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Original Article

Cancer Screening Attitudes of Nurses Working in Surgical and Internal Medicine Clinics: A Cross-Sectional Study*

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ABSTRACT

Objective: This study aimed to evaluate the current attitudes of nurses toward cancer screening.

Methods: This descriptive and cross-sectional study designed study was conducted with nurses working at the surgical and internal medicine clinics of a university hospital in Eastern Thrace of Türkiye and carried out adhering to the STROBE guidelines. The "Attitude Scale for Cancer Screening" and the "Demographic Information Form" were used for data collection.

Results: Nurses have a positive attitude toward cancer screening. Multiple linear regression analysis revealed gender ($\beta = 0.258$, $P = .006$) and clinical experience ($\beta = -0.264$, $P = .005$) as significantly associated with cancer screening attitude. A weak negative correlation was found between the cancer screening attitude score and clinical experience duration ($r = -0.232$, $P = .016$). Being female, having a chronic disease, receiving cancer screening previously, and having limited clinical experience were the factors that positively affect nurses' attitudes toward cancer screening ($P < .05$).

Conclusion: Having a chronic disease, receiving cancer screening previously, and having limited clinical experience improve the attitudes of nurses toward cancer screening. Male and experienced nurses need encouragement to attend cancer screening programs. For future studies, we suggest qualitative studies be conducted to examine the reasons for the negative attitudes and beliefs of nurses about cancer screening deeply.

Keywords: Attitude, cancer screening, nurses

Introduction

Cancer, as defined as uncontrolled cell proliferation, is an important health problem concern for the reason that many people are diagnosed with cancer each year and the morbidity rate is high.[1] Considering current numbers, cancer is the second leading cause of death after cardiovascular diseases with an increasing number of cases in the world and our country.[1,2] According to the World Health Organization (WHO) cancer mortality database, globally, the number of cancer cases is 19.3 million and the number of cancer-related mortality cases is 9.9 million.[1] In the GLOBOCAN database for Türkiye, the estimated number of new cancer cases is 233.834, and the number of deaths is 126.335.[3]

For early detection of cancer cases, it is important to identify the symptoms of cancer early and to receive a cancer screening.[1,4] In the literature, study results show that cancer screening programs play an important role in the early diagnosis of cancers and decreasing mortality and morbidity rates.[5,6] The most common screening programs worldwide are the Human Papilloma Virus (HPV) test for cervical cancer detection, mammography for breast cancer, and colonoscopy for colon cancer.[1,7] In Türkiye, Cancer Early Diagnosis, Screening and Education Centers named KETEM were established in 2008 by the Department of Cancer Control, Ministry of Turkish Health, to reduce deaths due to breast, cervical, and colorectal cancers, to increase awareness of cancers in the society, and to increase the number of the population participating in screening[2] The screening programs, including breast, cervical, and colorectal cancers, are carried out by KETEM at regular intervals according to the recommendations of WHO.[1,2]

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Although cancer screening is important in the early detection of cancer, coronavirus disease 2019 (COVID-19) pandemic significantly disrupted attending to cancer screening program due to reasons such as hospitals being crowded with cases, limitted staffing, and restrictions on going out of home.[8] According to the ratings from national survey studies, the preventive cancer screening prevalence declined between 6% and 89.2% in 2020 compared with results before the pandemic.[9,10] According to the ratings, the pandemic also disrupted attending to cancer screening programs and many people delayed their further screening appointments during the lockdown period.[11,12] Actually, nurses have the power to significantly alter peoples' attitudes and ideas about cancer screening procedures as well as their knowledge on the subject. Regardless of their area of expertise, they are also people's initial point of contact for advice on cancer screening from friends and family members as well as other individuals. In addition, they are the initial point of contact for advice on cancer screening from patients and other individuals.[13] As nurses' role is pivotal in affecting community participation in these programs, it is essential to know their attitude toward cancer screening. However, their cancer screening attitudes following the pandemic process are unknown. This study aimed to evaluate the current attitudes of nurses toward cancer screening following the COVID-19 pandemic to draw attention to this issue and to raise awareness.

Methods

Study Design and Sample

This descriptive and cross-sectional study was carried out adhering to the STROBE guidelines and cross-sectional study reporting checklist.[14] The study was conducted with nurses working at a university hospital in Eastern Thrace of Türkiye, between November 01, 2021, and January 28, 2022, after completing the ethical and institutional permissions. The university hospital is defined as the biggest reference hospital in the whole city and the Thrace Region and specializes in teaching and scientific research tasks in medicine and health. In this study, the convenience sampling method was used and it was aimed to reach all the nurses working at the surgical and internal medicine clinics of the hospital. A total of 360 nurses (195 from surgical clinics, and 165 from internal medicine clinics) were actively working at the university hospital. During the data collection period, 281 of them were reached and accepted to participate in this research. From this total, 173 (48.0%) who were aged under 30 were excluded from the initial data owing to the age restriction of the scale used in this study. Eventually, 108 nurses from 16 surgical and 13 internal medicine clinics were included.

The inclusion criteria for this study were (1) being actively working at surgical and internal medicine clinics, (2) being 30-70 years old, and (3) being voluntary to participate in this study.

Data Collection

For data collection, the "Demographic Information Form" and the "Attitude Scale for Cancer Screening" were used. Nurses were informed about the purpose of the study before data collection and were asked to complete the forms individually. Data collection was completed approximately in 20-25 minutes for each individual and the forms were checked to ensure that any information was not missed or any items were not filled on the scale.

Verbal informed consent was gained from the nurses before the data collection forms were applied. To perform the trustworthiness and reliability of the study, it was explained that the data was going to be used only for scientific aims. The participants were informed not to write their names on the data collection forms, to read the forms carefully, to fill in all the information and items individually, and not to leave any empty answers. They were explained that they were free to ask any questions and leave the study whenever they want. All study procedures were carried out following the Helsinki Declaration.

Data Collection Forms

Demographic Information Form

This form was designed by the researchers according to the scientific research in the literature.[13,15] In this form, 9 items were included regarding the age of the nurses, gender, marital status, education level, the working unit, clinical experience duration (duration of working as a nurse), status of smoking cigarettes, having any chronic disease including cancer, presence of cancer among relatives, and status of cancer screening.

Attitude Scale for Cancer Screening

This scale was developed by Öztürk et al to determine the attitudes of individuals aged between 30 and 70 years toward cancer screening, and the Cronbach's alpha coefficient was found to be 0.95.[16] The 5-point Likert-type scale consists of 24 items and 1 dimension. The scoring of the items was rated as follows: 1: completely disagree, 2: partially disagree, 3: neither agree nor disagree, 4: partially agree, and 5: strongly agree. The minimum score of this scale is 24 and the maximum score is 120, and no specific cutoff point was defined. The scores near 24 showed a negative and the scores near 120 showed a positive attitude toward cancer screening.[16] Items 9, 12, and 14-24 were inversely coded before analyses and then calculated in the scoring. In this study, Cronbach's alpha value of the total scale was found as 0.80.

Data Analysis

The Kolmogorov–Smirnov and Shapiro–Wilk tests were used to test the normal distribution of the data, and parametric tests were used for the normally distributed total scale score. Descriptive statistics including frequency, numbers with percentages, and mean with SDs were used to describe sample demographic characteristics and the average score for the scale. To evaluate the difference between the demographic variables and the total scale scores, the independent sample *t*-test and 1-way ANOVA-*F* test were used. Pearson's correlation test was used to test the correlation between total scale score, age, and clinical experience duration. Multiple linear regression analysis was performed to test the influencing factors of the nurses' cancer screening attitudes among gender, having a chronic disease, cancer screening status, and clinical experience. There was no missing and/or no answered data. The IBM Statistical Package for the Social Sciences (SPSS) Statistics software package (ver. 21.0, IBM, Armonk, NY, USA) was used for coding and analyzing the data, and the $P < .05$ was considered significant.

The G-Power Program (G Power 3.1 9.2, Kiel, Germany) was used for assessing the sample size sufficiency and a post hoc power analysis was conducted. With the effect size of 9.57, the alpha level $P < .05$, and the sample size of 360, the statistical power was calculated as 1.

Ethical Statement

The submitted manuscript involved human research and the ethical approval was gained from the Scientific Researches Ethics Committee of the Trakya University Medical Faculty (number 2021/353). The institutional approval was gained from the directory of the university hospital (number 139090), and the approval to use the scale was obtained from the scale owners via mail.

Results

Demographic Characteristics

The majority of the nurses in this study were female (n = 85, 78.7%), married (n = 78, 72.2%), and had bachelor's degrees (n = 96, 88.8%). Among the nurses, 51.9% (n = 56) of them were working in surgical

Table 1. Comparison of the Demographic Characteristics and Mean Cancer Screening Attitude Scale Scores

Demographics	n (%)	Scale Score Mean (SD)	*P*
Gender			***P* = .034***
Female	85 (78.7)	101.6 (10.4)	*t* = −2.143
Male	23 (21.3)	96.4 (9.7)	*df* = 106
Marital status			*P* = .666
Married	78 (72.2)	100.8 (10.1)	*t* = 0.432
Single	30 (27.8)	99.8 (11.6)	*df* = 106
Education level			
High school	6 (5.6)	98.8 (9.7)	*P* = .558
Bachelor	96 (88.8)	100.9 (10.3)	*F* = 0.587
Postgraduate	6 (5.6)	96.5 (13.7)	*df* = 2
Nursing unit			*P* = .815
Surgical clinics	56 (51.9)	100.8 (10.3)	*t* = 0.235
Internal medicine clinics	52 (48.1)	100.3 (10.7)	*df* = 106
Smoking cigarette			*P* = .072
Yes	54 (50)	98.7 (10.0)	*t* = −1.815
No	54 (50)	102.3 (10.7)	*df* = 106
Having chronic disease			
Yes	*df* = 27.74515 (13.9)	105.6 (6.6)	***P* = .008***
No	93 (86.1)	99.7 (10.8)	*t* = 2.849
Status of cancer screening			***P* = .035***
Yes	5** (4.6)	110.2 (7.7)	*t* = 2.133
No	103 (95.4)	100.1 (10.4)	*df* = 106
Relative diagnosed with cancer			*P* = .428
Yes	33 (30.6)	101.7 (9.0)	*t* = 0.795
No	75 (69.4)	100.0 (11.0)	*df* = 106

F, 1-way ANOVA-*F* test; *t*, independent samples *t*-test.
**P* < .05.
***All were women.

clinics, half of them (n = 54) were smoking cigarettes, and the majority of them had no chronic disease (n = 93, 86.1%), had not received any cancer screening previously (n = 103, 95.4%), and had no relative diagnosed with cancer (n = 75, 69.4%) (Table 1).

Comparison of the Total Scale Scores Among the Variables

According to the total scale scores, the female nurses had significantly higher cancer screening attitude scores than male nurses (*t* = −2.143, *P* = .034). The nurses who had at least 1 chronic disease (i.e., diabetes mellitus, multiple sclerosis, thyroid cancer) had significantly higher attitude scores than those who had not (*t* = 2.849, *P* = .008). The mean attitude score of the nurses who received a cancer screening previously was 110.2 with an SD of 7.7, and it was statistically significantly higher than the score of nurses who not received (mean = 100.1, SD = 10.4) (*t* = 2.133, *P* = .035) (Table 1).

Table 2. Correlation of Total Cancer Screening Attitude Scale Score Between Nurses' Age and Professional Experience Duration

Variables	Mean (SD) (Minimum–Maximum)	Test	*P*
Total scale score	100.5 (10.5) (70–119)		
Age	36.0 (5.6) years (30–57)	*r* = −0.053	*P* = .583
Clinical experience	87.6 (70.3) months (3–321)	*r* = −0.232	***P* = .016***

r, Pearson correlation.
**P* < .05.

Correlation Between Total Scale Score, Age, and Clinical Experience Duration

The mean of the total cancer screening attitude score was 100.5 (SD = 10.5), the average age of the nurses was 36.0 (SD = 5.6) years, and the average duration of clinical experience was 87.6 (SD = 70.3) months. The results revealed that there was a significant weak negative correlation between the cancer screening attitude score and clinical experience duration (*r* = −0.232, *P* = .016) (Table 2).

Multiple Linear Regression Analysis of Factors Influencing Nurses' Cancer Screening Attitude

In the regression equation, cancer screening attitude was considered the dependent variable, and the other variables were considered the independent variables. The variable gender was included in the regression equation, potentially explaining 4.2% of the variance, thereby, having a chronic disease was included in the regression equation, potentially explaining 8.9% of the variance. Thereafter, the status of cancer screening and clinical experience were also included in the regression equation, potentially improving the variation rate of cancer screening attitude by 11% and explaining the 17.7% total variation rate. The results revealed that gender, having a chronic disease, receiving cancer screening previously, and having less clinical experience were the factors affecting nurses' cancer screening attitudes (Table 3).

Discussion

This study determined that nurses had a positive attitude toward cancer screening following the COVID-19 pandemic process. Parallel to this finding, in another study from Türkiye, it was reported that health-care

Table 3. Multiple Linear Regression Analysis of Factors Affecting Nurses' Cancer Screening Attitudes

	Variable	*B*	*ß*	*t*	*P*	R^2	*F*
Level 1	(Constant)	91.274	–	20.501	.000	0.042	4.592
	Gender	5.204	0.204	2.143	.034		
Level 2	(Constant)	102.477	–	15.854	.000	0.089	5.150
	Gender	5.868	0.230	2.450	.016		
	Having chronic disease	−6.657	−0.220	−2.348	.021		
Level 3	(Constant)	116.136	–	10.642	.000	0.110	4.278
	Gender	5.358	0.210	2.231	.028		
	Having chronic disease status of cancer screening	−5.848	−0.193	−2.041	.044		
		−7.296	−0.147	−1.548	.125		
Level 4	(Constant)	115.745	–	10.973	.000	0.177	5.523
	Gender	6.599	0.258	2.795	.006		
	Having chronic disease status of cancer screening	−5.474	−0.181	−1.975	.051		
	Clinical experience	−6.823	−0.137	−1.497	.137		
		−0.039	−0.264	−2.890	.005		

B, unstandardized coefficients; *ß*, standardized coefficients; *P* < .05; R^2, adjusted R-squared.

workers including nurses and midwives in a university hospital had a positive attitude toward cancer screening.[15] Studies from other developing countries also revealed that nurses had favorable attitudes toward cancer screening.[17,18] In a descriptive and cross-sectional study conducted with female nurses working in public health institutions in Northern Ethiopia, it was reported that 63.1% of the nurses had positive attitudes toward cervical cancer screening.[17] Similarly, in their cross-sectional, questionnaire-based study from India, Pegu et al[18] reported that 89% of hospital nurses working in tertiary care had a good attitude toward cervical cancer screening. A quasi-experimental study from Ibadan, southwest Nigeria, conducted with nurses working in health-care centers had a good level of attitude toward cervical cancer screening.[19] All these results may indicate that nurses have a positive attitude toward cancer screening.

In the present study, gender was found to be one of the factors that positively influenced nurses' attitudes about cancer screening, and female nurses had a more positive attitude toward cancer screening than male nurses. Other studies conducted in Türkiye to determine patients' approaches to cancer screening showed that women attend screening programs for cancer at a higher rate than men and males had higher perceptions of disability in screening tests.[20,21] Eze et al[22] from Nigeria aimed to determine the knowledge, attitude, and practice of hospital staff working in a state university teaching hospital on cervical cancer and found that the attitude level of females toward cervical cancer screening was significantly higher than males. A descriptive study from Kenya that searches the health behavior of nurses working in public hospitals reported that there was a need to encourage male nurses to use screening services more frequently.[23] In the literature, studies that determine the status of health-care professionals of both gender attending all cancer screening programs are restricted, and they mostly focus on female nurses in searching their attendance to the breast and cervical cancer training programs.[13,17,19,24] In consequence, little is known about cancer screening of male nurses. Related to obtained results, it can be said that the cancer screening attitude and behaviors of female health-care professionals are higher than males.

The results of the present study showed that having at least 1 chronic disease was an important influencing factor for nurses' cancer screening attitudes. Similarly, in a descriptive study conducted with nurses working in public hospitals in Kakamega county of Kenya, the low level of cancer screening tests was found to be related to not having any wrong with themselves and not having any chronic disease.[23] An exploratory descriptive study from Taiwan that assessed nurses' breast cancer screening practice reported that over 50% of them (52.7%) believed that they were eating healthy and exercising regularly so there was no need for regular breast cancer screening.[24] In a descriptive and cross-sectional study from Türkiye, it was determined that having problems related to prostate disease was an influencing factor in prostate cancer screening among male adults.[25] According to the findings of a study by İkişık and Sakarya[20] on academicians' (working in health sciences, pharmacy, and medical faculties) compliance with cancer screening programs, those with chronic conditions had a higher incidence of regular mammography and stool occult blood test. Based on these results, it is thought that the cancer screening attitude level of nurses with chronic diseases is higher because individuals with chronic diseases attach more importance to their health status and are more sensitive about their health behaviors.

Cancer screening previously was found to have a positive effect on attitudes toward cancer screening among nurses in the present study. Similarly, in their cross-sectional and descriptive study, Gebreegziahber et al[17] reported that attitude was a significant factor in cervical cancer screening practice and female nurses who had a positive attitude were getting screened for cervical cancer 3.4 times as compared to nurses who had a negative attitude. In another study to assess the breast cancer attitude and practice among female nurses working in hospital wards in Asmara, Eritrea, practice in breast cancer screening (such as clinical breast examination and mammography) was found to be inadequate and it was stated that it is essential to integrate attitude with practice.[26] Ndikom et al[19] from Nigeria conducted a study with nurses working in health-care centers and found that training manual cervical cancer control education was effective in improving attitudes toward providing cervical cancer screening. Another study that was conducted to determine women's attitudes toward early detection of cervical cancer reported that inactivity in health-related behaviors (such as not having an early detection test) was found to be higher in women who had never had a Pap smear test compared to women who had a previous Pap smear experience.[27] In a study conducted by Kızılırmak and Kocaöz[28] to determine the factors affecting the health beliefs of women in a university about cervical cancer and Pap smear test, it was reported that women who had Pap smear test previously had a higher sense of Pap smear benefit and motivation than women who did not. In connection with these findings, as reported previously, personal fears such as fear of the unknown, and fear of having any pain during the cancer examination are possible barriers to not attending cancer screening.[13] It is possible to state that people who have experienced cancer screening may overcome their fear and this may influence their attitude positively. Based on these results, having an experience with cancer screening previously or attending routine cancer screening programs improves the cancer screening attitude and is important in the early detection of cancers.

In the present study, the year of clinical experience was found to be negatively correlated with the cancer screening attitude level. Similar to this finding, in a study conducted by Pursamimi et al[29] on health-care professionals working in mammography departments, it was determined that radiation protection was performed at a higher rate by the personnel who have 15 and lower years of practice. On the contrary, Soylar et al[15] reported that the experience level of health-care professionals at a university hospital in Türkiye was correlated to undergoing all screening tests including a colonoscopy, mammography, fecal occult blood test, and Pap smear test. Also, a cross-sectional and descriptive study among nurses working at Taiwan Public Health Center showed that the oral cancer knowledge of nurses increased as their seniority year increased.[30] Within these results, it can be said that the adequacy of education and the higher awareness of the newly graduated nurses with less clinical experience may cause their attitudes toward cancer screening to be higher. Therefore, continuing education and in-service education for health-care professionals may be beneficial to improve their attitude toward cancer screening.

Strengths and Limitations

One of the strengths of the present study was that the cancer screening attitude of health-care professionals from surgical and internal medicine clinics including each gender was evaluated considering the effecting factors. In the literature, studies were mostly focused on assessing the knowledge, attitude, and practices of health-care professionals, and individuals from communities; moreover, studies were mostly conducted with the female gender for cervical and breast cancer and the male gender for prostate cancer. Second, a post hoc power analysis was conducted following the study, and strong findings were revealed, indicating that the data have high power. Third, in the previous studies, the attitude levels of the participants were mostly evaluated with different questionnaire forms created by the researchers. In this study, a scale with proven validity and reliability in the society of the present study was employed. In this respect, the findings obtained from

the study present reliable findings regarding the attitudes of nurses toward cancer screening. Additionally, the findings of the study also contribute to the literature to draw attention to this issue and to raise awareness of cancer screening during the ongoing pandemic process.

The current study has some limitations to be considered. First, the data set of this study is limited to the surgical and internal medicine clinics of 1 university hospital in Türkiye and is limited to individuals aged between 30 and 70 years owing to the age restriction of the scale, thereby reducing the generalization of the results for all nurses. Second, the cancer screening scale is newly developed and used in scientific studies. We recommend using this scale for future studies examining the cancer screening influencing factors using larger sample sizes. Finally, as we used a self-administered scale linked to their self-health behavior, the results may be affected by their psychological and occupational desirability bias.

Conclusion

In conclusion, nurses working in surgical and internal medicine clinics showed a positive attitude toward cancer screening; however, the attitude level of male nurses was lower than that of female nurses. Additionally, the findings of the study highlight the impact of gender (being female), having a chronic disease, receiving cancer screening previously, and having limited clinical experience in improving the attitudes of the nurses toward cancer screening. As attending the cancer screening programs gives individuals the chance of detecting symptoms earlier and chances of successful treatment, male and experienced nurses must be retrained to develop acceptable attitudes toward attending the cancer screening programs. Furthermore, continuing education and in-service education for health-care professionals may be beneficial to improve their attitude toward cancer screening. For future studies, we suggest qualitative studies be conducted to examine the reasons for the negative attitudes and beliefs of nurses about cancer screening deeply.

Ethics Committee Approval: Ethical committee approval was received from the Ethics Committee of Trakya University (Approval no: 2021/353, Date: 06.09.2021).

Informed Consent: Verbal informed consent was obtained from the participants who agreed to take part in the study.

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