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Gynecologic Cancer Awareness Levels of Women and Influential Factors

Kadınların Jinekolojik Kanser Farkındalık Düzeyleri ve Etkileyen Faktörler

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ABSTRACT

Objective: This study was carried out to determine the awareness levels of women regarding gynecologic cancers and the factors affecting these levels.

Materials and Methods: This descriptive study was conducted between November 2023 and May 2024 with the participation of 277 married women aged 20-65 years who presented to the obstetrics and gynecology outpatient clinics of a public hospital in Türkiye. A Descriptive Information Form and the Gynecologic Cancers Awareness Scale (GCAS) were used to collect data.

Results: The mean GCAS score of the participants was 146.28±27.27. The age, number of pregnancies, and number of deliveries variables were positively and significantly related to the total GCAS scores of the participants and their scores in some of the dimensions of GCAS ($p<0.05$). Some sociodemographic characteristics of the participants, including their education and income levels, as well as their gynecologic healthcare service experiences, were also associated with their levels of awareness regarding gynecologic cancers ($p<0.05$).

Conclusions: Based on the results of this study, it is important to increase the number of awareness-raising and education programs addressing gynecologic cancers and consider the factors that can affect the awareness levels of women while planning these services.

Keywords: Cancer awareness, gynaecological cancer, nursing, women's health

ÖZ

Amaç: Bu çalışma, kadınların jinekolojik kanserler konusundaki farkındalık düzeylerini ve bu farkındalığı etkileyen faktörleri belirlemek amacıyla gerçekleştirilmiştir.

Materyal ve Metot: Tanımlayıcı nitelikteki bu çalışma, Kasım 2023-Mayıs 2024 tarihleri arasında gerçekleştirilmiştir. Çalışma, Türkiye'de bir kamu hastanesinin kadın doğum polikliniklerine başvuran 20-65 yaş aralığındaki 277 evli kadın ile yürütülmüştür. Veriler, Tanıtıcı Özellikler Formu ve Jinekolojik Kanserler Farkındalık Ölçeği (JİKFÖ) kullanılarak toplanmıştır.

Bulgular: Kadınların JİKFÖ puan ortalamasının 146,28±27,27 olduğu saptandı. Yaş, gebelik ve doğum sayısı ile ölçek toplam puanları ve bazı alt boyut puanları arasında pozitif ve anlamlı ilişkiler belirlendi ($p<0,05$). Buna ek olarak, kadınların eğitim ve gelir durumu gibi bazı sosyodemografik özellikleri ile jinekolojik sağlık hizmeti deneyimlerinin de jinekolojik kanserlere ilişkin farkındalık düzeyleri ile ilişkili olduğu saptandı ($p<0,05$).

Sonuç: Elde edilen bulgular doğrultusunda, jinekolojik kanserlere yönelik farkındalık programların ve eğitimlerin arttırılması ve bu hizmetlerin planlanmasında kadınların farkındalık düzeylerini etkileyebilen faktörlerin göz önünde bulundurulması önemlidir.

Anahtar Kelimeler: Hemşirelik, jinekolojik kanser, kadın sağlığı, kanser farkındalığı

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INTRODUCTION

Gynecologic cancers include all types of cancer originating in female reproductive organs (cervix, ovaries, uterus, vagina, vulva, and fallopian tubes).[1] According to the 2022 data provided by the Global Cancer Observatory (GLOBOCAN), among 9.66 million women who received a new diagnosis of cancer, 6.9% were diagnosed with cervical cancer, 4.3% were diagnosed with uterine cancer, 3.4% were diagnosed with ovarian cancer, and the incidence of cancer constinues increased.[2] As in the rest of the world, gynecologic cancers are among the leading causes of death in women in Türkiye.[3]

In addition to many severe physiological problems and mortality risks, gynecologic cancers affect women negatively in other areas such as quality of life, sexuality, and fertility.[4] Protection from gynecologic cancers becomes more important every day considering their increasing prevalence and negative effects on many aspects of women's lives.[5] Primary healthcare services have important duties in terms of protection from gynecologic cancers. Within the scope of these services, it is highly important to recognize the symptoms of gynecologic cancers, implement screening programs, conduct more research, and make faster decisions for referrals. The main purpose of these services is to raise awareness in women regarding gynecologic cancers to achieve these aims. Cancer awareness makes individuals more knowledgeable about the risk factors and symptoms of, as well as screening programs for, cancers and mobilizes them.[6] Cooper et al. (2011) emphasized that early diagnosis and survival rates could be increased through gynecologic cancer awareness.[7] Thus, it should be ensured that women develop awareness regarding gynecologic cancers, as well as positive health behaviors. In the literature, there is a limited number of studies examining the gynecologic cancer awareness levels of women. These studies have highlighted the need for women for information about gynecologic cancers.[8,9] To meet these needs, first, women need to have a consciousness and awareness of gynecologic cancers. It is thought that uncovering the awareness status of women regarding gynecologic cancers will provide guidance for education and counseling services about gynecologic cancers to be offered in primary care. It is important to plan and implement these education and counseling services by keeping the factors affecting the awareness levels of women in mind. In this context, this study aimed to determine the gynecologic cancer awareness levels of women and influential factors. The Research Questions: What is the level of women's awareness of gynaecological cancers?, and What are the factors influencing women's awareness of gynaecological cancers?

MATERIALS AND METHODS

Ethics Committee Approval: Before collecting data, ethical approval was obtained from Medical Research Ethics Committee of Kahramanmaras Sütçü İmam University (Date: 20.06.2023, decision no: 2023/07-02). Then, institutional permission was received from the chief physician's office of the hospital where the study would be conducted (Date: 30.10.2023, decision no: E-18649120-044-837499). Individuals who agreed to participate in the study were given detailed information about the purpose and scope of the study by the researcher in person, and their written consent was obtained using the Informed Consent Form. All procedures of the study followed the ethical principles of the Declaration of Helsinki.

Study Design: This study was conducted with a descriptive design. This study made it possible to simultaneously reach women in the target audience and present the existing situation comprehensively. This design was also preferred as it provided the opportunity to prioritize women in the planning of awareness-raising services about gynecologic cancers or identify the areas that need interventions. In the reporting process of the study, the *STROBE* (*Strengthening the Reporting of Observational Studies in Epidemiology*) checklist, which aims to increase the methodological clarity and reporting quality of observational studies, was utilized.

Population and Sample: The population of this study consisted of women who presented to obstetrics and gynecology outpatient clinics of a public hospital in Türkiye between November 2023 and May 2024. The inclusion criteria for the study were determined as being 20-65 years old, being married, being able to communicate in Turkish, and agreeing to participate in the study. Women who were diagnosed with a gynecologic cancer were excluded. Because no clear information about size of the population was available, a sample size calculation formula for an unknown population was used in the study. In this calculation, an incidence of 77.2% corresponding to the rate of women who had heard of gynecologic cancers in the study conducted by Akcan et al. (2024) was used.[10] Accordingly, the minimum required sample size of participants to represent the population was determined as 272. The data collection forms were administered using face-to-face interview method. Within the specified data collection period, 277 women were reached.

Data Collection Instruments: A Descriptive Information Form and the Gynecologic Cancers Awareness Scale were used to collect data.

Descriptive Information Form: This form, which was prepared by the researchers based on the literature review, includes sociodemographic, obstetric

and gynaecological characteristics of women.[7-9, 11,12]

Gynecologic Cancers Awareness Scale (GCAS): GCAS was developed in 2017 by Alp Dal and Ertem to evaluate the awareness levels of married women aged 20-65 regarding gynecologic cancers. The scale consists of 41 items and four dimensions. The overall Cronbach's alpha internal consistency coefficient of the scale was reported as 0.94. GCAS is evaluated based on its total score, which varies in the range of 41 to 205. Higher scores indicate higher levels of awareness regarding gynecologic cancers.[13] In this study, the overall Cronbach's alpha coefficient of the scale was found to be 0.96, while the coefficients of its dimensions were 0.97 for "Awareness of Routine Follow-Up and Severe Illness Perceptions in Gynecologic Cancers", 0.91 for "Awareness of Gynecologic Cancer Risks", 0.77 for "Awareness of Protection from Gynecologic Cancers", and 0.88 for "Awareness of Early Diagnosis and Information in Gynecologic Cancers".

Statistical Analysis: The IBM SPSS Statistics 22 program was used to analyze the collected data statistically. The Kolmogorov-Smirnov test was used to test the normality of the distribution of the data, and it was determined that the data had a non-normal distribution. Descriptive statistics are presented as frequency, percentage, mean, standard deviation, minimum, and maximum values. The Mann-Whitney U test was used for two-group comparisons, and the Kruskal-Wallis test for three or more groups. Bonferroni correction was applied post hoc when Kruskal-Wallis results were significant. Statistical significance was set at $p<0.05$.

RESULTS

The mean age of the participants was 37.2±11.9. It was determined that 81.6% of the participants had university or higher degrees. While 21.7% of the participants were in menopause, 72.6% did not attend regular gynecologic examinations, and 22.4% had undergone a gynecologic operation before. Additionally, 43% of the participants had not had a pap smear test before, and 17.3% had a family history of gynecologic cancers. Other descriptive characteristics of the participants are presented in Table 1.

Table 1. Descriptive characteristics of the participants (n=277).

Characteristics		**Mean±SD (Min.-Max)**
Age (years)		37.2±11.9 (20-65)
Age of first pregnancy		18.3±13.0 (17-39)
Number of pregnancies		1.7±1.5 (0-6)
Number of deliveries		1.2±1.1 (0-4)
		n (%)
Education level	Literate with no formal degree/primary school/middle school	17 (6.1)
	High school	34 (12.3)
	University or above	226 (81.6)
Income status	Income < expenses	93 (33.6)
	Income ~ expenses	154 (55.6)
	Income > expenses	30 (10.8)
Smoking status	Smoker	91 (32.9)
	Non-smoker	186 (67.1)
History of miscarriage/ abortion/stillbirth (n=102)	Yes, 1 time	60 (58.8)
	Yes, 2 times	30 (29.4)
	Yes, 3 or more times	12 (11.8)
Menopause	Yes	60 (21.7)
	No	217 (78.3)
Attends regular gynecologic examinations	Yes	76 (27.4)
	No	201 (72.6)
History of previous gynecologic operation	Yes	62 (22.4)
	No	217 (78.3)
Type of gynecologic operation (n=62)	Endometrial myomectomy/polypectomy	31 (50)
	LEEP & conization	11 (17.7)
	Ovarian cystectomy	8 (12.9)
	TAH-BSO	8 (12.9)
	Aesthetic purposes (perineoplasty)	3 (4.8)
	Uterine adhesions	1 (1.7)
History of previous pap smears	Yes, with normal results	129 (46.5)
	Yes, with abnormal results	29 (10.5)
	No	119 (43.0)

SD: Standard deviation.

Table 1. Continue.

Family history of gynecologic cancer	Yes	48 (17.3)
	No	229 (82.7)
Family member with a history of gynecologic cancer (n=48)	Mother/sister	20 (41.7)
	Other family members (e.g., grandmother, aunt, cousin)	28 (58.3)
Received information about gynecologic cancers	Yes	128 (46.2)
	No	149 (53.8)
Source of information about gynecologic cancers (n=128)	Healthcare institution	59 (46.1)
	Internet (e.g., social media)	42 (32.8)
	Close circle	17 (13.3)
	Television	9 (7.0)
	Books/magazines/newspapers	1 (0.8)
Visit to healthcare institutions for reproductive health problems	Yes	235 (84.8)
	No	42 (15.2)
Barriers to visiting healthcare institutions for reproductive health problems	No barriers	171 (61.7)
	Fear of getting diagnosed with an important problem	40 (14.4)
	Embarrassment	34 (12.3)
	Being too busy/unable to find time	16 (5.8)
	Privacy	14 (5.1)
	Male physicians	2 (0.7)

SD: Standard deviation.

Participants' mean GCAS subscale scores were 84.25±17.26 for Awareness of Routine Follow-Up and Severe Illness Perceptions in Gynecologic Cancers, 34.25±7.46 for Awareness of Gynecologic Cancer Risks, 19.65±4.98 for Awareness of Protection from Gynecologic Cancers, and 16.80±3.48 for Awareness of Early Diagnosis and Information in Gynecologic Cancers. The mean total GCAS score was 146.28±27.27 (Table 2).

There were weak but significant positive correlations between age, number of pregnancies, and number of deliveries and the Awareness of Routine Follow-Up and Severe Illness Perceptions in Gynecologic Cancers subscale scores. A similar weak, positive, and significant correlation was found between age and total GCAS scores ($p<0.05$) (Table 3).

Table 2. GCAS total and subscale scores of the participants.

		Mean±SD	Minimum-Maximum
GCAS Subscales	Awareness of Routine Follow-Up and Severe Illness Perceptions in Gynecologic Cancers	84.25±17.26	22-110
	Awareness of Gynecologic Cancer Risks	34.25±7.46	11-55
	Awareness of Protection from Gynecologic Cancers	19.65±4.98	6-30
	Awareness of Early Diagnosis and Information in Gynecologic Cancers	16.80±3.48	4-20
GCAS Total		146.28±27.27	41-205

SD: Standard deviation.

Table 3. Relationships between age, number of pregnancies, number of deliveries and the scale and subscale scores of the participants.

	Test p-value	Awareness of Routine Follow-Up and Severe Illness Perceptions in Gynecologic Cancers	Awareness of Gynecologic Cancer Risks	Awareness of Protection from Gynecologic Cancers	Awareness of Early Diagnosis and Information in Gynecologic Cancers	GCAS Total
Age	**r**	0.241	-0.042	-0.024	0.087	0.136
	p	**0.001**	0.484	0.694	0.147	**0.023**
Number of pregnancies	**r**	0.166	-0.016	-0.039	0.016	0.104
	p	**0.006**	0.790	0.520	0.794	0.084
Number of deliveries	**r**	0.172	-0.026	-0.026	0.029	0.114
	p	**0.005**	0.667	0.670	0.637	0.061

r; Spearman correlation analysis *0.1-0.3: weak correlation, 0.3-0.7: moderate correlation, 0.7-1.0: strong correlation.

Significant differences were found in the Awareness of Routine Follow-Up and Severe Illness Perceptions in Gynecologic Cancers subscale based on income status. The median scores of the Awareness of Gynecologic Cancer Risks subscale differed significantly between participants who were in menopause and those who were not in menopause. The Awareness of Protection from Gynecologic Cancers subscale scores were significantly different between smokers and non-smokers. Significant differences in the Awareness of Early Diagnosis and Information in Gynecologic Cancers subscale were found according to education level. The median total GCAS scores of the participants showed significant differences based on income status ($p<0.05$) (Table 4).

Table 4. Comparisons of GCAS total and subscale scores of the participants based on their descriptive characteristics.

Variables		Awareness of Routine Follow-Up and Severe Illness Perceptions in Gynecologic Cancers	Awareness of Gynecologic Cancer Risks	Awareness of Protection from Gynecologic Cancers	Awareness of Early Diagnosis and Information in Gynecologic Cancers	GCAS
		Mean±SD Median (min-max)	**Mean±SD Median (min-max)**	**Mean±SD Median (min-max)**	**Mean±SD Median (min-max)**	**Total**
Education level	Literate/primary school/middle school[1]	80.41±25.24 85 (22-110)	37.76±8.74 35 (16-55)	19.58±6.42 18 (7-30)	15.11±4.59[1] 16 (4-20)	142.00±40.47 148 (49-205)
	High school[2]	80.25±23.33 86 (23-110)	31.52±8.22 3 (11-46)	18.50±5.42 19 (6-28)	15.50±4.59[2] 17.50 (4-20)	137.73±36.57 144 (46-187)
	University or above[3]	85.15±15.35 87 (22-110)	34.62±7.18 35 (11-55)	19.83±4.79 20 (6-30)	17.12±3.11[3] 18 (4-20)	147.88±24.18 150 (41-205)
	Test and p-value	KW=0.450 p=0.799	KW=4.534 p=0.104	KW=1.369 p=0.504	KW=7.508 **p=0.023** **3>1***	KW=1.976 p=0.372
Income status	Income < expenses[1]	81.12±18.94 84 (22-110)	33.34±7.20 35 (11-46)	18.83±5.13 19 (6-29)	18.83±5.13 17 (4-20)	141.04±30.07[1] 146 (41-190)
	Income ~ expenses[2]	86.59±15.55±87 (23-10)	34.99±7.39 35 (11-55)	20.01±4.63 20 (6-30)	20.01±4.63 18 (4-20)	149.92±24.15[2] 152 (54-205)
	Income > expenses[3]	81.93±18.82 87.50 (25-110)	33.26±8.37 35 (14-55)	20.33±6.01 21 (6-30)	20.33±6.01 18 (4-20)	143.80±31.08[3] 149 (52-205)
	Test and p-value	KW=6.175 **p=0.046** **2>1***	KW=2.407 p=0.300	KW=3.165 p=0.205	KW=5.437 p=0.066	KW=7.164 **p=0.028** **2>1***
Smoking status	Smoker	84.48±16.86 87 (23-110)	33.50±6.96 34 (11-55)	17.78±4.56 17 (6-30)	17.20±3.36 18 (4-20)	143.46±27.31 147 (49-205)
	Non-smoker	83.78±18.12 86.50 (22-110)	34.61±7.68 35 (11-55)	20.57±4.93 21 (6-30)	16.60±3.52 17 (4-20)	147.66±27.21 150 (41-205)
	Test and p-value	MU=8332.000 p=0.833	MU=7543.5 p=0.141	**MU=5252.500 p<0.001**	MU=7304.000 p=0.060	MU=7550.500 p=0.145
Menopause	Yes	87.31±16.30 88 (23-110)	33.33±7.00 33.50 (13-55)	19.21±4.54 18.50 (8-30)	16.98±2.91 18 (4-20)	148.23±25.74 150 (49-205)
	No	83.40±17.45 86 (22-110)	34.50±7.57 36 (11-55)	19.77±5.10 20 (6-30)	16.75±2.62 18 (4-20)	145.74±27.71 149 (41-205)
	Test and p-value	MU=5444.500 p=0.052	MU=5410.500 **p=0.045**	MU=5875.000 p=0.246	MU=6243.000 p=0.246	MU=6243.000 p=0.627

KW=Kruskal Wallis H test, *corrected Bonferroni test, MU=Mann-Whitney U test, X=Mean, SD=Standard deviation.

Significant differences were found in the Awareness of Routine Follow-Up and Severe Illness Perceptions in Gynecologic Cancers subscale based on regular gynecologic examination, history of gynecologic operations, and pap smear history. Significant differences in the Awareness of Early Diagnosis and Information in Gynecologic Cancers subscale were found according to regular gynecologic examination, and pap smear history. The median total GCAS scores of the participants showed significant differences based on regular gynecologic examination, history of gynecologic operations, and pap smear history ($p<0.05$) (Table 5).

Table 5. Comparison of GCAS total and subscale scores of the participants based on their gynaecological history.

Variables		Awareness of Routine Follow-Up and Severe Illness Perceptions in Gynecologic Cancers	Awareness of Gynecologic Cancer Risks	Awareness of Protection from Gynecologic Cancers	Awareness of Early Diagnosis and Information in Gynecologic Cancers	GCAS Total
		Mean±SD Median (min-max)	**Mean±SD Median (min-max)**	**Mean±SD Median (min-max)**	**Mean±SD Median (min-max)**	**Mean±SD Median (min-max)**
Attendance to regular gynecologic examinations	Yes	89.67±17.27 89 (22-110)	34.38±8.74 35 (11-55)	22.02±5.54 22 (6-30)	17.14±3.74 18 (4-20)	154.59±29.45 157 (51-205)
	No	82.67±16.85 85 (22-110)	34.20±6.93 35 (11-55)	18.76±4.45 19 (6-30)	16.67±3.37 18 (4-20)	143.13±25.78 148 (41-205)
	Test and p-value	MU=5091.500 **p<0.001**	MU=7491.000 p=0.804	MU=4512.500 p<0.001	MU=6348.000 **p<0.028**	MU=5151.000 **p<0.001**
History of previous gynecologic operation	Yes	90.90±11.85 88 (55-110)	35.46±6.95 35 (11-55)	20.20±4.22 20 (6-30)	17.46±2.40 18 (4-20)	155.13±17.74 154 (121-203)
	No	82.41±18.07 86 (22-110)	33.91±7.57 35 (11-55)	19.50±5.17 20 (6-30)	16.62±3.70 18 (4-20)	143.83±28.92 148 (41-205)
	Test and p-value	MU=4694.00 **p<0.001**	MU=6124.500 p=0.482	MU=6125.00 p=0.482	MU=6050.500 p=0.396	MU=5100.500 **p=0.010**
History of previous pap smears	Yes, with normal results[1]	88.03±15.33[1] 87 (22-110)	34.31±7.11 35 (11-55)	20.20±5.08 20 (6-30)	17.42±2.97[1] 18 (4-20)	151.00±24.67[1] 151 (46-205)
	Yes, with abnormal results[2]	85.41±16.91[2] 88 (23-110)	35.62±8.62 35 (15-55)	19.31±4.64 20 (6-30)	16.24±3.82[2] 17 (4-20)	148.24±28.57[2] 152 (49-203)
	No[3]	79.87±18.40[3] 84 (22-110)	33.85±7.55 35 (11-49)	19.15±4.93 20 (8-28)	16.27±3.81[3] 17 (4-20)	140.68±28.78[3] 146 (41-190)
	Test and p-value	KW= 12.582 **p=0.002** **1>3***	KW= 0.660 p=0.719	KW= 1.918 p=0.383	KW= 8.218 **p=0.016** **1>3***	KW= 8.342 **p=0.015** **1>3***
Family history of gynecologic cancer	Yes	88.87±12.96 88 (44-110)	34.89±7.05 35 (15-55)	20.25±4.89 19.50 (9-30)	17.58±2.40 18 (8-20)	152.56±21.13 150 (72-203)
	No	83.28±17.90 86 (22-110)	34.11±7.55 35 (11-55)	19.53±5.00 20 (6-30)	16.64±3.65 18 (4-20)	144.96±28.25 149 (41-205)
	Test and p-value	MU=4575.00 p=0.068	MU=5351.00 p=0.773	MU=5161.000 p=0.506	MU=480.000 p=0.161	MU=4823.500 p=0.183

Table 5. Continue.

Received information about gynecologic cancers	Yes	84.78±18.11 87 (22-110)	34.17±8.19 35 (11-55)	19.93±5.25 20.50 (6-30)	16.94±4.77 18 (4-20)	147.15±29.89 150.500 (41-205)
	No	83.79±16.53±1.35 86 (22-110)	34.31±6.79 35 (11-55)	19.41±4.75 19 (6-30)	16.68±3.21 18 (4-20)	145.53±24.88 148 (51-205)
	Test and p-value	MU=8729.000 p=0.224	MU=9290.000 p=0.711	MU=8749.000 p=0.235	MU=8369.000 p=0.075	MU=8386.500 p=0.084
Visit to healthcare institutions for reproductive health problems	Yes	85.45±16.47 87 (22-110)	34.38±7.29 35 (11-55)	19.95±4.94 20 (6-30)	16.89±3.30 18 (4-20)	147.95±26.32 150 (41-205)
	No	77.50±20.03 83.50 (23-107)	33.50±8.40 35.50 (11-49)	18.00±4.93 18 (6-27)	16.28±4.33 18 (4-20)	136.90±30.76 145.50 (46-182)
	Test and p-value	MU=8729.000 p=0.224	MU=9290.000 p=0.711	MU=8749.000 p=0.235	MU=8369.000 p=0.075	MU=8386.500 p=0.084

DISCUSSION AND CONCLUSION

Raising awareness and knowledge about gynecologic cancers is crucial for early diagnosis and timely treatment. In this study, the mean GCAS score was 146.28±27.27, indicating a moderate awareness level, given the scale range of 41–205. Similar GCAS scores have been reported in previous studies with different populations.[10-12,14-16] In some others, the GCAS scores of women have been reported to be higher than those in our study.[8,17-21] Differences in results may be associated with various factors, including differences in the education and income levels, previous healthcare experiences, and healthcare service access opportunities of the samples. The result of this study showed the necessity to take into account both the individual and health-related characteristics of women while evaluating their gynecologic cancer awareness levels.

The participants of this study who were older had higher levels of gynecologic cancer awareness in general and in the context of routine follow-ups and severe illness perceptions. Similarly, Kıyak and Burucu found a weak and positive relationship between age and gynecologic cancer awareness.[18] Karakuş Selçuk et al. reported that women over the age of 42 had higher levels of gynecologic cancer awareness.[20] These results may be related to the increased levels of women's health-related experience and frequency of attending medical follow-ups and examinations among older women.

In this study, the number of pregnancies and deliveries was not significantly associated with total GCAS scores but showed a correlation with the Awareness of Routine Follow-Up and Severe Illness Perceptions in Gynecologic Cancers subscale. Similar variables have been explored in previous studies examining their effects on GCAS scores. According to Gökşin et al., women who had children had lower levels of gynecologic cancer awareness in comparison to those without children.[19] Similarly, Atlas and Er Güneri stated that women who experienced 1-2 pregnancies had higher levels of awareness than those who experienced 3 or more pregnancies.[17] These findings suggest that the impact of pregnancy and delivery numbers on gynecologic cancer awareness should be evaluated through more comprehensive, multivariate analyses. In this context, our results underline the need for a deeper examination of obstetric factors influencing awareness levels.

The participants of our study who had university or higher degrees had higher levels of awareness of early diagnosis and information on gynecologic cancers. This result was similar to those in previous studies, indicating that higher education levels affect information and awareness related to gynecologic cancers positively.[9,10,12,17,22] This may be explained by the increase in the health literacy of individuals or their access to health-related information as their education levels increase.

In this study, the participants who had lower levels of income also had lower levels of gynecologic cancer awareness in general and in the context of routine follow-up and severe illness perceptions. Karakuş Selçuk et al. also found higher levels of gynecologic cancer awareness among women with higher income levels.[20] It was emphasized that socioeconomic inequalities had a significant effect on gynecologic cancer awareness.[23,24] Adequate income may facilitate women's access to health information, increasing their awareness. Our findings highlight the need to prioritize women with lower income and education levels when planning healthcare services and educational programs related to gynecologic cancers.

Non-smoking participants in this study demonstrated higher awareness regarding protection from gynecologic cancers compared to smokers. This finding is supported by previous studies, which often show that non-smoking women are more likely to engage in protective health behaviors.[18,20] The result may reflect a tendency among some participants to avoid harmful habits in an effort to reduce their cancer risk.

The participants of this study who were not in menopause had higher levels of awareness regarding gynecologic cancer risks compared to those who were in menopause. Previous studies showed that the cancer-related awareness levels of women of reproductive age were higher than those of postmenopausal women, and it was considered that the reason for this could be the openness of younger women to health-related information.[9,25] The gynecologic cancer awareness levels of postmenopausal women may also be influenced by their belief that they do not have the same risks associated with reproductive health.

Participants who attended regular gynecologic examinations and had a history of gynecologic operations showed higher gynecologic cancer awareness. Similarly, Dulkara et al. reported greater awareness among women undergoing gynecologic exams at least once a year.[26] In contrast, Teskereci et al. found no significant association between gynecologic examination or operation status and gynecologic cancer awareness.[27] These conflicting results of different studies may be attributed to various factors like sociodemographic characteristics and health literacy. Furthermore, the gynecologic cancer awareness levels of women may have been influenced by how they experienced processes such as gynecologic examinations and operations, as well as the counseling services that they received in this context.

In this study, participants who had undergone pap smear tests with normal results showed higher

awareness levels overall, particularly in the Routine Follow-Up and Severe Illness Perceptions and Early Diagnosis and Information subscales, compared to those with no pap smear history. Similarly, Gökşin et al. reported higher total GCAS scores among women with a history of pap smears.[19] This finding is expected, as limited awareness is a known barrier to participation in pap smear screening programs.[28,29]

This study has some limitations. It was conducted in a single hospital, limiting the generalizability of the findings. Additionally, its descriptive design prevents causal interpretations. Future longitudinal studies with larger and more diverse samples are needed to explore changes in gynecologic cancer awareness over time. In addition, some factors that may influence gynecologic cancers and awareness levels, such as contraceptive methods, diet, and systemic diseases, were not assessed in this study. This represents an important limitation that may restrict the generalizability of the findings.

In conclusion, this study showed that women's awareness levels regarding gynecologic cancers are associated with various sociodemographic, obstetric, and gynecologic healthcare-related factors. Identifying these awareness levels and the factors influencing them is crucial for effective screening and early diagnosis. Based on the findings, it is essential to ensure that education and awareness programs about gynecologic cancers are accessible, especially for women with lower education and income levels, who may face barriers in accessing healthcare. Additionally, increasing community-based awareness and information efforts is necessary to protect women at all stages of life, including menopause. Strengthening collaboration with Cancer Early Diagnosis, Screening and Education Centres to implement targeted awareness strategies in Türkiye could help reach underserved populations more effectively. Encouraging regular gynecologic follow-ups and screenings, and supporting women's health literacy should be prioritized to improve preventive care. Supporting and scaling up these public health initiatives is essential for reducing gynaecological cancers nationwide.

Ethics Committee Approval: Before collecting data, ethical approval was obtained from the Medical Research Ethics Committee of Kahramanmaraş Sütçü İmam University (Date: 20.06.2023, decision no: 2023/07-02). Then, institutional permission was received from the chief physician's office of the hospital where the study would be conducted (Date: 30.10.2023, decision no: E-18649120-044-837499). Individuals who agreed to participate in the study were given detailed information about the purpose and scope of the study by the researcher in person, and their written consent was obtained using the Informed Consent Form. All procedures of the study followed the ethical principles of the Declaration of Helsinki.

Conflict of Interest: No conflict of interest was declared by the authors.

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