Journal of Holistic Nursing and Midwifery

Original Paper

The Status of Screening Tests for Women's Common Cancers in the Personnel of the Educational-Medical and Health Centers

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Citation Amani M, Mirhaghjou SN, Niknami M, Kazemnezhad Leyli E. The Status of Screening Tests for Women's Common Cancers in the Personnel of the Educational-Health and Medical Centers. J Holist Nurs Midwifery. 2018; 28(4):246-251. https://doi.org/10.29252/HNMJ.28.4.246

Running Title Screening Tests for Women's Common Cancers. J Holist Nurs Midwifery.

doi: https://doi.org/10.29252/HNMJ.28.4.246

Article info:
Received: 08/27/2017
Accepted: 04/11/2018
Available Online: 09/01/2018

Keywords:
Cancer, Screening, Women

ABSTRACT

Introduction: Among women's cancers, breast and cervical cancers are most common with high mortality rate, but they can be rectified in the initial stages with cost-effective, easy and readily available screening programs. The task of informing the community and directing them towards the screening programs is one of the major responsibilities of the health team.

Objective: Determining the screening test status for common female cancers and their associated factors among the personnel working in the health and educational centers.

Materials and Methods: In this cross-sectional and analytical study, 212 employees (physicians, gynecologists, nurses, midwives and family health unit personnel) from Al-Zahra Medical Center and the health centers of Rasht City (15 centers) were studied. A 4-part questionnaire was prepared and completed by the selected employees. For statistical analysis, descriptive characteristics and Independent t test were used. To determine the predictor-related factors for conducting Pap Smear test, mammography and breast self-examination, multiple analysis and logistic regression model were used.

Results: The results showed that 76.80% of the subjects with regard to Pap Smear test, 50% with regard to mammography and 86.60% with regard to breast self-examination had a good performance. Age (B=-0.12, P=0.007), age of the first pregnancy (B=0.14, P=0.05) and early diagnosis of cancer by screening (B=1.21, P=0.04) were predictive factors for performing Pap Smear. Duration of the current contraceptive method (P=0.05, B=-0.07), presence of suspicious mass in the breast (B=2.095, P=0.004) and fear of cancer (B=-0.85, P=0.07) were predictive factors for performing mammography. While, fear of cancer (P=0.02, B=6.31) was the only predictor of breast self-examination.

Conclusion: Considering that working personnel in health-care centers are models for the general public, promoting their health behaviors such as performing timely tests can be an effective approach to promote better health in the community.

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Introduction

World statistics indicate an increase in the incidence of breast cancer and its faster growth in the developing countries [1]. Breast cancer with a prevalence of 21.40% was the most common cancer in the Iranian women [2]. The most prevalent affected age group in Iran is 45-54 years. Its mortality is 1200 deaths per year in Iran, and now about 40,000 females live with this disease [1, 3, 4].

According to the World Health Organization, 25% of female deaths are due to the malignant tumors, of which 18% are due to cervical cancer [4]. Cervical cancer is the fourth most common cancer among the Iranian women. The incidence of this cancer is 4.5 cases per 100000 females in a year, prevalence is 6.64%, and the mean age of the cancer is 52.20 years [4-6]. 90% women had five-year survival rate when early stage diagnosis of breast cancer while only 60% cases had the same survival rate when the disease progressed [4, 7]. Furthermore, five-year survival for a patient with cervical cancer is 70% and 10%-15% after metastasis [4].

Early stage diagnosis and timely treatment of cancer or pre-cancerous conditions are the best possible protection. Screening for cancer is the primary tool for its early detection [8]. Self-examination (monthly breast examination by the person after 20 years of age), clinical examination of the breast by the experts (between the age of 20 to 40 every three years, and then annually after the age of 40), sonography of the breast tissue (in women under 40) and mammography (in women over 40 years of age once in 2-3 years), are the most effective methods for early diagnosis of breast cancer [7]. Screening test for early detection of cervical cancer in women is Pap Smear test (seemingly healthy), which is considered as a primary health-promoting behavior [9]. Results obtained from some studies, on screening for the breast and cervix cancers, on the medical team group have been very weak. This plays an important role in informing the society [10, 11].

According to a study conducted on the obstetrics and gynecology specialty assistants, from different medical schools in Iran, 95.20% of the subjects never used the cervix and breast screening methods for themselves [10]. The results of the study on nurses and midwives in Jordan also showed that only 19.4% of the subjects regularly performed self-examination of the breast [11]. In accordance with the policies of the Ministry of Health, screening tests should be conducted in the health care centers for women aged 20-65 years, but despite the availability of the screening programs and effectiveness of the tests, the number of referrals for the testing is not favorable.

Studies conducted in Iran and other countries suggest that numerous cultural, emotional and practical factors and their repetition at standard time intervals have rendered the screening tests ineffective [4]. Since health care centers have an important place in the education and the health teams influentially motivate and encourage the screening for common cancers in women, the current study has been designed with the aim of "determining the status of screening tests for women's common cancers and related factors in personnel employed in educational and health care centers in the Rasht City". It is expected that the obtained results have an effective role in spreading awareness about the screening of breast and cervical cancers and promoting the health of women in our society.

Materials and Methods

In this study, 212 females employed in the specialized hospitals and health care centers in Rasht (107 midwives, 45 nurses, 18 general practitioners, 7 obstetrician and gynecologists, 9 residents and 26 family experts) were investigated by the census method in 2014-2015. Data collection instrument was a researcher-made questionnaire having 4 sections. The first section constituted of 20 questions about individual and social factors related to the screening tests. The second part included 8 questions about the risk factors associated with performing the screening tests for breast cancer and 14 questions related to the risk factors for cervical cancer. The third part included 9 questions on the status of screening tests (Pap Smear) for cervical cancer, 3 questions related to the conditions for performed mammography and 3 questions related to the status of performed breast self-examination. The last part had 14 questions concerning the motivational factors associated with performing the screening tests for the common cancers in women.

To determine the validity of this questionnaire, content validity method was used, and the questionnaire was provided to 10 members of the Faculty of Nursing and Midwifery for their feedback. Due to the nature of the instrument, determination of reliability was not necessary. After obtaining the code, the researcher questionnaire was distributed after providing the necessary information to the subjects, and informed consent was obtained.

Statistical analysis was performed using SPSS (V. 18). To compare the individual and social variables, associated risk factors and motivational factors related to the screening tests for common female cancers, Independent t test, Chi-square and Fisher's exact test were used. To determine the status of screening tests for cancers, descriptive statistics methods (frequency and percentage) were used. To determine the predictive factors for performing a Pap Smear test, mammography and breast self-examination in multiple analysis, the logistic regression model was used. This model was conducted with backward LR method.

Results

In this study, 212 female employees of the hospital and health care centers in Rasht participated, of which 18 were general practitioners, 9(12.70%) were residents, 7(3.30%) were gynecologists, 45(21.20%) were nurses, 107(50.50%)were midwives and 26(12.30%) were family health experts. Investigation of the demographic and social profiles of the subjects showed that majority of the subjects were married (77.80%) had a bachelor's degree (57.50%) with a monthly income of $170 to $340 and spouse with university education(92.60%). Most of them (93.80%) did not undergo tubectomy procedure and used the natural method to prevent pregnancy (37.30%). Their mean age was 37.79±8.79 years, the average working experience was 13.08±8.72 years, the mean age for the first menstruation was 13.1±1.50 years, the mean age for the marriage was 25.40±4.19 years, the mean of marriage times was 1.0±0.0, the mean age of the first gestation was 13.1±1.50 years, the mean number of pregnancies was 1.9±0.90, the mean number of abortions was 0.3±0.60, the mean number of live children was 1.50±0.50, the mean age of the last delivery was at 30.88±4.54 years, and the mean duration of using prevention methods was 8.52±6.13 years. The mean weight of the studied subjects was 65.06±10.72 kg, the average height was 161.22±6.00 cm and the mean BMI was 25.29±4.28 kg/m^2.

Regarding the performance of the screening tests for common female cancers, the results showed that majority of the married subjects performed Pap Smear test (87.60%). They were referred for a checkup for no particular reason and in 90.90% of cases; the result of the Pap Smear test was normal. Out of the 9.10% of the abnormal cases, 90% were the cases of infection and inflammation. Causes for the non-performing Pap Smears of the research subjects were either forgetfulness or negligence (38.50%) and not having enough time (23.10%).

About 42.20% of the studied subjects were referred irregularly, and 30.5% were referred regularly to perform the Pap Smear test. The mean visit time after the intercourse was 4.07±4.05 years, and the mean age of the first Pap Smear test was 30.02±5.16 years. Most of the subjects (57.30%) were referred for the examina-

Table 1. Comparison of the distribution of performing Pap Smear based on the individual and social factors

Factors		Mean±SD		Sig.*
		Yes	No	
Factors associated with Pap Smear	Age (y)	41.43±7.28	34.62±7.62	0.0001
	Work experience (y)	16.27±7.75	9.55±7.91	0.0001
	Pregnancy number	1.90±0.90	1.50±0.70	0.037
	Number of live children	1.60±0.70	1.20±0.70	0.018
	Duration of the current contraceptive method (y)	9.56±6.02	4.79±5.05	0.0001
Factors related to Mammography	Weight (kg)	67.00±11.55	64.03±7.41	0.060
	Height (cm)	159.99±5.10	163.05±6.70	0.011
	BMI score	26.20±4.45	24.13±2.92	0.001
	Work experience (y)	18.88±6.77	15.84±7.02	0.012
	Age (y)	43.82±5.07	40.99±7.39	0.011

* The independent t test

Table 2. Estimation of regression coefficients and the relative odds of predictive factors for performing the Pap Smear test

Predicting Factors	Regression Coefficient	Sig.	Standard Error	CI 95%		Odds Ratio
				Upper	Lower	
Age	-0.12	0.007	0.88	0.80	0.96	0.880
Age of first pregnancy	0.14	0.05	1.16	0.99	1.35	1.161
Timely diagnosis of cancer through screening test	1.21	0.04	3.38	1.02	11.15	3.382

Table 3. Estimation of regression coefficients and the relative chances of predicting factors of performing mammography

Predicting Factors	Regression Coefficient	Sig.	Standard Error	CI 95%		Odds Ratio
				Upper	Lower	
Duration of the current contraceptive method	-0.077	0.053	0.926	0.854	1.004	0.926
Doubt to the presence of mass in the breast	2.095	0.004	8.125	1.922	34.343	8.125
Fear of cancer	-0.851	0.078	0.427	0.166	1.101	0.427

tion at the interval of 10-18 days of the menstrual cycle, and 98.30% did not perform the Pap Smear test during pregnancy. Only 6.8% of subjects were referred for the examination 8 weeks after the delivery.

About 50% of the subjects performed mammography. The leading cause for the failure to perform mammography was forgetfulness and negligence (43.30%). The mean age of the subjects under study at the time of the first mammography was 37.30(5.59) years, and the majority (41.30%) of those who performed the mammography were referred regularly; moreover, the majority of studied subjects (86.6%) performed the breast self-examination.

The highest percentage of causes for the non-performing breast self-examination (37.90%) was related to the forgetfulness and negligence. The mean age of the subjects at the time of their first self-examination of the breast was 26.17±6.65 years, and the majority of them performed the breast self-examination irregularly (68.60%). Individual and social factors associated with performing the mammography and the Pap Smear test are given in Table 1.

Regression model showed that the variable for the duration of the current method of contraception usage (P=0.05), having suspicious mass in the breast (P=0.004) were the predictors of mammography in such a way that, longer the use of the current contraceptive method, lower are the relative chances of performing mammography. And those subjects who were suspicious of the mass in their breast had 2.09 times chance of performing mammography, as compared to those who did not suspect the presence of mass in the breast (Table 2). Predictive factors for performing the Pap Smear test and the breast self-examination are listed in Tables 3 and 4.

Discussion

Considering the culture and traditions of the studied community, single females could not perform Pap Smear. So the researcher investigated this procedure in married women, and the results showed that the number of women who had Pap Smear was much higher as compared to the previous studies conducted on the members of the health care team in Rasht City [12] and the country of Sri Lanka [13]. In this study, half of the subjects performed the mammography test, which was higher than those reported in Nilaweera study [13]. Results of breast self-examination were higher than other studies [10, 12, 13]. It seems that different

Table 4. Estimation of regression coefficients and relative odds of predictive factors for breast self-examination

Predicting Factors	Regression Coefficient	Sig.	Standard Error	CI 95%		Odds Ratio
				Upper	Lower	
Fear of developing cancer	6.31	0.02	1.84	1.34	29.75	1.843

culture and context of conducting research might be the reasons for this disparity.

According to the responses by our subjects, out of the individual and social factors, there was a significant statistical relationship between performing the Pap Smear test and variables of age, work history, number of pregnancies, the number of live children, the duration of the current contraceptive method, height and body mass index. Based on the Sabery study results, there was a significant relationship between the Pap Smear test and the type of contraceptive method [14]. The relationship between the age and Pap Smear test has been approved in many studies [15-17]. Similar to our results, younger women perform more Pap Smear test than the older women. To the researcher's opinion, the higher rate of performing the test in younger women is perhaps due to the fact that they refer more to health care centers to use maternal and child health care services or the fact that younger age group pay attention to their health status.

There was also a significant statistical relationship between age, work experience, duration of using the current contraceptive method and performing mammography. The study results by Shiryazdi indicate a statistically significant relationship between age, work experience and performing mammography [18]. In a study conducted by Ahmadian in Tehran, there was a significant relationship between the age and mammography [19]. According to the results, the mean age of females who did mammography was more than those who did not. The reason may be that with getting older, women find themselves at risk of developing serious illnesses and they have more frequency to do screening tests.

Predicting factors to perform Pap Smear test are the early diagnosis of cancer, age and age of the first pregnancy. Results of the Karimi study showed that early diagnosis of cancer is one of the predictive factors for performing the Pap Smear test [20]. It seems that the fear of cancer and awareness of the effectiveness of screening tests as an early detection of cancer can be the reasons for these findings in the medical and health care staff. Based on the results of this study, the fear of having a mass in the breast and/or getting cancer has been the instigating factor for performing the mammography.

Besides, based on the results of this study, fear of cancer was the only predictor for performing the breast self-examination. These findings are similar to those in the other studies, which confirmed that the fear of cancer has been the most important factor affecting the cancer screening [21, 22]. To explain this fear, we can say that most of the members of the health team are in contact with patients with a variety of cancers, including breast cancer or observing the disease in their family or friends, which attracted them to undergo the screening tests. Psychological state of the subjects is effective in completing the questionnaire, and this condition could not be controlled by the researcher. The time elapsed is an effective method for reminding the exact timing of screening tests for the breast and cervix cancer, recall bias may have affected the results.

It seems necessary to conduct retraining courses and repeating the importance to the subjects in order to improve the performance of the health care team and to encourage more females to perform screening tests. Paying attention to this point is important because these people are considered as role models for other females in their community. It is necessary to inform and motivate them through the provision of health services from the health care centers on the condition of performed screening tests, in-service training, training by family planning clinics to explain the function and role of screening tests in raising the levels of women's performance.

Ethical Considerations

Compliance with ethical guidelines

This research was registered with the number 92236 and the code of ethics as 23219.

Funding

This article was extracted from Massoomeh Amani MS thesis approved by the Rasht Shahid Beheshti Faculty of Nursing and Midwifery.

Conflict of interest

The authors declare no conflict of interest.

Acknowledgements

We express our gratitude towards Mrs. Maryam Bagheri, Social Determinents of Health Research Centers (SDHRC) and those who helped us in the conduction of this study.

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