International Journal of Life science & Pharma Research

KNOWLEDGE, ATTITUDES AND PRACTICES TOWARDS BREAST CANCER SCREENING PROGRAMS AMONG IRANIAN RURAL FEMALE POPULATIONS IN NORTH OF IRAN

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ABSTRACT

Screening and preventive programs are critical components in the reduction of breast cancer morbidity and mortality. The cross-sectional descriptive study was conducted to investigate the state of knowledge, attitudes, and practices of breast cancer screening programs in Iranian rural female populations. A random sample of women aged from 20 to75 years old in Mazandaran state. Selecting a representative sample of the rural female population within 20 different rural Health-Medical Centers in Mazandaran state had the same probability to be sampled. Women agreeing to participate were given a four-page, self–administered questionnaire. From 3,600 participants 3,044 (84.5%) women complete the questioners. Subject mean age was 34.98±9.1 years with a range of 20 to 81 years. Of all subjects, 60% were married, 48.6% were housewives, and 69.2% had a medium-high education. Knowledge about breast cancer prevention was 10.6% acceptable, 69.6% middle, 19.7% lower and 0.1% unacceptable of the study population. The correct answers ranged from 12.9% to about 65.1%. Most participants had fairly positive attitudes about breast cancer screening. 21.1% of the women performed breast self-examination monthly in the past year. Approximately 80.6% did not undergo a specialist visit once in past two years. In the women 40 years and older, results had suggested 94% (n = 850) didn't mammography in past two years. Due to inadequate knowledge of women, providing appropriate training in various methods of breast cancer screening for women seems essential to improve knowledge and practice.

Key Words: Knowledge, Attitudes, Practices, Breast Cancer, Female, Iran

INTRODUCTION

Breast cancer is a global health concern and a leading cause of death among women in the world [1]. It is the most common among women and can be considered as the most important reason of death in 40- 44 years old women [2]. However, a literature review of articles from January 1998 to December 2005 found that the incidence rate of breast cancer among Iranian women was 22 per 100,000, while the prevalence rate was determined as 120 per 100,000 in Iran [3]. Globally, recent demographic and epidemiologic changes led to increase breast cancer incidence among rural or urban women [4, 5]. Early screening for and detection of breast cancer, by breast self-examination (BSE), clinical breast examination (CBE), and mammography, may be a useful approach for controlling the disease in developed countries and may reduce breast cancer morbidity and mortality [6-

8]. BSE is a simple, effective, and inexpensive method which can be used for screening and early diagnosis of breast cancer, and is available to most women [9]. The effectiveness of monthly BSE is unclear. As a significant numbers of women detect masses when they are bathing or dressing; monthly BSE can help women become more aware of their health status [10-13]. Although, there are some emphases on performing BSE, evidences show that less than 20% of Iranian women conducting regular BSE [14]. Based on the results of researches which have done in Iran, The researchers concluded that Iranian women did not know how to perform BSE [15]. The economic dependency coupled with illiteracy and ignorance particularly in rural women increases their risk of breast cancer. Researches show that rural residence itself, particularly residence in an isolated rural location, is a risk factor for not having received a screening CBE and mammogram, which lends credence to arguments for improving access to mammography in rural settings, particularly remote ones [16-18]. So, it seems that rural women have low awareness. Actually lack of knowledge about the benefit of early breast cancer screening is a significant barrier for some women to seek mammography [19]. On the other hand, on the basis of health behaviors distribution models in human society, many epidemiologists believe that the increase of knowledge and improvement of attitudes and beliefs concerning promotion of breast cancer screening programs among rural female populations [20, 21]. Several studies have shown that the knowledge and perception of rural women directly influence their attendance and accepting or screening behavior [22-25]. Although in Asia and Middle East, especially in Iran the incidence of breast cancer is rapidly increasing, but just a few studies have examined the knowledge, attitude and practice of women toward breast cancer and prevention programs in Iran. These studies are often of small sample size and targeted women in especial profession [1, 23]. In Iran, however, there are no regular population-based screening programs, and no prevention programs for controlling cancers, suggesting that knowledge about risk factors, symptoms, the benefits of early cancer-screening guidelines and the use of health care clinics for cancer treatment, especially breast cancer, may be low in the Iranian population [23-28]. In this study, we reported data derived from an investigation of the knowledge, attitudes, and practices regarding breast cancer and prevention programs, especially BSE, among Iranian rural female population.

METHODS

Study Design

This was a cross-sectional, descriptive, population-based study investigating the state of knowledge, attitudes, and practices toward breast cancer screening programs, especially BSE among Iranian rural women living in Mazandaran, Iran, along the south coast of the Caspian Sea, between December 1st 2013 and November 30th 2014.

Participants and Procedures

Participants were consisted of Iranian rural women, 20 years of age and above. Using our previous statistical data [14], we estimated that 896 subjects were required for each stratum. Individuals in each stratum were selected by a multistage random sampling method. Participants were assigned to one of four strata; consisting of 1) rural women living in eastern areas of Mazandaran state, including Behshahr and Sari; 2) rural women living in the central area of Mazandaran state, including Ghaemshahr and Kiyakola; 3) rural women living in poorly developed areas and more native regions of Mazandaran state, including Juibar; and, 4) rural women living in western areas of Mazandaran state including Amol township. For each stratum, we randomly selected five rural Health-Medical Centers (HMCs) as major clusters. Finally, 180 women aged 20 years and older attending each HMC were randomly selected and invited to participate in this study. Women agreeing to participate were given a three-page self-administered questionnaire. Those with difficulty in reading the questionnaire were given help. Women with a known diagnosis of breast cancer were excluded from the study. All participants gave written informed consent.

Measures

A short structured questionnaire was used to collect data. The questionnaire covered demographic information (age, marital status, educational levels, employment status, family's total annual income level, number of those living at home and family history of breast cancer), breast cancer knowledge (risk factors, symptoms, and BSE), attitudes toward the breast cancer screening program (BSE and CBE),

and practices regarding the breast cancer screening programs (BSE, self-graded efficacy of BSE, CBE, and mammography). These variables were included in other studies in compliance with the modified breast cancer screening guidelines of the Iranian Institute for Health Sciences Research, ACECR. Knowledge was measured by asking participants to respond "True", "False", or "Don't know" to the 20 items. The response to each question was assigned +1 for a correct answer, -1 for an incorrect answer, and 0 for "Don't know". Based on responses to the 20 questions, respondents were stratified into four classes based on cumulative point scores (I: acceptable = 11 to 20 points, II: low = 1 to 10 points, III: poor = -10 to 0 points, IV: unacceptable = -20 to -11 points). Women's attitudes toward breast cancer and screening programs were assessed by 10 items, each of which was scored on a 5-point Likert scale ranging from "strongly agree" to "strongly disagree". Assessing the frequency of BSE, participants 20 to 40 years of age, and 40 years of age and above, indicated how often they examined their own breasts, on a 4-point scale (1 = Never, 2 = 1 to 6 times per year, 3 = 7 to 11 times per year, and 4 = once a month or more). Perceived self-efficacy of BSE was assessed by the question "How confident are you that you can examine your own breasts correctly?" with response categories being "Very", "A little", and "Not at all". All participants were asked whether they had performed BSE over the previous 12 months. Participants 20 years of age and above, in compliance with CBE, were assessed by asking whether they have had a CBE in the past 24 months or not. Participants 40 years of age and older, in compliance with mammography, were assessed by asking whether they had a mammogram in the past 24 months or at least one mammogram until now.

Internal Consistency of the Questionnaire

The questionnaire was pretested on a sample of 60 participants (15 individuals per stratum). Alpha coefficients for reliability and internal consistency of the questions were 0.82 and 0.68 for knowledge and attitudes, respectively.

Statistical Analysis

Statistical evaluation employed the Statistical Package for the Social Sciences (version 16.0). Descriptive statistics were used to computing frequencies of responses for all demographic, knowledge, attitudes, and practices items. Chi-squared analysis was employed to testing association among knowledge, attitudes, and practices of preventative programs by demographic items. A P value of < 0.05 was considered statistically significant.

RESULTS

Participant Characteristics

Of the 3,600 eligible participants surveyed, 3,044 (88.55%) completed the questionnaire. Subject mean age was 34.98±9.1 years ranging from 20 to 75 years. Of all subjects, 60% were married, 61.6% had a medium-high educational level, and 51.1% were housewives. Table 1 shows the demographic characteristics of all participants.

Knowledge Related to Breast Cancer and BSE

Complete awareness about risk factors, symptoms, early detection methods of breast cancer, and correct performance of BSE, was noted in 47.6%, 32.1%, 26.5%, and 25.4%, respectively, of participants. Respondent knowledge of breast cancer screening programs bordered on the unsatisfactory, as the range of correct responses varied from 12.9% to 65.1%, and knowledge of breast cancer screening programs was acceptable in 8.6%, low in 57.6%, poor in 33.8%, and unacceptable in 0.1% . Table 2 shows the percentages of participants endorsing knowledge items related to breast cancer screening programs. There were also significant differences relative to demographic participant characteristics on most knowledge items. (Data are not shown, but available from the corresponding author). Complete awareness about risk factors for breast cancer, signs and symptoms of breast cancer, early detection of breast cancer, and correct performance of BSE, was noted respectively in 47.6%, 32.1%, 26.5%, and 25.4% of rural women. Respondent knowledge of breast cancer and BSE is unsatisfactory. In rural women, knowledge of breast cancer prevention was acceptable in 0.6%, low in 47.2%, poor in 52%, and unacceptable in 0.3%. Table 2 shows the percentages of participants endorsing each breast cancer- and BSE-specific knowledge item.

Attitudes Related to Breast Cancer and BSE

Table 3 shows the percentages of participants endorsed each breast cancer and preventative program

item, especially BSE attitude. Only 19.2% of respondents agreed or strongly agreed with the statement that BSE was a useful breast cancer early detection technique, whereas 48% agreed or strongly agreed that breast cancer could be cured if detected sufficiently early. We found that 68.7% of rural women strongly agreed or agreed that breast cancer can be prevented. In contrast, 44.2% of rural women agreed or strongly agreed that the majority of Iranian women could not examine their own breasts correctly.

Practices Related to Breast Cancer Screening Programs

Unfortunately, 73.5% of participants declared had no knowledge about breast cancer screening programs. Also, only 25.4% of them knew the best time of doing BSE. On the other hand, 24% of them considered regular BSE, CBE, and mammography as the best techniques for early detection of breast cancer. Only 21.1% of participants performed BSE monthly and only 10.3% of them felt very confident that they could examine their own breasts correctly. Analysis and comparison of data showed that the practice of BSE in women 20 years old and older was significantly correlation with age, educational level, marital status, and employment status and breast cancer knowledge. (Data are not shown, but available from the corresponding author). Considering of importance BSE but unfortunately the most participants didn't do this procedure. 27.2% (n=582) of participants declare the first reason for not doing BSE is "Lack of knowledge of method". It shows education is low too. After that "being time-consuming" was the most reason for failure performs (n=718, 33.6%). The less reasons were spouse disagreement (n=488, 22.8%), not believe the BSE (n=410, 19.2%), forget (n=354, 16.5%), fear of finding tumor (n=318, 14.9%). Although, 80.6% (n=1,935) of women age 20 to 40 years never did CBE, but of 904 women above 40 years old 19.4% (n=175) of them did it in past two years. Analysis and comparison of data showed that the practice of CBE in women 20 years old and older was significantly associated with educational level, marital status, but not with age, and employment status and breast cancer knowledge. (Data are not shown, but available from the corresponding author). Analysis and comparison of data showed 78.5% (n=2,388) of women don't visiting physician in regular time. 42.4% (n=1,290) of participants declare the first reason for not doing CBE is "spouse disagreement". It shows education is low too. After that "be expensive" was the most reason for failure performs (n=648, 21.3). The less reasons were lack of knowledge (n=604, 19.8%), fear of finding tumor (n=598, 19.6%), being time-consuming (n=470, 15.4%), no problems in their breast (n=362, 11.9%). Performing mammography was assessed in population female above 40 years (n=904). It indicates 6% (n=54) had a mammography in previous 2 years or at least one mammogram until now. Analysis and comparison of data didn't show significant association. (Data are not shown, but available from the corresponding author).

DISCUSSION

Breast cancer is one of the most frequently occurred cancers among Iranian women [16]. Delay in diagnosis and treatment of it, decreases survival rates [25]. The purpose of this study is to explore and document knowledge, attitude and practices related to breast cancer prevention in a large descendant of the Iranian traditional female population and to examine the association of knowledge and practices of preventive programs to age, educational level, marital status and employment status. Breast cancer cannot be prevented but the best way to deal with it is early diagnosis and treatment [26]. Unawareness of breast cancer is worse rather than infecting by it [23]. And several studies in the field of breast cancer awareness have been done, confirming the importance of awareness about breast cancer and screening methods [25-28]. The results of this study suggested that rural women in Iran have rather poor knowledge of breast cancer. Our findings indicated that women's awareness is influenced by education level, job and marital status, but not with age. Nearly a quarter of women awareness about early breast cancer diagnostic procedures and almost one third of rural women have aware about, symptoms and signs breast cancer and more than half women don’t awareness about risk factors. Practice is also low in these women due to women's poor knowledge. Researchers believe an information and awareness of breast cancer screening alone is not enough even attitude about an illness is an important factor to performing screening methods [29]. Attitudes and thoughts make practice. General attitude of women about breast cancer aren't good. For example less than one fourth of them declared early detection effective in treatment, and

few of them said that they can recognize abnormal tips in their breast with BSE. It is possible that attitude isn't good due to low knowledge. So, for increasing level of knowledge, it should considered Training programs in the community. The American Cancer Society continues to recommend monthly BSE to women, but the Canadian Task Force on Prevention Health Care has announced that physicians should no longer routinely teach BSE as a screening technique for cancer to women aged 40-69 years because it can do more harm than good [5] .In contrast, BSE monthly may contribute to a woman's awareness of what is normal. In this study, almost a quarter of the participants reported practicing BSE on a monthly basis while only 10% of them felt very confident that they could examine their own breasts correctly. Results indicate the most reasons for not doing BSE in this society are unawareness of BSE (24.4%) and husband disagreement (24.5%). In developing countries such as Iran, regular BSE can not only lead to early diagnosis, but can increase the level of knowledge and attitudes toward breast cancer, thus preventing the disease [3,10]. According to the American Cancer Society, women aged 40 years and above should have CBE and mammography every year [5]. Mammogram is a very accurate and valuable method in breast cancer screening [26-31]. Therefore it is essential to provide proper education for women in this field; especially women above 40 years and their knowledge of mammography can be increased. But in our study, because of the non-existence of regular screening programs and basic data in the level of knowledge, attitudes, and practices related to the breast cancer in different ages of the Iranian female society, it instigates us to assess the practice of CBE in females 20 years of age and older and practices of mammography in females 40 years of age and older. The results suggested that doing CBE was significantly associated with their knowledge, and maybe because of low knowledge 80.6% of these women didn't perform CBE. Although doing mammography didn't have significant relation with their knowledge, 94% didn't perform mammography. Considering husband's disagreement as the common reason of that, the result indicates maybe there is some misconception about CBE in rural men population. Therefore health programs education in our country must involve rural men in addition rural women.

Table 1

Table 1 Demographic characteristic of respondents (n = 3044)

Characteristics	NO.	%
Age (years)		
20-40	2140	70.3
40-75	904	29.7
Mean ± S.D.	34.98±9.1	
Range	21-75	
Sex		
Female	3044	100
Marital status		
Single	718	23.6
Married	1826	60
Widowed	500	16.4
Education levels		
Illiterate & Primary	1328	43.6
Secondary	858	28.2
Diploma	566	18.6
Higher education	292	9.6
Employment status before imprisonment		
Employed	878	28.8
Housewife	1556	51.6
Student	316	10.4
Unemployed	294	9.7
Family's total annual income level		
Low	1000	32.85
Average	1750	57.5
High	294	9.65
Number of those living at home		
1-3	690	22.66
4-5	1380	45.34
≥6	974	32
Family history of breast cancer		
Yes	507	16.65
No	2537	83.35

Table 2

Respondents' knowledge related to breast cancer screening programs (n = 3044)

Knowledge items	Correct No. (%)	Incorrect No. (%)	Don't know No. (%)
Risk factors			
Age	1368(44.9)	1674(55)	2(0.1)
Diet	982(32.3)	1298(42.6)	764(25.1)
Personal hygiene	966(31.7)	1156(38)	922(30.3)
Age at first full-term pregnancy	1168(38.4)	946(31.1)	930(30.6)
Contacting a relative with breast cancer	1230(40.4)	822(27)	992(32.6)
Positive family history	1158(38)	764(25.1)	1122(36.9)
Prolonged lactation	1034(34)	914(30.0)	1096(36)
Overweight after menopause	1300(42.7)	648(21.3)	1096(36)
Symptoms			
Painless mass	1876(61.6)	736(24.2)	432(14.2)
Multiple masses	1164(38.2)	1080(35.5)	800(26.3)
Nipple retraction	1048(34.4)	1088(35.7)	908(29.8)
Breast pain	1126(37.0)	966(31.7)	952(31.3)
Milky discharge	1020(33.5)	980(32.2)	1044(34.3)
Asymmetry of breasts	1082(35.5)	852(28)	1110(36.5)
Bloody discharge	1246(40.9)	702(23.1)	1096(36)
BSE			
Palpation with the same site hand	812(26.7)	1756(57.7)	476(15.6)
Control of nipple discharge	872(28.6)	1542(50.7)	630(20.7)
Inspection in front of a mirror	772(25.4)	900(29.6)	1372(45.1)
Palpation between thumb and the other fingers	768(25.2)	874(28.7)	1402(46.1)
Palpation with the middle fingers of the opposite hand	1164(38.2)	646(21.2)	1234(40.5)

Table 3

Respondents' attitudes related to breast cancer screening programs (n = 3044)

Attitudes items	Strongly agree No. (%)	Agree No. (%)	Neither agree nor disagree No. (%)	Disagree No. (%)	Strongly disagree No. (%)
Any woman is at risk for breast cancer	2312(76)	252(8.3)	278(9.1)	90(3.0)	112(3.7)
Breast cancer can be prevented	1144(37.6)	946(31.1)	738(24.2)	136(4.5)	80(2.6)
If I examine my breast myself, I could not detect abnormalities in my breast	352(11.6)	412(13.5)	1696(55.7)	426(14)	158(5.2)
There is no reason to examine my breasts	620(20.4)	418(13.7)	1022(33.6)	710(23.3)	274(9)
If I knew the benefit of breast self-examination, I would have to do it	736(24.2)	608(20)	990(32.5)	336(11)	374(12.3)
Women prefer female doctor for breast examination	994(32.7)	492(16.2)	962(31.6)	308(10.1)	288(9.5)
If there is not a problem in the breasts, periodic breast examinations by a physician not required	758(24.9)	430(14.1)	1124(36.9)	408(13.4)	324(10.6)
Early detection methods, no effect on treatment	800(26.3)	402(13.2)	1126(37)	428(14.1)	288(9.5)
Personal hygiene decrease breast cancer	736(24.2)	504(16.6)	1232(40.5)	366(12.0)	206(6.8)
By early diagnosis of breast cancer, the person will have normal living	1070(35.2)	392(12.9)	918(30.2)	226 (7.4)	438(14.4)

Table 4
Respondents' practices related to breast cancer screening programs (n = 3044)

Practice items	NO.	%
Breast self examination in the last year (a)		
1) Never	1348	63
2) 1 to 6 times per year	190	8.9
3) 7 to 11 times per year	176	8.2
4) Once a month or more	426	19.9
Breast self examination in the last year (b)		
1) Never	496	54.9
2) 1 to 6 times per year	100	11.1
3) 7 to 11 times per year	92	10.2
4) Once a month or more	216	23.9
Self efficacy of BSE (c)		
1) very confident	313	10.3
2) A little confident	1023	33.6
3) Not at all	1708	56.1
Clinical breast examination in past 2 years (a)	416	19.4
Clinical breast examination in past 2 years (b)	175	19.4
Mammography in past 2 years or until now (b)	54	6

(a): N = 2140; includes women 20 to 40 years
(b): N = 904; includes women 40 years and older
(c): N = 3044; includes women 20 years and older

CONCLUSION

Considering that high participants having a low knowledge score, the study recommended
1) A greater focused breast cancer education program to improve the knowledge breast cancer and change men's misconceptions, as these are the basis for sound attitude and behavior and increase awareness of participant of the breast and CBE as it is the best option for interval screening among women of all ages.
2) Multimedia and rural education, heath centers have an important role in public health education; therefore these centers should perform correct, regular programs for rural population especially rural women.

ABBREVIATIONS

BSE: Breast Self-Examination
CBE: Clinical Breast Examination
IRCPHD: Iranian Applied Research Center for Public Health and Sustainable Development
SPSS 16.0: Statistical Package for the Social Sciences
N: Number
%: Percentage

Competing interests
The authors have declared that they have no competing interests.

Authors' contributions
HK was the main investigator. HK, MRM, HH, AG and HRH contributed to the study design and writing process. HK designed the questionnaire, critically reviewed the manuscript and contributed to writing the final draft. All authors read and approved the final manuscript.

ACKNOWLEDGEMENT

The authors thank the study sites and instructors for their valuable contribution. The authors are thankful for the contributions of those who helped to carry this study, especially researchers who evaluated the questionnaire and those who carried out the interviews.contributions of those who helped to carry this study especially researchers who evaluated the questionnaire and those who carried out the interviews.

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