

ORIGINAL RESEARCH ARTICLE

Gynaecological cancer awareness and healthy lifestyle behaviors of women aged 20-65 years: A descriptive cross-sectional study

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Abstract

For both individual and community health, women's health is vital. In particular, gynecological cancers can be prevented or treated by adopting healthy lifestyles, raising awareness, and detecting them early. This study aimed to identify levels of gynecological cancer awareness and healthy lifestyle behaviors among women aged 20-65 years. There were 251 women in the descriptive cross-sectional study. The Gynecological Cancers Awareness Scale (GCAS), the Descriptive Characteristics Form, and the Healthy Lifestyle Behavior Scale-II (HLBS-II) were used to gather data. The data was analyzed using the Pearson's correlation test, multiple linear regression, and descriptive statistics. The average HLBS-II score was 123.53 ± 20.75 , while the average GCAS score was 149.64 ± 21.30 . The HLBS-II and GCAS scores showed a statistically significant positive correlation. Women knowledgeable about early diagnosis methods scored 10.758 times higher on the GCAS, while women familiar with vulvar self-examination scored 11.016 times higher. Employed women had a mean HLBS-II score 6.124 times higher than non-employed women ($p < 0.05$). Women's awareness of gynecological cancer was high, but they also had moderately good lifestyle choices. To raise awareness and promote healthy lifestyle choices, healthcare professionals are advised to take part in health-promoting initiatives. (*Afr J Reprod Health* 2025; 29 [3]: 76-84).

Keywords: Awareness; cancer; women; health behavior; nursing

Résumé

La santé des femmes est vitale pour la santé individuelle et collective. En particulier, les cancers gynécologiques peuvent être évités ou traités par l'adoption de modes de vie sains, la sensibilisation et la détection précoce. Cette étude visait à identifier les niveaux de sensibilisation au cancer gynécologique et les comportements en matière de mode de vie sain chez les femmes âgées de 20 à 65 ans. Une étude descriptive transversale a été menée auprès de 251 femmes. Les données ont été recueillies à l'aide du formulaire des caractéristiques descriptives, de l'échelle de sensibilisation aux cancers gynécologiques (GCAS) et de l'échelle de comportement en matière de mode de vie sain-II (HLBS-II). Les statistiques descriptives, la régression linéaire multiple et le test de corrélation de Pearson ont été utilisés pour analyser les données. Le score moyen au GCAS était de $149,64 \pm 21,30$, et le score moyen au HLBS-II était de $123,53 \pm 20,75$. Il existe une corrélation positive statistiquement significative entre les scores HLBS-II et GCAS. Les femmes connaissant les méthodes de diagnostic précoce ont obtenu un score 10,758 fois plus élevé au GCAS, tandis que les femmes connaissant l'auto-examen de la vulve ont obtenu un score 11,016 fois plus élevé. Les femmes employées avaient un score moyen HLBS-II 6,124 fois plus élevé que les femmes non employées ($p < 0,05$). Bien que les femmes soient très sensibilisées au cancer gynécologique, leurs comportements en matière de mode de vie sain sont modérés. Il est recommandé que les prestataires de soins de santé s'engagent dans des interventions de promotion de la santé afin d'améliorer la sensibilisation et d'encourager des pratiques de vie saine. (*Afr J Reprod Health* 2025; 29 [3]: 76-84).

Mots-clés: : Sensibilisation; cancer; femmes; comportement en matière de santé; soins infirmiers

Introduction

Prevalence rates for gynecological cancer types vary across countries according to the country development level.¹ In Turkey the most prevalent types of gynecological cancers include uterine, cervical, and ovarian cancers¹, similar to global

statistics². The incidence rates indicate that one in every 162 women is diagnosed with cervical cancer, one in every 78 women with ovarian cancer, and one in every 35 women with uterine cancer at any stage of life³. While the exact causes remain unclear, early screening and public awareness are critical in mitigating risks. Identifying modifiable

and non-modifiable risk factors is essential for prevention efforts⁴. Therefore, raising public awareness, allocating financial resources, and promoting research will significantly support treatment and recovery efforts⁵.

Prior research has examined awareness of gynecological cancers⁶⁻¹¹ and the preventative role of healthy lifestyle behaviors¹²⁻¹⁶ in prevention. This study seeks to contribute by analyzing both the awareness levels and healthy lifestyle behaviors of women aged 20-65 years in Turkey.

Methods

Study design

The research is a cross sectional study.

Population and sample

Women who visited 12 family health centers connected with the Mardin Provincial Health Directorate between November 2019 and March 2020 participated in this descriptive cross-sectional study. Approximately 4000 women were registered at the above family health centers in Mardin Provincial Health Directorate in the period to 2018-2019. Using the NCSS PASS software, the sample size was determined to be 251 respondents with a 99.56% power. There were 314 participants in the study. 251 participants who satisfied the following requirements were included in the final sample: they had to be between the ages of 20 and 65, have completed at least elementary school, have never been diagnosed with gynecological cancer, and be able to read, comprehend, and write in Turkish. All pertinent elements were made sure of using the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist¹⁷. Ethical approval was granted from the Non-Invasive Human Research Ethics Committee of Mardin Artuklu University (November 5, 2019/3) and permission from the Mardin Provincial Health Directorate. Written and verbal consent were obtained after informing the participants. Data collection was conducted through face-to-face self-administered questionnaires with researcher to ensure accuracy and consistency. The study was carried out in accordance with the Declaration of Helsinki's guiding principles.

Inclusion criteria

The study's inclusion criteria included being between the ages of 20 and 65, having completed at least elementary school, not having been diagnosed with gynecological cancer before, being able to read, comprehend, and write in Turkish, and being willing to take part.

Data collection tools

The Descriptive Characteristics Form, HLBS-II, and the GCAS were utilized in the data collection procedure.

Descriptive Characteristics form

The form consisted of 32 questions covering participants' socio-demographic data (age, education, marital status, children, health insurance, income, and employment), obstetric and gynecological history (20 questions), and healthy lifestyle behaviors (5 questions).

Gynecological cancers awareness scale (GCAS)

The GCAS, created by Alp Dal and Ertem (2017), consists of 41 items across four subscales: awareness of routine controls, gynecological cancer risks, cancer prevention, and early diagnosis. Total ratings on the five-point Likert scale range from 41 to 205. Greater awareness about gynecological cancer is indicated with higher scores¹⁶. The Cronbach's alpha for the GCAS in this study was 0.935, indicating strong reliability.

Healthy lifestyle behavior scale-II (HLBS-II)

Walker *et al.* (1987) created the initial scale, which was updated in 1996 as the Health-Promoting Lifestyle Profile-II^{17,18}. The Turkish scale, which included 52 items and six subscales (interpersonal interactions, spiritual development, health responsibility, nutrition, physical activity, and stress management), was the subject of a validity and reliability research conducted by Bahar *et al.* (2008)¹⁹. The HLBS-II is a four-point Likert scale with no reverse-scored items. The scale featured a 52-point minimum and a 208-point maximum

score. A respondent who received a high score on the scale had extremely healthy living choices. The Cronbach's alpha coefficient for the Turkish version of the scale was 0.94, while it was 0.929 in the current study.

Data analysis

SPSS (Statistical Package for Social Science) version 20 was used to analyze the research data. Both numerical and categorical variables were subjected to descriptive statistics. To assess associations and predict outcomes, multiple linear regression and the Pearson's correlation test were employed. The reliability of the scales was evaluated using Cronbach's alpha, and the statistical significance criterion was set at $p < 0.05$.

Results

48.6% of the women who took part were university graduates, 52.2% were married, 50.6% had children, 75.3% were employed, 55.4% had an income that covered their expenses, and 79.3% had health insurance. The average age of the women who took part was 28.67 ± 8.32 years (Table 1).

Of all participant women, 61.0% stated that having protection against gynecological cancers was possible, 91.6% thought its importance, 54.6% told that they had no knowledge about early diagnosis methods, 82.1% claimed that they were very afraid of having gynecological cancer, 75.3% asserted that they had no familial history of gynecological cancers, 70.9% did not consider themselves at risk, 55.4% knew the Pap test is used for cervical cancer diagnosis, 59.8% set forth that the vaccination was highly important for prevention, 38.6% were unaware of cervical cancer symptoms, 79.3% had never undergone a Pap test, 59.0% said that all women should have a Pap test, 76.5% had not heard of the HPV vaccine, 35.5% were unaware of ovarian cancer symptoms, and 41.8% thought they had endometrial cancer due to excessive uterine bleeding, and 38.2% identified vulvar thickening or color change as potential vulvar cancer symptoms. Additionally, 89.2% had never heard of vulvar self-examination, though 42.2% considered it important, with 59.0%

Table 1: Sociodemographic features (N=251)

		N	%
Age (Mean±SD)		28.67±8.32	
Age	20-25 years	119	47.4
	26-30 years	45	17.9
	31-35 years	39	15.5
	36-40 years	20	8.0
	41-45 years	19	7.6
	46 years and above	9	3.6
Educational status	Literate	19	7.6
	Elementary school	45	17.9
	Secondary school	24	9.6
	High school	41	16.3
	University graduates	122	48.6
Marital status	Married	131	52.2
	Single	120	47.8
Working status	Yes	62	24.7
	No	189	75.3
Income level	Income less than expenses	92	36.7
	Income more than expenses	20	8.0
	Income equals expenses	139	55.4
Health insurance	Yes	199	79.3
	No	52	20.7
Having children	Yes	127	50.6
	No	124	49.4

recommending it for all women. Regarding contraception, 52.6% did not use any method, and among those who did, 14.7% used oral contraceptives. Of the participants, considered a healthy life important, 51.4% reported having good overall health, 50.0% found their environment partially healthy, 67.3% visited a doctor when ill, and 73.3% avoided harmful substances. The mean GCAS score was 149.64 ± 21.30 . Subscale means were: Routine Control and Serious Disease Perception 84.33 ± 14.14 , gynecological cancer risks 27.90 ± 5.56 , protection against gynecological cancers 21.55 ± 4.28 , and early diagnosis and knowledge awareness 15.86 ± 3.49 (Table 2).

Table 2: Mean scores obtained by women from the GCAS, the HLBS-II, and their sub-scales

	Mean	SD	Median	Max	Min	Cronbach's alpha coefficient
GCAS	149.64	21.30	151.0	198	43	0.935
Awareness about the routine control and serious disease perception in gynecological cancers	84.33	14.14	85.0	110	24	0.944
Awareness about gynecological cancer risks	27.90	5.56	28.0	45	9	0.824
Awareness about the protection against gynecological cancers	21.55	4.28	22.0	30	6	0.729
Early diagnosis and knowledge awareness in gynecological cancers	15.86	3.49	16.0	20	4	0.861
Hlbs-ii	123.53	20.75	122.0	200	74	0.929
Spiritual development	24.69	4.49	25.0	36	12	0.751
Health responsibility	20.98	4.57	21.0	36	11	0.770
Physical activity	15.77	4.48	16.0	30	8	0.810
Nutrition	19.71	4.42	19.0	34	10	0.733
Interpersonal relations	24.03	4.45	24.0	35	13	0.762
Stress management	18.35	3.95	18.0	32	10	0.714

Table 3: The analysis of the correlation between women's gcas and hlbs-ii scores

		Awareness about the routine control and serious disease perception in gynecological cancers	Awareness about gynecological cancer risks	Awareness about the protection against gynecological cancers	Early diagnosis and knowledge awareness in gynecological cancers	GCAS
Spiritual	r	0.324	0.136	0.378	0.316	0.378
Development	p	0.000	0.031	0.000	0.000	0.000
Health	r	0.283	0.175	0.297	0.137	0.315
Responsibility	p	0.000	0.005	0.000	0.031	0.000
Physical	r	0.152	0.184	0.205	0.074	0.202
Activity	p	0.016	0.004	0.001	0.244	0.001
Nutrition	r	0.194	0.199	0.276	0.083	0.250
	p	0.002	0.002	0.000	0.189	0.000
Interpersonal	r	0.365	0.085	0.366	0.325	0.391
Relations	p	0.000	0.177	0.000	0.000	0.000
Stress	r	0.248	0.188	0.283	0.191	0.302
Management	p	0.000	0.003	0.000	0.002	0.000
HLBS-II	r	0.332	0.204	0.383	0.238	0.390
	p	0.000	0.001	0.000	0.000	0.000

r: Pearson's correlation coefficient

The mean HLBS-II score was 123.53±20.75 points. Subscale mean scores were: Spiritual Development 24.69±4.49, Health Responsibility 20.98±4.57, Physical Activity 15.77±4.48, Nutrition 19.71±4.42, Interpersonal Relations 24.03±4.45, and Stress Management 18.35±3.95 (Table 2). Scores from the HLBS-II and its subscales of Spiritual Development, and Interpersonal Relations

had statistically significant positive correlations with GCAS scores and its subscales on Serious Disease Perception and Routine Control, Protection Against Gynecological Cancers, and Early Diagnosis and Knowledge Awareness (p<0.05) (Table 3). Scores from the HLBS-II and its subscales of Health Responsibility, Physical Activity and Nutrition showed statistically

Table 4: The analysis of factors affecting women's gynecological cancer awareness and healthy lifestyle behaviors

	Unstandardized Coefficients		Standardized Coefficients	t	p
	B	Std. Error	Beta		
GCAS (Constant)	186.064	6.024		30.887	0.000
Status of having knowledge about early diagnosis methods	-10.758	2.702	-0.252	-3.982	0.000
Status of hearing about the vulvar self-examination before (F/p=21.252/0.000; r ² =0.139)	-11.016	3.343	-0.208	-3.295	0.001
HLBS-II (Constant)	145.083	7.567		19.172	.000
Working status	-6.124	2.999	-.128	-2.042	.042
Status of thinking that having a healthy life is important	-10.098	5.013	-.126	-2.015	.045

significant positive correlations with GCAS scores and its subscales on Awareness of Gynecological Cancer Risks, Serious Disease Perception and Routine Control and Protection Against Gynecological Cancers ($p < 0.05$) (Table 3).

Scores obtained by women from both the HLBS-II and its Stress Management Subscale had statistically significant positive correlations with scores obtained from the GCAS and all GCAS subscales ($p < 0.05$) (Table 3).

Women with knowledge of early diagnosis scored 10.758 times higher on the GCAS than those without ($p < 0.05$). Those familiar with vulvar self-examination scored 11.016 times higher than those unaware of it ($p < 0.05$). Additionally, employed women had HLBS-II scores 6.124 times higher than non-employed women, and women who valued a healthy life scored 10.098 times higher than those who did not ($p < 0.05$) (Table 4)

Discussion

More than half of the women in this study stated that protection against gynecological cancers was possible, with nearly all emphasizing its high importance. Moreover, 54.6% had no knowledge of early diagnosis methods, and 82.1% feared of developing gynecological cancer. Women with knowledge about gynecological cancers tended to have higher awareness levels, as shown in other studies^{9,10}. Additionally, 70.9% did not consider themselves at risk, suggesting a gap in understanding risk factors. Familial history is another factor influencing awareness, with 75.3% reporting no family history of gynecological

cancers, similar to findings from Aydın *et al.*²⁰ and Jia *et al.*²¹.

Most women in this study had not undergone a Pap test, never heard about the HPV vaccine, and lacked knowledge about cervical cancer symptoms. Nevertheless, more than half thought that vaccination is essential for preventing cancer and that every woman should get a Pap test. However, no educational interventions were conducted. High health literacy regarding screening may contribute to increased knowledge²². While many women are aware of the risks of cervical cancer and have heard of it, prior research indicates that they frequently lack comprehensive understanding regarding the HPV vaccine and preventive measures^{24, 25}.

In addition, in research studies, it was indicated that patients who had a Pap test believed that gynecological cancers could be prevented⁹, and had high-level gynecological cancer awareness²⁵. Moreover, in the current study revealed that 35.5% were unaware of the symptoms of ovarian cancer, and 41.8% of them believed they had endometrial cancer when they had an excessive amount of uterine bleeding outside menstruation. In previous studies, it was shown that women had low awareness and a small amount of knowledge about symptoms and risk factors of ovarian cancer and endometrial cancer. According to a study found that women in the US had limited awareness of obesity as a risk factor for endometrial cancer²⁶.

In this study, 38.2% of participants recognized vulvar thickening and color change as possible symptoms of vulvar cancer, while 89.2% had never heard of vulvar self-examination.

However, 42.2% considered vulvar self-examination important, and 59% believed all women should undertake it. Moreover, in previous studies, it was claimed that women were not aware of vulvar cancer⁷. These findings, in conjunction with previous studies, highlight a widespread lack of knowledge about vulvar cancer and other gynecological cancers, including risk factors, symptoms, Pap tests, and vaccines, which may hinder early detection and treatment. To fill in the knowledge gaps found in the study, community-based education initiatives and information seminars are advised. Furthermore, adopting multidisciplinary approaches, incorporating gynecologic cancer education into regular health examinations and offering culturally relevant awareness materials may raise people's awareness and promote early diagnosis.

52.6% of the women in the current study did not use any contraceptive method, and the participants using contraceptive methods mostly had oral contraceptive pills (14.7%). In a study by Ozcan and Demir Doğan (2021), 38.2% of participants used a contraceptive method, and 17.1% of women using such a method preferred oral contraceptive pills⁹. According to the 2018 Turkey Demographic and Health Survey (2018) data, 69.8% of married women between the ages of 15-49 used either a modern or traditional contraceptive method²⁷, while this percentage was 48.4% for women who participated in the current study. The current study found that 14.7% of women used oral contraceptive tablets, compared to 5% in the 2018 Turkey Demographic and Health Survey (2018) data²⁷. It is possible to recognize the usage of contraceptive techniques by the women in our study as a good behavior.

This study revealed that women aged 20-65 had high gynecological cancer awareness but scored lowest on the early diagnosis and knowledge subscale of the GCAS. Similar findings in the literature show high overall GCAS scores^{6,8-11,22}, aligning with our results. The low awareness of early diagnosis may be due to cultural factors, such as women in Turkey often receiving their first gynecological exams after marriage, which delays access to reproductive health services. By providing thorough patient education on early diagnosis and prevention, healthcare professionals can

significantly contribute to closing this knowledge gap.

In this study, women aged 20-65 exhibited moderate healthy lifestyle behaviors, with the lowest scores on the HLBS-II Physical Activity Sub-Scale. Similar findings in the literature^{13,14} highlight the challenges of adopting physical activity as a healthy habit, influenced by social, economic, cultural, and environmental factors. These barriers make it difficult to integrate physical activity into daily routines. In the current study, it was noted that of all participants, 92.8% said that having a healthy life was important to them, 51.4% asserted that they generally had a good health state, 50.0% claimed that their environmental conditions were partially healthy, 67.3% said that they visited a doctor when they had a health problem, and 73.3% reported that they used no substance likely to be harmful to health. Studies support the findings of this research, indicating that healthcare services have not effectively promoted health improvements, particularly in physical activity^{12,14}. One study highlighted that healthcare providers lacked knowledge about physical activity, limiting their ability to encourage its adoption²⁸.

This study found that as women's spiritual development and interpersonal relationships improved, so did their gynecological cancer awareness. Similarly, Gök Uğur and Aydın Avcı (2015) demonstrated that women who had stronger interpersonal connections and spiritual growth were more likely to undergo breast examinations. Spiritual development promotes well-being and fosters a harmonious relationship with society¹². Strong interpersonal relationships, supported by healthcare providers, can boost health awareness through the exchange of information and emotional support.

Women with relatively high scores on the HLBS-II subscales of nutrition, physical activity, and health responsibility also had high levels of awareness about gynecological cancer, according to the current study. Health responsibility refers to the case in which individuals take good care of their health and search for health-related knowledge by actively feeling responsibility for their own well-being¹⁶. In a similar vein to the current research, Alp Dal, Akkuzu, and Çetinkaya Şen (2020) found that gynecological cancer awareness had a statistically

significant relationship with nutrition and physical activity, which are parts of healthy lifestyle behaviors⁶. Paying attention to nutrition and physical activity is also part of an individual's health responsibility and can accordingly be effective in raising cancer awareness.

Furthermore, women's scores on the HLBS-II and its Stress Management Subscale showed statistically significant positive relationships with their scores on the GCAS and all of the GCAS subscales in the current study. It is desirable to find that efficient management of stress by women would be effective in both developing healthy lifestyle behaviors and raising gynecological cancer awareness. Through educational programs and initiatives, healthcare providers can assist women in efficiently managing their stress. Promoting awareness of healthy lifestyle changes plays a crucial role in the prevention of gynecological cancers. Another finding of the current study is that women who had knowledge of early diagnosis methods obtained a mean GCAS score that was 10.758 times higher than that of women with no knowledge of such methods. Healthy lifestyle behaviors affect early diagnosis, knowledge level, and practices relevant to cervical cancer¹². This finding of the current study is considered an expected result, as having knowledge about early diagnosis methods is among women's health protection activities.

In the current study, women who had already heard about vulvar self-examination obtained a mean GCAS score that was 11.016 times higher than that of women who had never heard about it. The finding that women thought that having vulvar self-examination was important in accessing accurate knowledge about vulvar cancer, developed the aspiration to learn the practices, and obtained knowledge from other individuals by word of mouth was evaluated as an expected result and also as a positive outcome, as it serves as a warning for women with no knowledge about vulvar self-examination.

Lastly, in the current study, women who were working obtained a mean HLBS-II score that was 6.124 times as high as that of the women who were not working. Women who thought that having a healthy life was highly important obtained a mean HLBS-II score that was 10.098 times higher than

that of women who thought that having a healthy life was not important at all. It is thought that women who work and attach importance to healthy living can take more responsibility for their health. Healthcare providers can further support these efforts, enhance awareness, and promote sustained healthy behaviors in the community.

The cross-sectional design of this study limits its ability to show a causal relationship between health practices and awareness of gynecological cancer. Future longitudinal research could aid in proving causation and providing a deeper understanding of how behavior evolves over time.

Conclusion

This study emphasizes the need of raising women's knowledge of gynecological cancer awareness and the need to promote healthy lifestyle behaviors among women. Nurses and healthcare professionals must take on a proactive role in education and consultation, considering the sociodemographic characteristics that may influence women's health behaviors. In order to raise awareness of gynecological cancer and aid in early detection efforts, it is advised that government-led public health campaigns, regular gynecological screening programs, and professional collaboration be strengthened. Future research should explore experimental approaches and consider broader populations to further understand the factors influencing gynecological cancer awareness and prevention.

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Contribution of authors

BNY constructed the hypothesis or idea of research and/or article; BNY and SAŞ planned the methodology to reach the conclusions; BNY and SAŞ organized the course of progress and took responsibility for the research/study; BNY and SAŞ took responsibility for data management and reporting; BNY and SAŞ took responsibility for logical interpretation and conclusion of the results; BNY and SAŞ took responsibility for the necessary

literature review for the study; BNY and SAŞ took responsibility for the writing of the whole or important parts of the study; and BNY reviewed the article scientifically, in addition to spelling and grammar. All authors mentioned in the article approved the manuscript.

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Conflict of interest

The authors declare that they have no potential conflicts of interest with regard to the research, writing, and/or publication of the work

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