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An investigation of female health workers' attitudes and awareness levels towards cancer screening

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Abstract

This research aimed to assess the awareness and attitudes of female healthcare professionals aged over 30 about cancer screening. This descriptive cross-sectional study data was collected from 316 female healthcare workers employed between January and May 2025. Participants exhibited favourable attitudes about cancer screening, recognised its significance, and displayed substantial motivation to engage in it. Married individuals with children had more favourable views and a higher likelihood of undergoing mammography and HPV testing as they aged. Young, unmarried physicians without a familial predisposition to cancer had reduced rates of breast cancer screening, but nurses and other healthcare practitioners showed a higher propensity for cancer screening. Despite the proficiency of several female health professionals on cancer screening programs, the incidence of breast examinations and mammograms remained low, except for Pap smear testing, which showed relatively higher participation rates. Participants demonstrated moderate awareness but low participation in cancer screening programs. In conclusion, while awareness and attitudes of female healthcare professionals towards cancer screening are generally positive, this positive perception is not adequately reflected in actual behavior; participation in screening practices, particularly breast examinations and mammograms, remains low. These findings underscore the need for focused, continuous interventions that facilitate behavioral change among healthcare professionals and increase screening knowledge and participation. *(Afr J Reprod Health 2026; 30 [6]:78-87).*

Keywords: Breast self-examination, attitude towards cancer screening, female health worker

Résumé

Cette recherche visait à évaluer la sensibilisation et les attitudes des professionnelles de la santé âgées de plus de 30 ans concernant le dépistage du cancer. Les données de cette étude descriptive transversale ont été recueillies auprès de 316 travailleuses de la santé employées entre janvier et mai 2025. Les participantes ont montré des attitudes favorables à l'égard du dépistage du cancer, ont reconnu son importance et ont manifesté une motivation substantielle à y participer. Les personnes mariées avec des enfants avaient des opinions plus favorables et une plus grande probabilité de subir une mammographie et un test HPV en vieillissant. Les jeunes médecins célibataires sans prédisposition familiale au cancer avaient des taux réduits de dépistage du cancer du sein, mais les infirmières et autres professionnels de la santé montraient une plus grande propension au dépistage du cancer. Malgré la compétence de plusieurs professionnelles de la santé en matière de programmes de dépistage du cancer, l'incidence des examens mammaires et des mammographies est restée faible, à l'exception des tests de frottis de Pap, qui ont montré des taux de participation relativement plus élevés. Les participantes ont démontré une sensibilisation modérée mais une faible participation aux programmes de dépistage du cancer. En conclusion, bien que la sensibilisation et les attitudes des professionnelles de santé envers le dépistage du cancer soient généralement positives, cette perception positive ne se reflète pas adéquatement dans leur comportement réel ; la participation aux pratiques de dépistage, en particulier les examens des seins et les mammographies, reste faible. Ces résultats soulignent la nécessité d'interventions ciblées et continues qui facilitent le changement de comportement parmi les professionnels de la santé et augmentent les connaissances sur le dépistage ainsi que la participation. *(Afr J Reprod Health 2026; 30 [6]: 78-87).*

Mots-clés: Auto-examen des seins, attitude envers le dépistage du cancer, travailleuse de la santé féminine

Introduction

Cancer kills the second most people globally after cardiovascular disease.[1] Globally, 19.3 million new cancer cases were diagnosed in 2020, 50.5 million in the preceding five years, and 10 million died. Five-year cancer prevalence in Turkey is 580,000, and 230,000 new cases were discovered.[2] In 2024. cervical cancer was the eighth most common cancer globally and the ninth leading cause of cancer-

related deaths, with 661,044 new cases and 348,186 deaths recorded globally.[3]

This cancer is the most common among women in 25 countries, primarily situated in sub-Saharan Africa.[2]The General Directorate of Public Health reports that the incidence of cervical cancer in Türkiye is 4.5 per hundred thousand. The most common cancer among women globally and the main cause of death in Turkey is breast cancer.[3] Cancer is preventioned necessitates screening, whereas early identification enhances and optimises therapy. All asymptomatic clinical assessments and evaluations are encompassed in high-risk cancer screening. Turkey offers WHO-recommended breast, cervical, and colorectal cancer screenings.[3] The WHO's International Agency for Research on Cancer (IARC) reported 2,000,088 new breast cancer diagnoses in 2018, compared to 5,000 for lung cancer, the most frequent malignancy.[4] In 25 years, breast cancer has surged 2.5-fold.[4,5] Turkey has around 50 breast cancer instances per 100,000, with 22,500 new cases in 2018.[5] Approximately 23.9% of these cases were attributed to breast cancer, thus establishing it as the most prevalent cancer type among women in Turkey.[5,6] Breast cancer is common among women, but early detection may reduce mortality and improve treatment. Basic early detection and screening tools may diagnose breast cancer promptly, enabling therapy to begin.[7,8,] It is recommended that all women over the age of 20 perform monthly self-examinations, see a doctor once a year, and that women aged 40-69 have a mammogram every two years.[3] In 2020, the IARC recorded 342,000 cervical cancer deaths, the 4th most common disease in women.[2] Screening programmes have lowered cervical cancer rates in wealthier countries, but it remains a big concern in poor countries. Cytological screening tests may treat long-lasting cervical cancer preinvasive lesions. This cervical cancer stage permits screening and early identification. Pre-invasive diagnosis improves survival for more people. Screening programmes dramatically lower cervical cancer incidence and mortality.[10] Turkey screen 30-65-year-old women for cervical cancer every five years using HPV DNA.[3] Internationally and locally, cancer impacts health. Globally, the incidence of cancer may rise by the year 2030.[11] In the field of public health, cancer screening, diagnosis, and prevention are among the most important issues.[12] Research in industrialised countries shows that healthcare professionals' attitudes and orientations strongly impact breast screening programme participation. İn addition, many studies highlight the potential of female physicians to play a significant role in promoting cancer screening.[13]

This study is aimed to evaluate the knowledge and attitudes of female healthcare professionals regarding cancer screening. One of the expected outcomes is an increase in knowledge about screening behaviors for early cancer detection. Furthermore, this study is expected to contribute to preventive behavioral changes by providing healthcare professionals with more effective training and counseling services.

Study questions

What are the scores on the Cancer Screening Attitude Scale–Short Form for female healthcare professionals?

What is the prevalence of breast cancer screening (self-breast exam, clinical exam, ultrasound, and mammography) among female healthcare professionals?

Do the attitudes of female healthcare professionals towards cancer screening, their breast cancer screening behaviors, and their willingness to undergo Pap smear/HPV DNA testing differ according to sociodemographic and health-related characteristics?

Does a family history of cancer affect the attitudes and screening behaviors of female healthcare professionals?.

Methods

Study design, population, and sample selection

This descriptive cross-sectional study was conducted among female healthcare professionals employed in public hospitals in Southeast Anatolia, Turkey. The target group included 1,149 female health workers, whereas the study sample consisted of 316 women chosen via convenience sampling. The sample size was based on health perception research[14]. The necessary sample size (n=288) was determined using G*Power 3.1.9.4, predicated on 80% power, a 0.05 Type I error rate, and an impact size of 0.64 obtained from prior research on health

perception and cancer screening attitudes. All information were omitted from the analytic phase of the trial, which concluded with 316 participants.

Dependent variables

Health perceptions of female health workers' attitudes towards cancer screening.

Independent variables

Descriptive characteristics of female health workers.

Data collection instruments

This study was collected data from participants using two instruments: the Introductory Information Form and the Attitude Towards Cancer Screenings Scale Short Form.

Descriptive information form

The researchers created this ten item form to collect information about the participants' demographics (age, marital status, education level, number of children, occupation), as well as their personal and family medical history of cancer, as well as their current cancer screening status.

Attitude scale for cancer screening-short form (ASCSS-F)

The original measuring instrument, valid and reliable in Turkey by Yıldırım Öztürk et al. (2020)[15], measures attitudes towards cancer screening with 24 items. Recognising the necessity for a shorter form, the researchers made it a 15-item short form. 15 elements comprise the five-point Likert scale. 15 entries range from 5 to 1, meaning '5: I entirely agree, 1: I vehemently disagree'. Negative items 17, 18, 19, 20, 21, 22, 23, and 24 are reverse coded in scale scoring. Scale scores range from 15 to 75. Participants with scores near 15 have a negative attitude towards cancer screening, whereas those near 75 have a favourable attitude. In a validity and reliability research in our nation, the scale's cronbach alpha coefficient was 0.95[15]. The scale's Cronbach's alpha was 0.87 in this investigation.

Data collection

The research data were collected with an e-survey between 18 January 2025 and 25 May 2025. Participants were sent a link to the survey. In the first section of the e-survey, the purpose of the research, the voluntary nature of the survey, the confidentiality of personal information, and the option for participants to withdraw at any time were explained. Survey responses were limited to one per person.

Data analysis

The Statistical Package for the Social Sciences (SPSS) was used for descriptive and comparative analyses. Shapiro-Wilk, Kolmogorov-Smirnov, skewness, and kurtosis evaluated normal distribution. When kurtosis and skewness are -1.5 to +1.5, normal distribution is acceptable [16]. Analysing descriptive data with numbers and percentages. One-way ANOVA, t-tests, and tests were used to examine Attitudes Towards Cancer Screenings Scale categorical variables by demographics and health. Category factors under the key dependent variable of cancer screenings and smear and mammography screenings were compared using chi-square test.

Ethical considerations

In advance to the commencement of the study, ethical permission was secured from the Batman University Research and Publication Ethics Committee (decision date and number: January 1, 2025-39) and Batman Provincial Health Directorate approved the study before it began. Informed permission was acquired from the female health professionals who took part in the research. This research followed Helsinki Declaration principles**.**

Results

This study was conducted with 316 female participants. The most common age group was 30-40 years, with 57.3%, followed by 41-50 years with 26.3%, and then 50 years and over with 16.5%.The rates of being married (86.7%), having children, and being a doctor were high (Table 1). The scores of the participants on the 'Attitude Scale towardscancer Screening' were 66.63 ± 8.17 and 7-75.

Table 1: Comparison of attitudes towards cancer screening scale-short form scores according to participants' descriptive characteristics and some health-related characteristics

		n (%)	p
Age	30-40 years	181 (57,3)	**0.386***
	41-50 years	83 (26,3)	
	Over 50 years	52 (16,5)	
Marital Status	Married	274 (86,7)	**0.036*****
	Single	42 (13,3)	
Having Children	Yes	265 (83,9)	**0.021****
	No	51 (16,1)	
Occupation	Doctor	132 (41,8)	**0.284***
	Nurse	114 (36,1)	
	Other health worker	70 (22,2)	
	Total	316	
Diagnosed with Cancer	Yes	305 (96,5)	**0.071*****
	No	11 (3,5)	
Family History of Cancer	No	190 (60,1)	**0.162***
	1st degree close	55 (15,2)	
	2nd degree close	71 (24,2)	
	Total	316 (100)	
Attitudes Towards Cancer Screening Scale-Short Form scores	(X ± SD)	**(Min - Max)**	
	66,63±8,17	17-75	

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Table 2: Participants' diagnosis of cancer and family members diagnosed with cancer and which cancer they have

		N (%)
Diagnosed with Cancer	No	305 (96,5)
	Yes	11 (3,5)
	Total	316
***Cancer in the Family: Which cancer diagnosis is there?**	Breast	36 (28,6)
	Lung	30 (23,8)
	Colerectal	16 (12,7)
	Thyroid	7 (5,6)
	Cervix	10 (7,9)
	Others	27 (21,4)
	Total	126
Status of Breast Cancer Screening	Never had it done	74 (23,4)
	Breast self-examination	128 (40,5)
	Breast self-examination + USG	66 (20,9)
	(clinical breast examination)	48 (15,2)
	Mammography	
	Total	316
Status of PAP SMEAR/HPV DNA	Yes	196 (62.0)
	No	120 (38,0)
	Total	316 (100)

Table 3: Comparison of breast cancer screening and Pap smear/HPV DNA according to demographic and health-related characteristics of the participants

		Status of breast cancer screening					**P***	**Status of Pap smear/HPV DNA**			**P***
		Never done	**Breast self-examination**	**Breast self-examination+USG**	**Mammography**	**Total**		**Yes**	**No**	**Total**	
		n (%)	n (%)	n (%)	n (%)	n (%)		n (%)	n (%)		
Age	**30-40 years**	65 (35,9)	93 (51,4)	22 (12,2)	1 (0,6)	181 (100)		85 (47,0)	96 (53,0)	181 (100)	
	41-50 years	9 (10,8)	31 (37,3)	21 (25,3)	22 (26,5)	83 (100)	**<0.001***	62 (51,5)	21 (31,5)	83 (100)	**<0.001***
	Over 50 years	0 (0,0)	4 (7,7)	23 (44,2)	25 (48,1)	52 (100)		49 (94,2)	3 (5,8)	52 (100)	
Marital Status	**Married**	56 (20,4)	114 (41,6)	58 (21,2)	46 (16,8)	274 (100)	**0.007***	186 (67,9)	88 (32,1)	274 (100)	**<0.001***
	Single	18 (42,9)	14 (33,3)	8 (19,0)	2 (4,8)	42 (100)		10 (23,8)	32 (76,2)	42 (100)	
Having Children	**Yes**	53 (20,0)	104 (39,2)	62 (23,4)	46 (17,4)	265 (100)	**<0.001***	186 (70,2)	179 (29,8)	265 (100)	**<0.001***
	No	21 (41,2)	24 (47,1)	4 (7,8)	2 (3,9)	51 (100)		10 (19,6)	41 (80,4)	51 (100)	
Occupation	**Doctor**	47 (35,6)	58 (43,9)	19 (14,4)	8 (6,1)	132 (100)	**<0.001***	83 (62,9)	49 (37,1)	132 (100)	**0.286***
	Nurse	15 (13,2)	44 (38,6)	29 (25,4)	26 (22,8)	114 (100)		75 (65,8)	39 (34,2)	114 (100)	
	Other health worker	12 (17,1)	26 (37,1)	18 (25,7)	14 (20,0)	70 (100)		38 (54,3)	32 (45,7)	70 (100)	
Family History of Cancer	**No**	64 (33,7)	77 (40,5)	24 (12,6)	25 (13,2)	190 (100)	**<0.001***	115 60,5)	75 (39,5)	190 (100)	**0.112***
	1st degree close	7 (12,7)	27 (49,1)	14 (25,5)	7 (12,7)	55 (100)		30 (54,5)	25 (45,5)	55 (100)	
	2nd degree close	3 (4,2)	24 (33,8)	28 (39,4)	16 (22,5)	71 (100)		51 (71,8)	20 (28,2)	71 (100)	

A statistically significant difference was found when the scores of the participants who were married were compared with those who were single (p=0.036). At the same time, a significant difference was found between those who had children and those who did not (p=0.021) (Table 1).It was observed that 11 of the participants had a diagnosis of cancer, 60.1% had no family history of cancer, 17.4% had a diagnosis of cancer in 1st-degree relatives and 22.5% had a diagnosis of cancer in 2nd degree relatives. Breast cancer was the most common cancer in the family, with 28.6%, followed by lung cancer with 23.8% (Table 2). Of the participants, 23.4% did not have screening tests. 40.5% had breast self-examination, 20.9% had clinical breast examinations, and 15.2% had mammography (Table 2).

Pap smear/HPV DNA test was performed on 62.0% of the participants (Table 2). As age increased, participation in cancer screening tests also increased, those who had never had breast cancer screening increased significantly (<0.001). Those who had never had a breast cancer screening were found to be significantly higher among single women (p=0.007). Those who did not have children, physicians and those who did not have cancer in the family had significantly higher rates of not having breast cancer screening (<0.001).

As age decreased, the rate of breast self-examination screening decreased significantly (<0.001). It was significantly higher in nurses and other healthcare workers (<0.001). At the age of 50 years and older, the rate of Breast self-examination+USG was found to be significantly higher (<0.001). The rate of Breast self-examination+USG was found to be significantly higher in married people (p=0.007). Cancer was found to be significantly higher in physicians and second-degree relatives (<0.001). The rate of mammography increased with increasing age, and this difference was statistically significant (<0.001). The proportion of mammography was statistically significantly higher in married women (p=0.007). The rate of mammography in those who had children was statistically significantly higher (<0.001). The rate of mammography in nurses is statistically significantly higher (<0.001). The rate of mammography in 2nd-degree relatives was significantly higher (<0.001) (Table 3). The rate of Pap smear/HPV DNA increased with increasing age, and this difference was found to be statistically significant (<0.001). The rate of having Pap smear/HPV DNA performed was statistically significantly higher in married women (<0.001). The rate of Pap smear/HPV DNA was statistically significantly higher in those who had children (<0.001) (Table 3).

Discussion

This survey was included 316 female health professionals. The findings of this study indicate that female health professionals have a modest degree of knowledge and engagement in cancer screening. These findings are consistent with other studies that have indicated inadequate screening uptake in groups that are comparable.

In the research of women with a family history of cancer, 28.6% had breast cancer and 23.8% had lung cancer. They found that 23.4% of people did not have screening tests, 40.5% self-examined, 20.9% clinically evaluated, 15.2% had mammography, and 84.8% did not.[17,18] According to Dündar et al., 89.4% of rural subjects had no mammography. The rate of not having mammography was lower (87.3%) in a study on parents and nurses, who are expected to have better health behaviours, and higher (58.3%) in another study. [20,21] A similar study conducted with women's health workers in Nigeria found that 55.0% of participants had little knowledge about breast cancer and its risk factors. Mammography was known as a diagnostic tool by 80.7%, while Cancer Screening was known as a screening approach by 45.8%, and the implementation rate was 77.6%.[22] A comparable sample in Turkey found that 31.3% of individuals considered themselves breast cancer risk. Most (98.4%) said breast self-examination was useful for early detection. Breast self-examination was reported by 81.3 percent, although only 27.3 % performed it consistently. Mammography was performed on 10.1% and clinical breast examinations on 24.8%.[23] In a similar study conducted on female healthcare workers in Türkiye, 81.3% of individuals self-examined their breasts and 21.9% did so consistently.[24] A Saudi Arabian poll found 10.3% doctors and 68.2% nurses. 17.4% had high breast cancer risk factor awareness, 36.9% moderate, 9.9% mammography, 30.4% clinical assessment, and 59.2% self-examination.[25] In a

similar survey, 66.1% were nurses, 16% were doctors, and the rest were healthcare professionals. Only 1.3% had extremely excellent breast cancer signs and symptoms knowledge, 21.7% for physicians, 24.6% for nurses, and 26.3% for all participants had intermediate knowledge. Interestingly, 90.6% of participants claimed breast self-examination is effective for early breast cancer detection, while 53.4% indicated it cannot identify abnormalities.[26] Saudi Arabian breast cancer screening obstacles were 85.7% fear of cancer detection, 78.6% breast inspection, 64.3% discomfort, 10.3% lack of process knowledge, and 50% radiation exposure in a meta-analysis.[27] Nurses avoided breast self-examination and mammography most often due to lack of symptoms 50.6%, fear of breast cancer diagnosis 29.1%, and lack of information 20.3%.[28] Breast cancer awareness was greater than that of hospital physicians, nurses, and chemists and primary health care centre staff in one of two trials on a similar group. In the other research, 37.1% had breast cancer myths but enough information. Mammography was done on 59.4% of western Turkish women 40–59. The high number of healthcare professionals under,[40] in this study may explain the low mammography rate. In one of two investigations on a similar population, hospital physicians knew more about breast cancer than primary care nurses, chemists, and others. In the other research, 37.1% had breast cancer myths but enough information.[29,30] This study revealed that the frequency of breast self-examination was more than in certain studies [31,32] but less than in others.[34,35] It is expected that this outcome will occur, given that the sample group includes healthcare personnel. The outcome is unexpected, though, given that healthcare professionals learn about breast cancer the most common female disease in both their basic education and in service trainings. Since the research did not lead to a change in behaviour among healthcare workers, it is imperative that they participate in improved training programs. Pap smear/HPV DNA was discovered in 62.0% of study participants. Akyüz (2006) and Açıkgöz (2010), two more Turkish studies, yielded comparable results.[18,36] This research had a greater Pap smear/HPV DNA screening rate than others.[31] Two separate studies on rural American and Korean American women in the US showed similar results of 25.0% and 26.0%.[37,38] 75.7% of female health professionals recognised HPV causes cervical cancer, but only 35.7% had pap-smear testing. A research found that 28.9% were afraid of the outcomes and 24.4% had no symptoms,[39] The study by Öztürk et al. found that participants scored 66.63±8.17 on the Attitudes Towards Cancer Screenings Scale.[40] Singles scored lower than married individuals, and those with children scored higher than those without. In another study, women's mean score on the Attitudes Towards Cancer Screenings Scale was 65.19 ± 8.45, with higher scores for knowledgeable and engaged participants.[13]

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Limitations and future studies

This research includes female public hospital workers in Southeastern Anatolia, Türkiye. Therefore, only female public health practitioners in this area are affected. The selfreport questionnaire may have skewed (bias) the findings. This study indicates that cancer screening awareness and participation among female health workers vary by age, marital status, parental status, profession, and family history of cancer. Younger, unmarried, and childless women showed lower participation in breast cancer screening, whereas married nurses with children were more likely to undergo mammography. Despite generally positive attitudes toward screening, breast self examination and mammography rates remained insufficient, particularly among female physicians. A key strength of this study is its focus on female health workers as important role models in cancer prevention. The findings emphasize the need for occupation-specific in service training, workplace-based screening programs, and systematic follow-up mechanisms. Integrating targeted strategies for younger health professionals into institutional and national cancer control policies may improve screening uptake and strengthen early detection efforts.

Conclusion

In this study, the screening behaviours of female healthcare workers for breast and cervical cancer were examined. As a result of this study, it was revealed that the breast self-examination, breast self-examination and mammography screening

behaviours of female health care workers were inadequate, except for the pap-smear test. In line with the results of the study, it is recommended to provide effective and continuous in-service trainings to healthcare workers on cancer screening behaviours, to encourage and follow up with the employees to have screening tests, to provide more suitable opportunities for them to have screening tests by making arrangements for working conditions, to provide training on these issues to the society starting from the adolescence period in order to create behavioural change in individuals at an early age, and to conduct qualified studies on the inadequacy of cancer screening behaviours of healthcare workers.

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Conflict of interest

There are no conflicts of interest.

Author's contributions

Ş.A; Concept, design, supervision, data collection, analysis, literature review, writing manuscript, critical review.
G.G; Concept, design, data collection, literature search, analysis, writing manuscript, critical review.

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