynecological examination		
Yes	88	21.7
No	317	78.3
Having regular Pap smear		
Yes	63	15.6
No	342	84.4
Practicing regular breast self-examinations		
Yes	200	49.4
No	205	50.6
Practicing regular vulva self-examinations		
Yes	70	17.3
No	335	82.7

The total score on the Gynecological Cancer Awareness Scale was 145.89±33.59, and the total score on the Cancer Worry Scale was 17.45±5.89 (Table 2).

Table 2. *Descriptive Statistics of the Gynecological Cancer Awareness Scale and the Cancer Worry Scale (n = 405).*

Scales	Mean ± SD	Min	Max
The Gynecological Cancer Awareness Scale	145.89±33.59	41.00	200.00
Awareness of Routine Control and Perception of Serious Disease	78.18±20.65	22.00	110.00
Awareness of Gynecological Cancer Risks	27.22±7.76	9.00	45.00
Awareness of Gynecologic Cancer Protection	20.51±5.79	6.00	30.00
Awareness of Early Diagnosis and Knowledge of Gynecologic Cancers	16.15±3.81	4.00	20.00
The Cancer Worry Scale	17.45±5.89	8.00	32.00

The total mean score on the Gynecological Cancer Awareness Scale was significantly higher in women aged 50–65 than in women aged 30–39 (F = 2.797, p=.040). The subscale mean score for Gynecological Cancer Risk Awareness was significantly higher among non-working women than among working women (t = – 2.189, P=.030). The total score mean of the Cancer Worry Scale was significantly higher in women aged 50-65 than in women aged 20-29 (F = 3.741, p= .011). (Table 3).

A significant difference was found between educational status and the total mean score on the Gynecological Cancer Awareness Scale. The analysis based on educational level revealed a statistically significant difference between women with a high school education and those holding a bachelor's degree or higher (F= 8.080, p=.000). A statistically significant association was identified between educational status and the mean scores for Awareness of Routine Control and Perception of Serious Disease in gynecological cancers. This difference was primarily observed between women who had completed high school and those with a bachelor's degree or higher (F= 4.514, p=.012). The mean scores for awareness of gynecological cancer protection differed significantly by educational status, with the difference being most pronounced between women with a high school diploma and those with a bachelor's degree or higher (F= 8.740, p=.000). A significant difference was also found between educational level and the mean scores for Awareness of Early Diagnosis and Knowledge of Gynecological Cancers, indicating that women with a high school education differed significantly from those with a bachelor's degree or higher (F= 8.250, p=.000). When awareness of gynecological cancer risks was examined according to educational level, significant differences were found between women with primary and high school education and those with high school and bachelor's degrees or higher (F= 8.119, p=.000). (Table 3).

The mean scores of the Gynecological Cancer Awareness Scale, Awareness of Routine Control and Perception of Serious Disease Subscale, and Awareness of Gynecological Cancer Risks among women who undergo regular breast self-examinations were found to be significantly high. In the same way, the mean scores for Awareness of the Protection of Gynecological Cancers and Awareness of Early Diagnosis and Knowledge of Gynecologic Cancers were significantly higher among women who undergo regular breast self-examinations (Table 3).

Table 3. *Comparison of the Mean Scores of the Gynecological Cancer Awareness Scale and Its Subscales and the Cancer Worry Scale According to Participants' Characteristics (n=405)*

Characteristics	The Gynecological Cancer Awareness Scale		Awareness of Routine Control and Perception of Serious Disease		Awareness of Gynecological Cancer Risks		Awareness of Gynecologic Cancer Protection		Awareness of Early Diagnosis and Knowledge of Gynecologic Cancers		The Cancer Worry Scale	
	Mean ± SD	Test	Mean ± SD	Test	Mean ± SD	Test	Mean ± SD	Test	Mean ± SD	Test	Mean ± SD	Test
Age												
20-29[a]	143.62±30.56	F:2.797	78.50±18.57	F:2.228	27.84±7.56	F:2.411	21.00±5.43	F:2.924	16.26±3.88	F:2.200	16.95±5.23	
30-39[b]	129.70±41.99	**p=.040**	71.62±26.62	p=.084	24.78±8.99	p=.066	18.39±6.52	p=.054	14.90±4.45	p=.088	16.68±7.19	F:3.741
40-49[c]	143.92±35.28	**b-d**	80.61±23.20		26.49±8.13		20.32±6.25		16.49±3.53		18.23±6.04	**p=.011**
50-65[d]	144.90±29.72		80.49±19.81		27.45±6.65		20.47±5.90		16.49±2.87		19.66±6.73	**a-d**
Working Status												
Yes	138.36±39.19	t:-1.407	76.67±24.53	t:-0.897	25.92±8.61	t:-2.189	19.86±6.58	t:-1.473	15.90±4.32	t:-0.871	17.77±6.70	t:0.746
No	143.77±29.42	p=.161	78.83±18.48	p=.371	27.82±7.25	**p=.030**	20.83±5.37	p=.142	16.27±3.55	p=.385	17.27±5.45	p=.456
Education Level												
Primary education[a]	143.44±31.51	F:8.080	78.93±21.26	F:4.514	28.29±6.90	F:8.119	20.14±5.93	F:8.740	16.06±2.98	F:8.250	19.72±6.56	F:4.158
High school[b]	129.78±39.72	**p=.000**	72.36±25.99	**p=.012**	24.31±7.67	**p=.000**	18.35±6.62	**p=.000**	14.74±4.34	**p=.000 b-c**	17.44±6.52	**p=.016**
Bachelor's degree and above[c]	145.78±29.86	**b-c**	79.91±18.22	**b-c**	27.97±7.74	**a-b.b-c**	21.26±5.31	**b-c**	16.62±3.66		17.05±5.47	**a-c**
Marital Status												
Married	142.22±37.38	t:0.60 p=.952	79.45±23.76	t:0.822 p=.412	26.43±8.15	t:-1.428 p=.155	20.41±6.41	t:-0.230 p=.819	15.91±3.81	t:-0.889 p=.375	18.11±6.31	t:1.569 p=.118
Single	142.00±30.55		77.53±18.88		27.63±7.55		20.56±5.46		16.27±3.82		17.11±5.64	
Having Children												
Yes	139.77±37.57	t:-0.865	77.75±24.23	t:-0.254	26.33±8.19	t:-1.483	19.92±6.51	t:-1.262	15.75±3.83	t:-1.388	18.70±6.45	t:2.699
No	143.09±30.74	p=.388	78.37±18.90	p=.799	27.61±7.55	p=.139	20.77±5.44	p=.208	16.33±3.80	p=.165	16.90±5.55	**p=.008**
Cancer history												
Yes	145.10±49.07	t:0.211	79.60±32.42	t:0.152	26.40±8.20	t:-0.301	22.50±7.42	t:0.869	16.60±4.64	t:0.310	21.20±9.39	t:2.078
No	141.80±32.50	p=.837	78.03±20.31	p=.882	27.19±7.74	p=.770	20.44±5.74	p=.407	16.13±3.81	p=.763	17.31±5.7	**p=.038**
Family history of cancer												
Yes	136.89±38.98	t:-2.007	75.55±24.42	t:-1.458	25.68±7.80	t:-2.546	19.79±6.68	t:-1.433	15.85±4.21	t:-0.923	17.90±6.28	t:1.042
No	144.05±29.80	**p=.045**	79.17±18.75	p=.147	27.83±7.66	**p=.012**	20.77±5.34	p=.154	16.26±3.64	p=.357	17.21±5.69	p=.298
Regular gynecological examination												
Yes	146.44±33.68	t:1.382	81.63±20.92	t:1.757	26.43±7.90	t:-1.072	21.78±5.91	t:2.336	16.59±3.70	t:1.234	17.69±6.16	t:0.420
No	140.86±32.72	p=.169	77.22±20.50	**p=.05**	27.44±7.72	p=.286	20.16±5.72	**p=.020**	16.03±3.84	p=.219	17.38±5.82	p=.675
Having regular Pap smear												
Yes	150.68±30.20	t:2.420	85.25±19.06	t:3.160	26.68±7.21	t:-0.643	22.04±5.85	T:2.268	16.69±3.13	t:1.432	18.17±6.24	t:1.055
No	140.49±33.25	**p=.017**	76.88±20.69	**p=.002**	27.32±7.87	p=.522	20.23±5.75	**p=.026**	16.05±3.92	p=.155	17.31±5.82	p=.295
Practicing regular breast self-examinations												
Yes	151.83±25.27	t:6.166	84.62±15.60	t:6.540	28.06±7.37	t:2.143	22.09±4.88	t:5.621	17.05±3.19	t:4.823	17.04±5.11	t:-1.395
No	132.56±36.68	**p=.000**	71.89±22.95	**p=.000**	26.41±8.07	**p=.033**	18.97±6.20	**p=.000**	15.27±4.16	**p=.000**	17.85±6.55	p=.164
Practicing regular vulva self-examinations												
Yes	150.22±34.82	t:2.285	83.87±21.43	t:2.463	27.34±8.14	t:0.132	22.18±6.10	t:2.548	16.82±3.52	t:1.726	16.54±5.22	t:-1.558
No	140.37±32.70	**p=.023**	76.99±20.31	**p=.016**	27.20±7.70	p=.895	20.16±5.67	**p=.008**	16.01±3.86	p=.087	17.64±6.01	p=.122

Note. SD = standard deviation; t = independent samples t-test; F = one-way analysis of variance (ANOVA); a, b, c, d = groups identified by Bonferroni post hoc test. p<0.05

The total scores of the Gynecological Cancer Awareness Scale, Awareness of Routine Control and Perception of Serious Disease Subscale, as well as the Gynecologic Cancer Protection Subscale, were found to be significantly high among women who undergo regular vulva self-examinations (Table 3).

Women with a family history of cancer had significantly lower mean total scores on the Gynecological Cancer Awareness Scale (t=-2,007, p=.045) and the Awareness of Gynecological Cancer Risks Subscale (t=-2,546, p=.012). Women who undergo regular gynecological examinations had significantly higher mean scores on the Awareness of Routine Control and Perception of Serious Disease Subscale, as well as the Awareness of Gynecologic Cancer Protection Subscale (t=2,336, p=.020). The total score of the Gynecological Cancer Awareness Scale (t:2,420, p= .017), the mean score of Awareness of Routine Control and Perception of Serious Disease Subscale (t:3,160, p= .002), and the mean score of Awareness of Gynecologic Cancer Protection Subscale (t:2,268, p= .026) were found to be significantly high among women who had regular Pap smears.

Women aged 50-65 had significantly higher average total scores on the Cancer Worry Scale than women aged 20-29. (F:3,741, p= .011). Regarding the total mean score of the Cancer Worry Scale, educational status was found to be a significant factor, with an observed difference between women with primary school education and those holding a bachelor's degree or higher (F = 4.158, p= .016). (Table 2). It was determined that having children (t = 2.699, p= .008) and a history of cancer (t = 2.078, p= .038) significantly increased the mean total score on the Cancer Worry Scale (Table 3).

A weak, positive and significant correlation was found between the Gynecological Cancer Awareness Scale, its four subscales, and the Cancer Worry Scale (Table 4).

Table 4. *Pearson Correlations Between the Gynecological Cancer Awareness Scale, Its Subscales, and the Cancer Worry Scale (n = 405)*

	Scales	1. The Gynecological Cancer Awareness Scale	2. Awareness of Routine Control and Perception of Serious Disease	3.Awareness of Gynecological Cancer Risks	4.Awareness of Gynecologic Cancer Protection	5. Awareness of Early Diagnosis and Knowledge of Gynecologic Cancers	6. The Cancer Worry Scale
1.	**The Gynecological Cancer Awareness Scale**	1					
2.	Awareness of Routine Control and Perception of Serious Disease	r = 0.958 p = 0.000	1				
3.	Awareness of Gynecological Cancer Risks	r = 0.692 p = 0.000	r = 0.498 p = 0.000	1			
4.	Awareness of Gynecologic Cancer Protection	r = 0.844 p = 0.000	r = 0.769 p = 0.000	r = 0.495 p = 0.000	1		
5.	Awareness of Early Diagnosis and Knowledge of Gynecologic Cancers	r = 0.766 p = 0.000	r = 0.680 p = 0.000	r = 0.500 p = 0.000	r = 0.606 p = 0.000	1	
6.	**The Cancer Worry Scale**	r = 0.145 p = 0.003	r = 0.115 p = 0.020	r = 0.185 p = 0.000	r = 0.130 p = 0.009	r = 0.060 p = 0.227	1

Note. Pearson correlation coefficients (r) and significance values (p) are presented. p < 0.05 was considered statistically significant.

4. DISCUSSION

The study was conducted to determine the relationship between cancer worry and gynecological cancer awareness in women aged 20-65 and to investigate associated factors. The mean GCAS score was 145.89±33.59, and the mean total CWS score was 17.45±5.89. Additionally, a low-level positive and significant correlation was found between gynecological cancer awareness and the subscales of the gynecological cancer awareness scale and cancer worry (P < .05) (Table 4). Our study shows that as awareness of gynecological cancer risks, awareness of protection against gynecological cancers, and awareness of routine check-ups and serious illness perception in gynecological cancers increase, so does individuals' cancer anxiety. In the study conducted by Aydın et al. (2024), the mean total GCAS score for women was (152 ± 17), and the mean CWS score was (19 ± 5). Compared to our study, the GCAS and CWS scores in their study were higher (7). In the study conducted by Acar et al. (2022), the average total GCAS score of women was found to be (149.1 ± 0.85) (24). Compared to our study, the GCAS score is higher than the scores in our study. In the study conducted by Kıyak and Burucu (2022), the average total GCAS score of women was found to be (154.5 ± 16.7) (25). Compared to our study, the GCAS score is higher than the scores in our study. The differences observed in total gynecological cancer awareness scores among studies can be attributed to variations in sample age, education level, and socioeconomic characteristics, as

well as cultural and societal norms regarding gynecological health, and access to healthcare services and screening programs. Additionally, self-report responses can also contribute to the variability in scores. Furthermore, temporal factors such as health policies, awareness campaigns, and media influence during the periods in which the studies were conducted can also cause differences in gynecological cancer awareness levels among research studies.

In our study, awareness of gynecological cancer increases with age. The study shows that educational attainment decreases significantly with age. While a bachelor's degree or higher is more common among individuals in the 30-39 age group, high school graduation is more prevalent among those in the 40-49 age group, and primary school graduation is more common among those in the 50-65 age group. This finding reflects, rather than individual preferences, the vastly unequal educational opportunities that have existed across generations. Women in older age groups have had more limited access to educational opportunities compared to younger generations. In particular, in the past, girls' education was hampered by sociocultural norms, early marriage, economic hardship, and traditional gender roles. This situation led to women ending their education at an early age and remaining at lower educational levels. Toptaş Acar (2022) and colleagues found that awareness of gynecological cancer increases with age in women (24). Çankaya (2017) noted that the rate of cervical smear testing also increases with age in women. Losing reproductive ability with age reduces women's self-confidence and increases their concerns about potential health issues (26). Due to their concerns about the increased incidence of cancer with age, they become more aware of the disease and are more willing to receive education about early diagnosis (7). Women should be informed about the frequency of screening tests and gynecological examinations to increase their awareness of risk factors and symptoms for gynecological cancers.

In our study, educational status affects awareness of gynecological cancers and all their subscales. Women with a bachelor's degree or higher have a higher awareness of gynecological cancer than high school graduates. In a study by Aydın et al. (2024), awareness of gynecological cancer was found to be higher among those with a higher level of education (7). Chandrika et al. (2020) found that individuals with higher education tend to have greater awareness of cervical cancer (27). A study by Freij et al. (2018) found that women with higher education levels had more knowledge and awareness about symptoms and risk factors associated with ovarian cancer (28). Similarly, Elshami et al. observed that women with more advanced educational backgrounds demonstrate increased knowledge about ovarian cancer (29). Babaoglu et al. (2021) reported that women with higher education levels underwent cervical cancer screening more frequently (30). Gyamfua et al. (2019) also reported a positive correlation between education level and improved knowledge, awareness, and early detection behaviors related to cervical cancer (31). The primary reasons why women with higher levels of education have greater awareness of gynecological cancers include improved health literacy, easier access to accurate and reliable health information, and a stronger ability to evaluate this information effectively. These women tend to participate in regular gynecological examinations and screening programs because they better understand the importance of preventive health services and the benefits of early diagnosis.

Furthermore, their improved body awareness and self-care behaviors enable them to recognize abnormal symptoms early and seek medical attention. With increased education levels, the impact of societal taboos surrounding gynecological issues decreases, allowing women to make more informed and independent health decisions. All these factors contribute to increased awareness of gynecological cancers among women with higher levels of education.

Women who have a family history of cancer tend to have lower levels of awareness regarding gynecological cancers and their associated risks. According to Babaoglu et al. (2021), women with a familial cancer background are more likely to participate in cervical cancer screening programs (30). Our research differs from the literature at this point. The low level of awareness regarding gynecological cancers among women with a family history of cancer, while seemingly unexpected, can be explained within the framework of psychology and health behavior literature. The fear and uncertainty surrounding cancer may lead some individuals to avoid seeking information on the subject, thus limiting their awareness. Furthermore, if gynecological cancer is not the type of cancer seen in the family, risk perception may develop specifically for that particular cancer type, and gynecological cancers may not be perceived as a personal threat. In addition, fatalism and feelings of helplessness can reduce preventative health behaviors and the search for information, resulting in low awareness.

In our study, women who undergo regular gynecological examinations have significantly higher awareness of routine control and perception of severe disease and gynecologic cancer protection. Women who undergo regular Pap smears and regular vulva self-examinations have high levels of awareness of gynecological cancers, awareness of routine control and perception of severe disease, and awareness of gynecologic cancer protection. Women who undergo regular BSE have a high awareness of gynecological cancers in all sub-dimensions. Similar to our study, these findings align with the results reported by Aydın et al. (2024), who found that women who engage in routine gynecological exams, Pap smears, breast self-examinations, and visual inspections have heightened cancer awareness (7). Teskereci et al. also emphasized that women who regularly participate in Pap smear screenings and gynecological evaluations tend to possess greater awareness of gynecological cancers. Consistent with the existing literature, it is expected that women who engage in routine examinations for gynecological cancer symptoms exhibit higher awareness levels.

In our study, the mean CWS total score was 17.45±5.89. Advanced age, low educational status, having children, and

a history of cancer increase cancer anxiety. Similarly, studies have shown that the CWS total score average indicates a high fear of cancer (7,23). In the study by Aydın et al. 2024, it was found that cancer fear was higher among women who had children (7). Hawranek et al. noted in their study involving the general population that women and individuals with children tend to report higher levels of cancer-related fear (14). This heightened fear-worry may stem from concerns about being separated from their children and anxiety over who would care for them in the event of serious illness.

Additionally, individuals with a prior cancer diagnosis often worry about the possibility of recurrence. Even minor physical symptoms can serve as reminders of their past experiences and intensify cancer-related anxiety, particularly among those previously considered at high risk. Our study found a positive and significant relationship between gynecological cancer awareness and cancer fear, which is psychologically logical in light of cognitive and emotional processes. Awareness represents an individual's knowledge and risk perception regarding gynecological cancers, and as this knowledge increases, the issue may be perceived as a more significant threat. This type of threat perception lays the groundwork for higher levels of fear and anxiety in psychological evaluation processes, because the individual evaluates potential adverse outcomes as a more concrete and personal threat. This process aligns with the established positive relationship between threat perception and emotional response in the health psychology literature. Similarly, cancer fear can emerge at higher levels when confronted with life-threatening situations such as gynecological cancer, and can increase anxiety responses in individuals.

5. CONCLUSION

The findings of this study revealed a low but statistically significant positive correlation between awareness of gynecological cancers and cancer worry. Although the participants demonstrated above-average awareness levels, their cancer-related worry remained high. Higher awareness scores were observed among older women, those with higher education levels, and those without a family history of cancer. Moreover, women who reported undergoing regular Pap smears, breast self-examinations, and vulva self-examinations showed greater awareness of gynecological cancers.

Conversely, factors such as older age, lower education levels, having children, and a personal or family history of cancer were associated with heightened levels of cancer worry. These findings indicate that multiple demographic and behavioral variables influence both awareness and worry related to gynecological cancers. Promoting awareness is crucial for early detection, timely intervention, and lowering mortality rates associated with these cancers.

All women, regardless of their sociodemographic characteristics, should be provided with education that will raise their awareness of gynecological cancer and encourage them to undergo Pap smears. Using various techniques for health education (videos, face-to-face interviews, presentations, individual counseling, small group discussions, educational brochures, messages, emails, and telephone interviews) can increase the number of women undergoing screening. Education using various methods and techniques tailored to sociodemographic characteristics is crucial in raising awareness about gynecological cancer and promoting healthy behaviors.

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