Original Article

Knowledge and Behavior Among Women Referring to Health Care Institutions Screening for Breast Cancer in the South of Iran

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Abstract
Background: Breast cancer is the most widespread type of cancer of women throughout the world. The likelihood of its treatment can be increased by screening and early detection in the early stages. The present study aimed to determine the knowledge and behavior of women referred to health care institutes of Bandar Abbas regarding screening for breast cancer.
Materials and Methods: The present cross-sectional descriptive study was conducted on 370 women who referred to Bandar Abbas health care centers and were selected by the cluster sampling technique. A questionnaire containing demographic characteristics, knowledge assessment, and performance evaluation was used to collect the required data. The minimum and maximum scores were within the range of 0-20 and 0-7 for wise questions and performance, respectively. Finally, data were analyzed by descriptive statistics, t test, along with chi-square and analysis of variance (ANOVA) tests using SPSS16.
Results: The mean age of women was 55.35 ± 2.27 years. In addition, 298 (80.5%) and 72 (19.4%) of them were married and single, respectively. The mean knowledge score was 12.48 ± 3.85 and the mean score was 2.9 ± 2.29 as well. Finally, there was a significant relationship between the knowledge and behavior of the subjects ($P < 0.001$).
Conclusion: According to the results of this study, regular education programs are suggested to increase women's knowledge. Thus, their performance is hoped to increase by extending their level of knowledge.
Keywords: Knowledge, Behavior, Women, Health care, Screening, Breast cancer

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Introduction

Cancer is one of the non-communicable diseases and one of the most important problems of human societies, which is considered as the second cause of death after cardiovascular disease (1-3). Breast cancer, with about 27% of all cancers, is the most common cancer in women worldwide and the second leading cause of cancer deaths among women (4, 5). There was also a worrying increase in breast cancer in Iran, rising from 3.92% in 100 000 in 2003 to 5.6% in 100 000 in 2010 (6, 7). In the United States, the condition is common and one in 8 women suffers from this type of cancer. The incidence of this cancer is about 22 per 100 000 women in Iran (8, 9). According to the Ministry of Health and Medical Education, 10 000 women in the country are diagnosed with breast cancer per year, with an average age of 47.1 to 48.8 years old

and an average age of 10 to 15 years lower compared to the other countries (5, 10). The real cause of this cancer has not yet been discovered thus its occurrence cannot be prevented although the best way to deal with breast cancer is the quick and timely discovery, which is very helpful for its control and treatment (11, 12). With the early diagnosis of this cancer early in life and receiving good treatment, the likelihood of its increase reduces and the life expectancy of more than 90% of patients increases accordingly (4, 13). In addition, screening for early diagnosis is an urgency since there is no definite way to prevent this cancer. Further, the purpose of screening programs is to diagnose the disease after its initiation and before the appearance of clinical symptoms (14, 15).

It is indicated that there is a direct correlation between the mortality rate of breast cancer and the stage of the

disease at the time of discovery (9). In other words, 95% of breast cancer can reach advanced stages if women perform regular breast examinations and mammography at appropriate times (16). Despite the impact of screening on the reduction of women's mortality, the lack of women's knowledge in this regard is considered as one of the main reasons for not following such routine examinations (9). Knowledge, recognition, and performance in society are the most important elements for any screening program by breast self-examination (17). Some studies have suggested that increasing the level of knowledge and attitude of society toward cancer can play a significant role in the screening behaviors of the community, and preventing diseases by gaining knowledge and changing attitudes can provide a good performance (6, 18). However, it seems that there is a lack of knowledge about the risk factors and signs and symptoms of cancer due to the absence of prevention and screening programs for its control (19). For example, in a study conducted on health workers in Mazandaran province, most research units had low data despite the positive attitude toward screening for breast cancer and only 26.2% of them performed these tests on a regular basis (20).

Available evidence on the level of knowledge and performance in breast cancer in Iran suggests that women do not have enough knowledge in this area or do not function properly with the knowledge of the disease and screening methods. Previous data demonstrate that women's knowledge, attitude, and performance are lower than expected, indicating an important health problem that most women are immune to breast cancer although the rate of this deadly disease is increasing. Therefore, the present study was conducted to assess the knowledge and behavior of women who had referred to breast cancer health and treatment institutions in Bandar Abbas.

Materials and Methods

This research was a descriptive-analytic study and the sample consisted of 370 women who referred to health care institutions of Bandar Abbas and were selected by the cluster sampling method. This type of sampling (also known as one-stage cluster sampling) is a technique in which the clusters of participants representing the population are identified and included in the sample. In addition, it is a popular method for conducting marketing studies (21). Accordingly, Bandar Abbas was divided into three geographical areas and then 2 health centers were randomly selected from each district. Approximately 62 women were selected from each center. The benchmark for entering this study was suffering from benign or malignant breast disease and showing satisfaction with participation in the study. The outcomes of the study of benign or malignant breast disease and reluctance to participate in the study were exclusion criteria. First, the necessary explanations were provided regarding the research goals, and the subjects were assured that

entering the study and responding to the questionnaire were completely optional. They were also assured of the confidentiality of their data and received the questionnaire after giving oral consent. The questionnaire was completed by the researcher through an interview for people who were unable to read and write.

The information gathering tool was a 29-item questionnaire which was established in previous studies for its validity and reliability (22). It consisted of 3 parts encompassing 6 demographic questions (age, marital status, educational level, occupation, and familial history of grades 1 and 2 breast cancer) and 20 questions for assessing the level of knowledge about breast cancer (prevalence, risk factors, signs and symptoms, breast self-examination, the clinical examination of the breast, and mammography). The remaining 3 questions measured performance against breast cancer screening programs (breast self-examination and breast examination).

In this questionnaire, the answers given to the 20 questions of the level of knowledge were graded as "True = +1" and "False = zero" (I do not know = zero) and classified according to the total score calculated in three levels "Good = More than 15", "Average = 5-15", and "Weak = 0-5". The performance of individuals was also evaluated based on their responses to three questions. One of the questions was evaluated the correctness of the breast self-examination. Accordingly, those who were completely and somehow sure of the correct way of breast self-examination were scored 2 and 1, respectively, and those who were uncertain received a zero score. Another question was related to the intervals of breast self-examination. The individuals who performed the self-test on a regular and monthly basis received a score of 4 and those who performed the self-test intervals every 3 months, 6 months, and one year were scored 3, 2, and 1, respectively. Further, those who never performed breast self-examination received no score. The last performance question was about the clinical examination of the breast by a physician, midwife, or general surgeon so that those patients clinically evaluated in the past two years scored 1, otherwise, they would receive a score of 0. Then, individuals' scores were calculated in three levels of poor = 0 to 2, mean = 2-5, good = more than 5. Therefore, the highest and lowest scores were 20 and 0, as well as 7 and 0, respectively and $P < 0.05$ was considered as a significant level. Eventually, data were analyzed by SPSS-16 software using descriptive statistics and independent t-test in addition to chi-square and ANOVA tests.

Results

The research samples consisted of 370 subjects with a mean age of 35.55 ± 22.07 and the age range of 15-79 years. Furthermore, 258 (69.9%) subjects were within the age group of 40-40 years old. Among the subjects, 83.5%, and 80.5% were housewives and married, respectively, and 3.9%-34% had a university degree. In general, 9 (2.4%)

and 23 (2.6%) subjects had a history of breast cancer in first- and second-degree relatives, respectively (Table 1).

Overall, the mean knowledge score of 75.7% of subjects was 40.12 ± 3.85 of 20 grades, which is in the non-experimental group according to the categorization. Moreover, the mean score of performance was 63.8%. Table 2 presents the frequency and percentage of responses to questions by the sampled subjects regarding the knowledge of breast cancer (i.e., outbreak, risk factors, signs and symptoms, self-examination and clinical examination, and mammogram).

Table 3 summarizes the frequency and percentage of responding to performance questions by the sampled subjects to breast cancer prevention programs.

There was a significant correlation between the knowledge and behavior of the subjects ($P < 0.001$). Additionally, a significant relationship was observed between knowledge gained by marital status ($P < 0.007$) and education level ($P < 0.04$). Similarly, performance score and employment status ($P < 0.03$), marital status ($P < 0.001$), and familial history of breast cancer in the first-degree family ($P < 0.03$) demonstrated a significant relationship. However, no significant difference was found between knowledge and performance and other variables.

Discussion

The purpose of this study was to determine the level of knowledge and behavior of women referring to the health facilities of Bandar Abbas in relation to screening for breast cancer. Then, the results of the study were used for designing educational programs and health management in order to encourage women to be sensitive to the proportion in their own health, on time discovery of cancer, and better management of the disease.

This study investigated the relationship between knowledge and performance levels with age, marital status, educational level, occupation, and familial history of breast cancer in first- and second-grade families. The mean score of knowledge was 12.12 ± 3.85. The findings of the study showed that 1.4% of women had proper

knowledge about breast cancer and 95.9% had good maladaptive knowledge, which is consistent with the results of Babapoor et al (23) but contradicts those of Asgharnia et al (24). This difference is probably because the population of the above-mentioned study included women over 40 years of age, of whom 71.2% had lower education than the periodic period, which is inconsistent with our study.

One of the reasons for the satisfactory knowledge of women referring to health care centers of Bandar Abbas was that they had upper secondary education (66.7%), which corroborates with the results of other studies conducted by Mahouri et al, Salimi Parmahr et al, and Banaeian et al (3, 25, 26). Accordingly, the knowledge of individuals increases by extending the level of education. On the other hand, the majority of research samples (80.5%) were married women. Considering that there was a significant relationship between knowledge and marriage, marriage is one of the factors affecting knowledge scores, which was studied by Asgharnia et al and Ramezani et al (24, 27). Other demographic variables such as the familial history of breast cancer and occupation with knowledge score are not significantly correlated with those of Didarloo et al and Haghighi et al (6, 28).

In addition, the overall mean score was 2.9 ± 2.29. The study of performance represented that 63.8% of subjects had poor performance. Likewise, Rastad et al and Abedzadeh et al reported that 65.2% of subjects had poor performance (4, 11), which is in line with the results of the current study.

Although most participants were aware that breast examination (83.5%) was an effective technique for early detection of breast cancer, unfortunately, the lowest proper functioning (74.1%) was related to the clinical evaluation of the breast (clinical examination by midwife, gynecologist, or general surgeon). This is consistent with the findings of Godazandeh et al, Khaleghnejad Tabari et al, and Motavali & Mousazadeh (22, 29, 30). In general, 256 people (69.2%) were aware of their disease since the onset of breast self-examination and 41.9% of them were sure of proper breast self-examination. However, the results indicated that thirty women had a poor performance in the field of breast examination and only 10.5% of them performed it regularly and monthly, which contradicts the results of Reisi et al (39.5%) and Khani et al (26.2%). This discrepancy is probably because the studied subjects were women working in the health care institutions of the universities of medical sciences while the samples in the above-mentioned studies were the staff members of health care institutions (20, 31). Considering the poor performance of the research sample, the recommendation for performing breast self-examination seems to be necessary by health care workers and midwives in health care institutions. Based on the results of the study, there was a significant relationship between marriage and the performance of individuals, which is similar to those

Table 1. Demographic Characteristics of Women Referring to Health Care Institutions of Bandar Abbas

Demographics Information		Number (%)
Marital status	Married	298 (80.5)
	Divorced	9 (2.4)
	Single	63 (17.1)
Level of education	Less than cycle	122 (33)
	High school	120 (32.4)
	Academic	127 (34.3)
Job	Employed	61 (16.5)
	Housewife	309 (83.5)
Familial history of breast cancer in grade 1		9 (2.4)
Family history of breast cancer in grade 2		23 (6.2)

Table 2. Frequency and Percentage of Responding to Questions by Surveyed Subjects Regarding Knowledge of Breast Cancer

Variables		Yes	I Do not Know	No
		No. (%)	No. (%)	No. (%)
Outbreak	Breast cancer is prevalent in the community.	294 (79.5)	63 (17)	12 (3.2)
Risk factors	As the age increases, the risk of breast cancer represents an increase.	250 (67.5)	79 (21.4)	41 (11.1)
	Eating low fat and high fiber increases the chance of breast cancer.	51 (13.8)	94 (25.4)	225 (60.8)
	Contacting a relative with breast cancer increases the chance of this cancer.	23 (6.2)	41 (11.1)	306 (82.7)
	You have a higher chance of catching breast cancer if your sister, mother, or aunt suffers from this cancer.	288 (77.8)	50 (13.5)	32 (8.6)
	Breast cancer can be controlled if it is timely diagnosed.	310 (83.8)	36 (9.7)	24 (6.5)
Signs and symptoms	The secretion of a green liquid from the nipple is one of the symptoms and symptoms of breast cancer.	151 (40.8)	193 (52.5)	26 (7)
	Painless mass is one of the symptoms and symptoms of breast cancer.	202 (54.6)	122 (33)	46 (12.4)
	Inflammation of the arm is one of the signs and symptoms of breast cancer.	80 (21.6)	203 (54.9)	87 (23.5)
	Milk discharge from the breast in an unmarried woman is one of the symptoms and symptoms of breast cancer.	105 (58.4)	188 (50.8)	77 (20.8)
	The appearance of a granuloma around the arol (a halo around the breast) is one of the symptoms and symptoms of breast cancer.	120 (32.4)	214 (57.8)	35 (9.5)
	Nipple indentation is one of the symptoms and symptoms of breast cancer.	123 (33.2)	173 (46.8)	74 (20)
	The presence of painless glands in the armpit is one of the symptoms and symptoms of breast cancer.	167 (45.1)	132 (35.7)	71 (19.2)
Self-examination and clinical examination of the breast	Breast self-examination should be done after the age of 20 each month.	256 (69.2)	62 (6.8)	52 (14.1)
	An annual assessment of the breast by a doctor can lead to early detection of cancer.	309 (83.5)	37 (10)	24 (6.5)
	The best time to self-test is the first day or mid-menstrual period.	124 (33.5)	173 (48.8)	73 (19.7)
Mammography	Mammogram is done by X-rays.	135 (36.5)	204 (55.1)	31 (8.4)
	Mammograms make early detection of breast cancer.	235 (63.5)	112 (30.3)	23 (6.2)
	Breast cancer is prevalent in the community.	162 (43.8)	145 (39.2)	63 (17)
	As the age increases, the risk of breast cancer increases as well.	163 (44.1)	163 (44.1)	44 (11.9)

of Tavakol et al (32). On the other hand, a significant relationship was found between employment status and performance, which is consistent with the findings of studies conducted by Lockwood-Rayerm, Islam et al, and Soltanahmadi et al (14, 33, 34). However, housewives had a better performance compared to employed women in our study. The better performance of the housewives in the current study may be because jobseekers have less time to engage in breast screening behaviors because of job engagements. The results further revealed that the family history of breast cancer in the first-degree family had a significant relationship with the performance of the research sample, which corroborates with the results of Ghazanfari et al and Mahmoodi & Ramazani (18, 35). People with a family history of cancer in their first-degree relatives seem to be performing better compared to the other groups of people. Conversely, other demographic variables such as education level and familial history of breast cancer in the second-grade family demonstrated

no significant relationship with performance. However, a significant relationship was observed between the knowledge and performance of the subjects, confirming that more knowledge leads to better results. This result is consistent with those of Rastad et al, Tavakol et al, and Parsa et al (4, 32, 36).

In the study by Thomas on African-American heterogeneous women, many women believed that screening unnecessary because they had no history of breast cancer in their family (37). In another study by Alam in Saudi Arabia, although 82% and 61% of women were aware of the benefits of breast self-examination and mammography, respectively, less than half of them had breast self-examination (41.2%) and only 18.2% of mammograms showed a cancer diagnosis (38). Further, Abedian et al reported that 69.5% of women over 40 did not perform mammography (39).

Similarly, Asgharnia et al found that 57.2% of women had breast cancer and their screening methods were low.

Table 3. Frequency and Percentage of Responding Samples to Performance Questions

Variables		No. (%)
When do you test your breast?	Once a month	82 (22.2)
	Every 3 months	20 (5.4)
	Every 6 months	15 (4.1)
	Once a year	39 (10.5)
	Never	213 (57.6)
How precise is your breast self-examination?	Very sure	29 (7.8)
	A little bit sure	155 (41.9)
	Uncertain	186 (50.3)
Have you have performed a clinical evaluation (a clinical examination by a midwife, gynecologist, or general surgeon) in the last two years?		96 (25.9)

Furthermore, 38.3% of them had moderate knowledge and only 4.5% had high knowledge. Finally, she indicated that it is necessary to raise women's knowledge for early detection of cancer (24). According to Fontana and Bischoff, the immigrant women of Switzerland had lower screening performance compared to the Swiss women and the lack of knowledge was the most important factor in this regard (40).

Conclusion

In this study, some of the samples were not adequately literate to answer questions that were used to resolve this problem by using a trained public health expert, which is regarded as a limitation. Regarding the results of the current study, continuous education programs are suggested to raise awareness among women, especially in health care institutions that play a key role in community health and preventing the disease. In other words, increasing the level of knowledge and, consequently, the performance of Iranian women as active members of the community, whose health can guarantee the health of a family, is the pure necessity and a milestone in the Millennium Development Goals. Thus, it is hoped that in the not-too-distant future, measures will be taken to increase the wisdom and function of women, including the use of mass and print media in order to emphasize the importance of preventing breast cancer. Further, the proper education of screening behaviors, the provision of health facilities for the easy use of different screening methods, and the like will increase the performance of individuals in the field of breast cancer screening This prevents the development of breast cancer and contributes to early treatment and thus prevents heavier medical costs and disability and mortality due to this disease.

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