ORIGINAL RESEARCH ARTICLE

Awareness of women with gynecologic cancer about their disease: evidence from İzmir, Turkey

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Abstract

Gynecologic cancers are common malignancies among women, and awareness may influence screening and timely care. This study assessed disease awareness among women with gynecologic cancer in İzmir, Turkey. A cross-sectional study was conducted among 800 women aged 25–60 years diagnosed between January and December 2024 at Tepecik Training and Research Hospital. Participants completed a sociodemographic/obstetric questionnaire and the Gynecologic Cancer Awareness Scale (GCAS). The mean age was 42.3±6.9 years and the mean GCAS score was 152.2. Awareness scores were significantly higher in women aged 30–49 years, university graduates, those with income exceeding expenses, and premenopausal participants ($p<0.05$). GCAS scores were not associated with marital status, occupation, family type, smoking, alcohol use, body mass index, parity, or cancer type ($p>0.05$). Targeted educational strategies, especially for postmenopausal and socioeconomically disadvantaged women, may strengthen awareness and support participation in screening and follow-up programs. *(Afr J Reprod Health 2026; 30 [6]: 26-33).*

Keywords: Gynecologic cancer; Awareness; Women's health; Screening; GCAS

Résumé

Les cancers gynécologiques figurent parmi les tumeurs malignes les plus fréquentes chez les femmes, et le niveau de sensibilisation peut influencer le dépistage et la prise en charge précoce. Cette étude visait à évaluer la sensibilisation à la maladie chez des femmes atteintes de cancer gynécologique à Izmir, en Turquie. Une étude transversale a été menée auprès de 800 femmes âgées de 25 à 60 ans, diagnostiquées entre janvier et décembre 2024 à l'Hôpital de Formation et de Recherche de Tepecik. Les participantes ont rempli un questionnaire sociodémographique et obstétrical ainsi que l'Échelle de Sensibilisation au Cancer Gynécologique (ESCG). L'âge moyen était de 42,3±6,9 ans et le score moyen à l'ESCG était de 152,2. Les scores étaient significativement plus élevés chez les femmes âgées de 30–49 ans, les diplômées universitaires, celles dont le revenu dépassait les dépenses et les femmes non ménopausées ($p<0,05$). Aucune association significative n'a été observée avec l'état matrimonial, la profession, le type de famille, le tabagisme, la consommation d'alcool, l'IMC, la parité ou le type de cancer.*(Afr J Reprod Health 2026; 30 [6]: 26-33).*

Mots-clés : Cancer gynécologique; Sensibilisation; Santé des femmes; Dépistage; ESCG

Introduction

Gynecologic cancers constitute a significant global health burden and are among the most prevalent malignancies affecting women.[1] The clinical importance of these cancers extends beyond their impact on reproductive function, affecting women's overall physical health, psychological well-being, and quality of life.[2] A critical strategy for reducing mortality associated with these diseases is early detection, which allows for intervention at a more treatable stage, thereby improving survival rates and preserving quality of life.[1] A substantial proportion of Gynecologic cancers are preventable, underscoring the vital role of organized screening programs and public health initiatives.[3] While existing research in this field has extensively explored areas such as treatment outcomes,

psychosocial adjustment, and healthcare costs, there remains a relative scarcity of studies specifically investigating the level of awareness among patients diagnosed with these conditions.[2]

Enhancing awareness of risk factors, symptoms, and preventive measures is a cornerstone of primary healthcare services for Gynecologic cancers.[4] Healthcare professionals bear a responsibility not only in curative care but also in the development and implementation of effective preventive strategies.[5] Current literature suggests that the general level of Gynecologic cancer awareness among women is often insufficient, with studies reporting it as low or, at best, moderate.[5–6]

In Turkey, strengthening public knowledge about cancer and promoting participation in evidence-based screening programs are recognized as essential components of the national cancer control effort.[7]

Therefore, this study aimed to determine the level of Gynecologic cancer awareness and to identify the factors influencing it among a specific patient population: those who have been diagnosed with a Gynecologic cancer, have undergone surgical treatment, and are currently under follow-up care **.**

Methods

Study design and setting

A cross-sectional study was conducted at Tepecik Training and Research Hospital between January 2024 and December 2024. The study sample consisted of 800 Gynecologic cancer patients aged 25-60 years who volunteered to participate. Patients were excluded if they met any of the following criteria: residing outside the city, having additional primary cancers, presenting with communication barriers, undergoing surgery or follow-up at another institution, or having unreliable obstetric/Gynecologic medical records.

Data collection

Data were collected using two instruments:

A 9-question survey form developed through literature review to capture sociodemographic, obstetric, and Gynecologic characteristics.The validated Gynecologic Cancer Awareness Scale (GCAS).

The sociodemographic form collected information on age, height, weight, educational status, occupation, income level, marital status, obstetric history, menopausal status, smoking/alcohol use, family type, and cancer type.

Administration of the gynecologic cancer awareness scale (GCAS)

The GCAS was administered in a quiet outpatient clinic room either as a self-administered paper-and-pencil questionnaire or, for women with low literacy, as a face-to-face interviewer-administered survey by trained research staff. Completion of the scale and the sociodemographic form took approximately 10–15 minutes per participant.

The Gynecologic cancer awareness scale (GCAS)

The GCAS, developed by Alp Dal and Ertem (2017) [7], is a 41-item instrument designed to assess Gynecologic cancer awareness in women aged 20-65 years. The scale comprises four sub-dimensions with the following psychometric properties:
Routine Control and Serious Disease Perception (Items 20-41, Cronbach's α=0.979)
Awareness of Gynecologic Cancer Risks (Items 3-11, Cronbach's α=0.843)
Awareness of Gynecologic Cancer Prevention (Items 14-19, Cronbach's α=0.778)
Early Diagnosis and Knowledge Awareness (Items 1,2,12,13, Cronbach's α=0.708)
The total scale score ranges from 41-205, with higher scores indicating greater awareness. The overall scale demonstrates excellent reliability (Cronbach's α=0.944).[7] In the present sample, the internal consistency of the GCAS was evaluated using Cronbach's alpha for the total scale and each subscale.

Statistical analysis

Normality was assessed using the Shapiro–Wilk test and visual diagnostics (Q–Q plots, histograms). Homogeneity of variances was evaluated with Levene's test. Descriptive statistics are presented as

mean ± standard deviation for approximately normal variables, median (min–max) for skewed variables, and n (%) for categorical variables.

For two-group comparisons, we used Student's t-test or Mann–Whitney U depending on distributional assumptions. For variables with more than two categories, we applied one-way ANOVA (with Tukey post-hoc if variances were homogeneous, Games–Howell otherwise) or the Kruskal–Wallis test with Dunn's post-hoc (Bonferroni/Holm adjustment) as appropriate. Associations between continuous variables and GCAS were examined using Spearman's rank correlation. Two-sided $p < 0.05$ was considered statistically significant. Analyses were performed in SPSS v25.0 (IBM Corp., Armonk, NY).

Ethical approval

This study was conducted in accordance with the ethical standards of the Declaration of Helsinki and its later amendments. Ethical approval was obtained from the Tepecik Training and Research Hospital Ethics Committee (Decision No: 14, Meeting No: 1, Date: January 10, 2023). All participants were informed about the study objectives, and written consent was obtained prior to data collection. Confidentiality and anonymity were strictly maintained throughout the research process.

Results

Sociodemographic Characteristics of Participants

A total of 800 patients diagnosed with Gynecologic cancer, aged 25-60 years, were included in the study. The mean age of participants was 42.3 years (SD ± 6.9), with the majority (64.2%) belonging to the 30-49 age group. Most patients were married (91.7%), and over half (55.2%) identified as housewives. Educational attainment was relatively low, with 70.1% being primary school graduates and only 2.2% holding university degrees. Regarding economic status, 63.7% reported income equal to expenses, while 18.5% reported income less than expenses. The majority (87.8%) came from nuclear families. Current smoking was reported by 16% of participants, and alcohol use by 9.5%. According to BMI classifications, 44.5% had normal weight, while 30.5% were overweight and 18.5% had various degrees of obesity.Analysis of GCAS scores revealed several significant associations with demographic variables. Age demonstrated a significant relationship with awareness scores ($p = 0.014$), with the highest scores observed in the 30-49 age group (156.4) and the lowest in those aged 50 years and above (139). Educational status showed a strong positive association with awareness ($p < 0.001$), with university graduates achieving the highest mean score (168.8) and those who were only literate scoring the lowest (148). Income level also significantly influenced awareness ($p = 0.018$), as participants with income exceeding expenses had higher scores (159.3) compared to those with income less than expenses (142). No statistically significant associations were found between GCAS score and marital status, occupation, family type, smoking status, alcohol use, or BMI ($p > 0.05$). Complete sociodemographic characteristics and their associations with GCAS score are presented inTable1

Gynecologic and obstetric characteristics

The Gynecologic and obstetric profile of participants revealed that 70.7% had experienced three or more pregnancies, and 78.5% had three or more births. Slightly more than half of the patients (55.3%) were postmenopausal. Regarding cancer types, endometrial cancer was most prevalent (52.1%), followed by cervical cancer (34.5%), ovarian cancer (10.5%), and vulvar cancer (2.8%).Menopausal status showed a significant association with GCAS score ($p = 0.018$), with postmenopausal women demonstrating lower awareness scores (148.4) compared to premenopausal women (157). No significant relationships were observed between GCAS score and number of pregnancies, number of births, or specific cancer type ($p > 0.05$). The Gynecologic and obstetric characteristics and their relationships with GCAS score are detailed in Table 2.

Table 1: Descriptive characteristics of patients and their gynecologic cancer awareness scale (gcas) scores

Variable	n	%	GCAS score (mean)	p-value
Age (year)				**0.014**
25–29	144	18	150.4	
30–49	514	64.2	156.4	
50 Years and Above	142	17.7	139	
Marital Status				0.847
Married	734	91.7	152.4	
Single	66	8.2	150.9	
Educational Status				**<0.001**
Literate Only*	61	7.6	148	
Primary School	561	70.1	151.8	
Middle School	104	13	152.4	
High School	56	7	155.6	
University	18	2.2	168.8	
Job				0.443
Housewife	442	55.2	150.7	
Worker	165	20.6	153.7	
Civil Servant	65	8.1	154.4	
Other**	128	16	154.6	
Perceived Income Level				**0.018**
Income < Expenses	148	18.5	142.0	
Income = Expenses	510	63.7	153	
Income > Expenses	142	17.7	159.3	
Family Type				0.451
Nuclear Family	703	87.8	152.3	
Extended Family	62	7.7	149.6	
Broken Family	35	4.3	150.7	
Smoking Status				0.862
Yes	128	16	152.1	
No	672	84	150	
Alcohol Status				0.744
Yes	76	9.5	153.7	
No	724	90.5	152.1	
Body Mass Index (BMI)				0.124
<18.5 kg/m² (Underweight)	27	3.3	151	
18.5–24.9 kg/m² (Normal)	356	44.5	152.2	
25–29.9 kg/m² (Overweight)	244	30.5	152.4	
30–34.9 kg/m² (Obese I)	94	11.7	152.3	
35–39.9 kg/m² (Obese II)	26	3.2	150.3	
≥40 kg/m² (Obese III)	28	3.5	153.7	
Missing / Not reported	25	3.1		
Total	800	100		

GCAS = Gynecologic Cancer Awareness Scale; BMI = Body mass index.
Literate only: Individuals who are literate but have no formal diploma.
Bold p-values indicate statistical significance ($p < 0.05$). Depending on distributional assumptions, comparisons were performed using Student's t-test or Mann–Whitney U test for two-category variables and one-way ANOVA (Tukey or Games–Howell post-hoc) or Kruskal–Wallis test with Dunn's post-hoc for variables with more than two categories. BMI data were missing for 25 participants and were excluded from BMI-related analyses.

Table 2: Gynecologic-obstetric characteristics of women and their gynecologic cancer awareness scale (gcas) scores

Variable	n	%	GCAS score (mean)	p-value
Number of Pregnancies				0.664
1–2 Pregnancies	234	29.2	152.6	
≥3 Pregnancies	566	70.7	152.1	
Number of Births				0.467
1–2 Births	172	21.5	152.1	
≥3 Births	628	78.5	152.3	
Menopausal Status				0.018
Yes	442	55.3	148.4	
No	358	44.7	157	
Cancer Type				0.160
Endometrial Cancer	417	52.1	152	
Cervical Cancer	276	34.5	152.4	
Ovarian Cancer	84	10.5	153	
Vulvar Cancer	23	2.8	152	
Total	800	100		

GCAS = Gynecologic Cancer Awareness Scale. Bold p-values indicate statistical significance ($p < 0.05$). Student's t-test was used for two-category variables (number of pregnancies, number of births, menopausal status) and one-way ANOVA for cancer type.

Reliability analysis of the GCAS

In this sample, the Gynecologic Cancer Awareness Scale demonstrated excellent internal consistency, with a Cronbach's alpha of 0.946 for the total scale. Subscale reliability coefficients were also high, measured as 0.972 for Routine Control and Serious Disease Perception, 0.842 for Awareness of Gynecologic Cancer Risks, 0.791 for Awareness of Gynecologic Cancer Prevention, and 0.716 for Early Diagnosis and Knowledge Awareness. These findings indicate good to excellent reliability across all sub-dimensions, confirming that the scale is a robust and reliable tool for assessing gynecologic cancer awareness in this population.

Discussion

Gynecologic cancers rank among the leading causes of morbidity and mortality in women after breast cancer. Although the global incidence of Gynecologic malignancies is rising, mortality has declined mainly due to advances in early diagnosis and treatment modalities. The present study evaluated the awareness levels and associated factors related to Gynecologic cancers among affected women.

The mean GCAS score in this study was 152.2, indicating an above-moderate awareness level. Comparable results were reported by Dal and Ertem (155.8 ± 17.5), Gozuyesil et al. (median 157), Senol et al. (150.7 ± 20.6 in reproductive-age women and 144.4 ± 18.5 in postmenopausal women), and Ozturk et al. (147.4 ± 22.3), showing similar awareness levels[6–9].

The mean age of the participants was 42.3 ± 6.9 years (range 25–60). GCAS score was highest among women aged 30–49 years (156.4), followed by 25–30 years (150.4), and lowest in those ≥50 years (139). The difference was significant and mainly attributable to the 30–49 year group. Similar findings were reported by Gozuyesil et al.[6] and Senol et al.[8], while Silveira et al.[10] found that awareness increases with age, and Cooper et al.[11] noted inadequate knowledge among women aged 40–60. These discrepancies may reflect sociocultural or regional differences across study populations. The relatively high awareness among younger women suggests promising future trends in prevention and early detection behavior.

Educational attainment significantly influenced awareness, with higher education levels corresponding to higher GCAS score. Although Gozuyesil et al.[6] and Senol et al.[8] found no significant differences by education level, other studies confirmed that increased education enhances cervical cancer knowledge, awareness, and screening behavior[12,13]. Our findings reaffirm the

crucial role of education in promoting cancer awareness. Occupational status did not significantly affect awareness in this study, though housewives had the lowest mean GCAS score. Similarly, Gozuyesil et al.[6] reported no difference by profession, while Senol et al.[8] observed lower awareness among non-working women. Kolutek et al.[14] noted that 94% of their sample were housewives with low knowledge of cervical cancer prevention. Cultural factors may also shape screening behavior[9,16], as family-centered decision-making can limit individual autonomy in health-seeking[17].No significant associations were found between marital or family structure and awareness. While Kizilirmak et al.[18] reported higher Pap smear awareness among married women, such inconsistencies likely arise from regional and cultural variations. Similarly, parity and pregnancy status showed no relationship with awareness, in contrast to Senol et al.[8] and Can et al.[19], who reported greater awareness among women with fewer than three births.

Regarding menopausal status, awareness was lower among postmenopausal women in this study, differing from findings by Gokgoz et al.[20] and Ozturk et al.[9], who found higher awareness in this group. This contrast may be attributable to age-related cognitive or informational disparities, as the lowest scores were observed among participants over 50. Economic status significantly influenced awareness, consistent with prior literature showing that low-income women encounter more barriers to screening and follow-up despite national health coverage programs[22]. Strengthening outreach and systematic education efforts is therefore essential. Education-based interventions have been proven to increase awareness[21]. Prior studies highlighted that inadequate knowledge and negative attitudes toward cervical cancer are key contributors to low screening participation[22,23]. Awareness about HPV infection and vaccination also correlates strongly with education level[25]. Karadag et al.[26] found that 87.5% of women were unaware of cervical cancer risk factors. Cooper et al.[11] and Novinson et al.[21] emphasized that education on Gynecologic cancer symptoms enhances early diagnosis, confidence, and behavioral intention toward screening. Teskereci et al.[27] also reported that nearly half of women lacked Pap smear experience and had at least one risk factor for Gynecologic cancers.

The present cross-sectional design provides useful insight into patients' awareness needs and highlights priority areas for intervention rather than allowing causal conclusions. Our findings suggest that strengthening knowledge through healthcare professionals, targeted media campaigns and women's health organizations may help improve early diagnosis behaviors and follow-up among women with Gynecologic cancer. Future large-scale and multicenter studies, ideally using longitudinal or intervention designs, are needed to confirm these associations and to evaluate the effectiveness of specific educational programs. Collaboration between oncology centers, primary care providers and non-governmental organizations may contribute to improving psychosocial outcomes, including self-esteem and body image, in this population.

Strengths and limitations

This study has several strengths, including its large sample size, the use of a validated and highly reliable awareness scale, and the standardized data collection procedures applied in a tertiary referral center. The inclusion of a broad range of sociodemographic and gynecologic–obstetric factors also allowed for a comprehensive assessment of variables associated with gynecologic cancer awareness.

However, certain limitations should be considered when interpreting the findings. The cross-sectional design prevents causal inferences, and the single-center setting limits the generalizability of the results to other regions. Some subgroups, such as university graduates and women with rare cancer types, were underrepresented, which may restrict subgroup comparisons. Additionally, awareness was measured through self-reported responses rather than actual screening behaviors.From a policy and practice perspective, the findings emphasize the need for targeted educational strategies, particularly for postmenopausal and socioeconomically disadvantaged women who demonstrated lower awareness levels. Integrating structured cancer awareness interventions into primary healthcare

services and strengthening community-based education may help reduce disparities and encourage participation in screening programs. Future longitudinal or interventional research is needed to guide evidence-based policymaking**.**

Conclusion

In this large sample of women with Gynecologic cancer, overall awareness of gynecologic cancer, as measured by the GCAS, was above moderate levels. Higher awareness scores were observed among women aged 30–49 years, those with higher educational attainment and those with income exceeding household expenses, whereas postmenopausal women had significantly lower awareness. Marital status, occupation, parity, body mass index and cancer type were not associated with awareness levels. These findings indicate that educational and socioeconomic disparities should be considered when designing awareness-raising strategies for women with Gynecologic cancer. Tailored educational interventions and community-based campaigns that specifically target older, postmenopausal and socioeconomically disadvantaged women may help to promote participation in screening and follow-up programs and ultimately improve outcomes.

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