Comparison of Awareness Level about Breast Cancer Risk Factors, Presentations, and Screening Rules and Tools: A Cross-sectional Study on General Female Population

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ABSTRACT

Background & Objective: Awareness of breast cancer risk factors, clinical presentations and screening rules and methods may encourage women to use preventive measures more commonly.

Materials & Methods: A total of 691 women from general population were interviewed using a standardized questionnaire. Demographic data, level of awareness about risk factors, presentations and screening the breast cancer and their general perception about the treatment's efficacy were evaluated.

Results: Of the participants, 45.7% had "good" knowledge about the presentations of breast cancer while the level of awareness was "good" in 19.2% of them in field of risk factors (statistically significant difference). As only about 16% of them knew that women should perform breast self-examination once a month and about 15% of them were aware of the screening role of the annual clinician performed breast examination.

Conclusion: Most of our participants had statistically significant lower level of knowledge about the risk factors and screening rules and tools of breast cancer than its clinical presentation.

Keywords: Awareness, Breast cancer, Presentations, Screening, Risk factors r

Introduction

Prevalence of breast cancer and its attributable mortality and morbidity has increased all over the world in recent decade and about 25% of all newly diagnosed cancer cases are breast cancers (1-2).

Increasing the level of awareness about the breast cancer is a public health priority; especially when some studies have shown that a well-known risk factor can be identified in up to 40% of new cases (3), and increasing women's knowledge about early diagnosis of breast cancer can change people's screening seeking behavior (4) leading to early detection of cancer.

Numerous studies have shown that most patients in less developed countries are diagnosed in advanced stages of disease (5-6) and that the awareness of women about the breast cancer is not satisfactory in these countries (7-9). Some studies have also proved that there is prompt need to develop and implement national, regional and local educational programs to improve the women's knowledge and correct their general beliefs about the breast cancer to shorten the patient related delays in process of diagnosis and treatment of this disease (10-11) but none of them have focused on the prioritization of the educational needs.

This study was conducted to compare the level of awareness in different field of knowledge about breast cancer (risk factors, presentations, screening rules, treatment and outcome) in a general women population.

Materials and Methods

Design and Participants

This cross-sectional study was conducted in a teaching gynecology and obstetrics hospital with about 40,000 employees, in accordance with the Declaration of Helsinki (1989), after getting institutional ethics committee approval (Code:IR.SBMU.MSP.REC.13-98.502). Cases were enrolled conveniently from April

2018 to April 2019 after obtaining informed consent. All women aged >18 years old attended in different areas of hospital (hospital floors, clinics, waiting area, resting area) as patient, family member or visitor were eligible to enroll in our study. Women who had language barrier; women who were not interested to participate in study and women who refused to continue their participation after beginning the interviews were excluded from study.

Data Collection

We used semi-structured interviews with closed questions based on a questionnaire adopted from Hadi *et al.* **(12)** article (2010) which has derived some of its questions (about the perception of breast cancer treatment and outcome) from the questionnaire used by Grunfeld *et al.* **(13)** in UK (2002). We adopted the English version of questionnaire; translated and modified it and then validated the appearance and content of our translated questionnaire by 10 senior faculty members using the standard forward/backward method

A single trained female research assistant interviewed all participants and filled the validated questionnaire. The interviews were designed and performed specifically for current study. The questionnaire was pre-tested on a convenient sample of 20 cases to test the comprehensibility of questions. Pilot cases were not included in the analysis process.

We arranged the questions in these domains:

- Demographic data
- General perception and belief about breast cancer: participants were asked "is breast cancer seen only in women?", "can breast cancer be transmitted from one person to another?", "is breast cancer the leading cause of death in women in our country?" and they were asked to say if they agree with these 2 statements: "Breast self-examination is recommended for females once a month", "Breast examination by a physician is recommended for females once a year". They were allowed to say "Yes", "No" or "don't know".
- Knowledge of breast cancer risk factors: a list of risk factors (with random order) was provided. Participants were asked to say if they thought each of these factors could increase the risk of breast cancer in a woman or not? They were allowed to say "Yes", "No" or "don't know".
- Knowledge of breast cancer signs/symptoms: a list of potential breast cancer signs/symptoms was provided. Participants were asked to say if they thought each of these signs/symptoms could be an indicator of breast cancer in a woman? They were allowed to say "Yes", "No" or "don't know".
- Knowledge of breast cancer treatment and outcome: a list of 6 questions about the breast

cancer treatments was provided. Participants were asked to answer the questions using a 5-point Likert scoring system (strongly agree=1, agree=2, no idea=3, disagree=4, strongly disagree=5) and for each question, the mean Likert score was calculated.

We considered 1 point for each correct answer and 0 point for each wrong or "don't know" ones and summed the points in 2 fields of risk factors and manifestations. Total score in risk factors evaluation was 11 and total score in manifestation evaluation was 6. We categorized the level of knowledge as high for scores≥8, moderate for scores 4-7 and poor for scores 0-3 in risk factor field. We categorized the level of knowledge as high for scores 5-6, moderate for scores 4-3 and poor for scores 2-0 in manifestations field.

Data Analysis

Descriptive data were reported as mean (±standard deviation), maximum and minimum. Categorical data were presented with percentages. Student's t-test and Chi-Square test were used to compare the means. All analyses were done by SPSS statistical software SPSS, version 18 (SPSS, Inc., Chicago, IL, USA). By considering the p=66% for women with moderate to high levels of awareness (according to the study of Hadi *et al.*) **(13)**, α=0.05 and β=0.06 and power=80%, sample size was calculated as 691 using following formula:

$$n = \frac{P\,(1-P)(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta})^2}{d^2}$$

Results

A total of 1009 women were enrolled in study of whom 235 cases refused to participate (159 had not enough time to complete the interview, 63 cases said that they are not interested in the subject and 13 cases provided other reasons). A total of 83 cases discontinued their participations after answering to some questions. 691 cases were included and analyzed, finally.

Demographic Data

We studied 691 women aged between 18 and 72 years old. Mean age of our participants was 34.50 (±11.29). Of the participants, 580 (83.9%) were from Iran, 100 (14.5%) were from Afghanistan, 6 (0.9%) were from Pakistan, 5 (0.7%) had other nationalities.

Of our studied women, 84 (12.2%) had received no formal educations, 180 (26%) were primary or middle school graduates, 261 (37.8%) were high school graduates and 166 (24%) had graduated from university. Of the studied population, 441 (63.8%) were housewife and 250 (36.2%) were employed in private or governmental sectors; 332 (48%) had no income; 80 (11.6%) had very low income, 162 (23.4%)

had moderate income and 117 (16.9%) had high income; 126 (18.2%) were single, 509 (73.7%) were married, 30 (4.3%) were divorced and 26 (3.8%) were widows. 100 (14.5%) cases had positive family history.

Results on General Perception and Beliefs

About half of our studied women (52.1%) thought that breast cancer is seen only in women and 247 (35.7%) of them knew that the breast cancer may be seen in men too. Of the participants, 92 (13.3%) thought that breast cancer can be transmitted from one person to another one, 519 (75.1%) thought that "Breast cancer is the leading cause of death in women in our country" and 74 (10.7) didn't know the correct answer to this question.

Only 117 (16.9%) of our 691 studied women knew that "Breast self-examination is recommended for females once a month". The rate of awareness was even lower about the necessity of annual breast examination by a physician and only 107 (15.5%) of our studied participants knew that "Breast examination by a physician is recommended for females once a year".

Result on Breast Cancer Risk Factors and Presentation

45.7% of our participants had "good" knowledge about the presentations of breast cancer while the level of awareness was estimated as "good" in only 19.2% of them about the risk factors and screening the breast cancer by breast examination. Level of knowledge of our participants was statistically significant higher about the presentations of breast cancer than its risk factors and screening by breast examination (P=0.00). The least known risk factors for our participants were: early onset of menses, first child after the age of 30 y/o and late onset menopause. Familiarity with all 6 studied signs and symptoms of breast cancer was above 60% (Tables 1 and 2).

Table 1. Frequency of correct answers to questions about risk factors and presentations of breast cancer

Fields		Correct answers, No (%)
Awareness of risk factors		
1	Family history of breast cancer	490(70.9)
2	Large breasts	475(68.9)
3	Cigarette smoking	415(60.1)
4	Breastfeeding	404(58.5)
5	Low fat diet	369(53.4)
6	Old age	357(51.7)
7	Obesity	337(48.8)
8	Use of oral contraceptive pills	251(36.3)
9	Late onset menopause (after 55 years old)	200(28.9)
10	First child after the age of 30 years old	190(27.5)
11	Early onset of menses (before 12 years old)	167(24.2)
Awareness of signs/symptoms		
1	Nipple discharge/bleeding	473(68.5)
2	Lump under armpit (axilla)	470(68)
3	Painless breast mass	452(65.4)
4	Pain in breast region	449(65)
5	Change in breast shape	432(62.5)
6	Changes in size or skin of breast	416(60.2)
Awareness breast-examination rules		
1	Women should examine their breasts monthly	117 (16.9%)
2	Breasts should be examined by a physician annually	107 (15.5%)

Results on Breast Cancer Treatment and Outcome

Results on breast cancer treatment and outcome are summarized in Table 3.

From among the studied women, 456 (65.99%) believed that "Woman who has had treatment for breast cancer can enjoy a good quality of life" and only 10 (1.4%) of them strongly disagreed with this statement.

Having an overall positive attitude toward breast cancer treatment and outcome had a statistically significant relationship with higher educational state and being employed (rather than being a housewife) with (P=0.00, P=0.01). Marital status had no statistically significant effect on the attitude of women toward the treatment and outcome of breast cancer but higher monthly income had a statistically significant (P=0.00) effect on having positive attitude about the breast cancer treatment and outcome.

Of the study subjects, 71(71%) with a positive family history and 385(57.7%) of women with negative family history believed that a woman who has had treatment for breast cancer can enjoy a good quality of life (P=0.04). Their attitude towards the other items (being long-term, painful, embarrassing; working better in young; leading to disfigurement) had no statistically significant difference with other participants (P=0.99, 0.87, 0.67, 0.07, 0.09).

Table 2. Comparison of level of knowledge in 2 fields of risk factors and presentations of breast cancer

Level of knowledge	Field	Score*	Frequency, No (%)	P-value†
Poor	Risk factors	0-3	226 (32.70)	0.04
	Presentations	0-2	178(25.75)	
Moderate	Risk factors	4-7	332(48.04)	0.00
	Presentations	3-4	197(28.50)	
Good	Risk factors	≥8	133(19.24)	0.00
	Presentations	5-6	316(45.73)	

*Total score is 11 in "Risk factors" field and 6 in "Presentations" field. †Student's t-test

Table 3. General attitude toward breast cancer treatment and outcome in our studied women

Item	Strongly agree	Agree	No idea	Disagree	Strongly disagree	Mean of total score
Woman who has had treatment for breast cancer can enjoy a good quality of life, NO (%)	148(21.4)	308(44.6)	151(21.9)	74(10.7)	10(1.4)	3.73
The treatment for breast cancer is a long process, NO (%)	112(16.2)	347(5S0.2)	205(29.7)	24(3.5)	3(0.4)	3.78
Treatment for breast cancer is a painful process, NO (%)	105(15.2)	339(49.1)	182(26.3)	62(9)	3(0.4)	3.69
Treatments for breast cancer work better in younger people, NO (%)	100 (14.5)	286(41.4)	219(31.7)	75(10.9)	11(1.6)	3.56
Treatment of breast cancer is embarrassing, NO (%)	131(190	306(44.3)	184(26.6)	58(8.4)	12(1.7)	3.70
Treatment of breast cancer always results in some kind of disfigurement in body, NO (%)	117(16.9)	308(44.6)	144(20.8)	99(14.3)	23(3.3)	3.57

Discussion

The studied women in this study showed their least level of knowledge in the field of the screening the breast cancer by breast-examination and only about 16% of them knew that women should perform breast self-examination once a month and about 15% of them were aware of the screening role of the annual clinician breast examination.

Level of knowledge of the studied women was higher about the presentations than the risk factors and screening rules which was statistically significant. Our findings are similar to the findings of Hajian *et al.* who evaluated 500 women in Iran and showed that the level of awareness was higher in the field of presentations than the risk factors (14.8% versus 33.8%), only 10.2% of

women performed breast self-examination monthly and only 8.4% of them knew that they should visit a doctor to examine their breasts annually (14). Another study (in Iran) on 1402 women, showed also that the awareness of risk factors is less than the awareness of presentations of breast cancer; and only 17% of the studied participants did the self-examination regularly and 64% of them reported the lack of knowledge about the examination procedure as the main barrier (15).

These findings showed that the focus of the most of current educations about breast cancer is on the manifestations rather than risk factors or screening tools and it is necessary to shift from talking about the signs and symptoms of breast cancer to recognizing its risk factors and screening tools and producing "new" educational packages regarding the breast health.

A review on 30 studies on Eastern European immigrant women showed that these women don't use the breast cancer screening programs largely because of their poor level of awareness (16). Another study on 462 women in Turkey showed that theoretical educations on breast cancer screening is highly effective in improving the level of knowledge about the breast cancer even in illiterate women (17). Obvious differences in level of awareness about the screening the breast cancer by breast self-examination between women living in developing countries and women who live in developed countries with consolidated educational programs (30.3% in Saudi Arabia, 34.9% in Nigeria, 34.9% in Jordan versus 80.9% in Chinese immigrant women living in San Francisco and 75% in all women living in United States) (18-22) also show that regular formal educations based on a comprehensive local, regional and national needs assessment may encourage women to engage in screening programs markedly.

Most studies have shown that the main source of data acquisition about breast cancer is mass media especially for the illiterate and low-educated women who watch television programs in their everyday life. But it should be noticed that television and radio have usually some cultural, social, and religious barriers in teaching the exact methods of breast self-examination (and/or mammography) (23). These barriers in community-based breast health education programs should enco-urage health system to push the primary health care professionals (like family physicians, general prac-titioners, midwives, etc.) to play a more prominent role in educating the women regarding breast cancer and inspiring them to participate in the preventive and screening programs. There would be also a need to an external audit system to ensure the desirable primary health care professionals' involvement in this filed (14-15).

Limitations

Our study has some limitations. We didn't study the main route of data acquisition used by our participants. We have not studied the level of knowledge of the studied women about the mammography (as a screening tool). We have not evaluated the rate of performing the breast self-examination in women who are aware of this method of screening.

Conclusion

Most of our participants had lower level of knowledge about the risk factors and screening rules and tools of breast cancer than its clinical presentation which was statistically significant.

Acknowledgments

Conflict of Interest

The authors declared no conflict of interest.

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