Introduction

Global statistics found that that breast cancer is the most frequently diagnosed and a leading cause of death in women worldwide.[1,2] According to the World Health Organization, each year more than 1.4 million women worldwide are diagnosed with breast cancer as it accounts for 23% of all newly diagnosed cancer.[3]

High breast cancer mortality has been attributed to a lack of public awareness of the disease.[4] Breast cancer is detected more often in younger females and at a more advanced stage when compared with females of other life stages.[5] In the Kingdom of Saudi Arabia, breast cancer usually presents at advanced stages and more frequently in young pre-menopausal women in comparison to the Western countries.[6]

Early detection of breast cancer can be achieved through breast self-examination (BSE), clinical breast examination (CBE) and mammography.[7] Delayed breast cancer diagnosis in the developing countries is related to poor breast cancer awareness and barriers to healthcare services access.[8] Early detection is more likely to have a better prognosis and more successful treatment.[9]

The etiology of breast cancer is complicated, and multiple factors are associated with an increased risk of breast cancer...
development, including age, gender, ethnicity, history of breast cancer, reproductive and hormonal factors, family history, genetic factors, exposure to ionizing radiation, environmental, and lifestyle factors. The most common causal beliefs identified by studies of women with breast cancer are stress, toxic environmental exposure, genetics, hormones, and poor health behaviors.

There is marked geographical variation in incidence rates, being highest in the developed world and lowest in the developing countries in Asia, Middle East, and Africa. In Africa, a total of 133,900 new breast cancer cases in women were estimated in 2012 representing 27.6% of all the cancer cases.

The prevalence of breast cancer among Saudi females is accounted for more than 25% of all newly diagnosed cancer. Many medical literatures in different regions of the Kingdom found out lack of knowledge of breast cancer risk factors, inadequate utilization of screening method, and the need for more community-based health awareness. A study was conducted in Al-Ahsa in the eastern region of the Saudi. It was found that the overall level of knowledge regarding risk factors and appropriate screening was low.

Earlier studies conducted in Buraidah in the Al-Qassim region in Saudi Arabia explored knowledge, attitudes, and practices surrounding breast cancer and screening in Saudi female teachers. The study reported insufficient knowledge of female teachers about breast cancer, and it is early dedication measure which has a negative influence on the practice of BSE. Moreover, the printed media was the most common source of knowledge among them.

At the level of the Gulf area, a study points to insufficient knowledge of female teachers about breast cancer and identified the negative influence of low knowledge on the practice of BSE.

Patients and Methods

This is a cross-sectional descriptive study conducted through distributing validated pretested Arabic questionnaire to investigate participants’ knowledge about risk factors associated with breast cancer, and this is a screening method.

Saudi adult females age 18–55 years attending the Family Medicine Department in Security Forces Hospital (SFH) for routine services or accompanying patients were included in the study by a nonprobability convenience sampling. Non-Saudi females and women age less than 18 years or more than 55 years were excluded.

Statistical analysis

Numbers and percentages were used to summarize categorical/qualitative, where numeric/quantitative data were summarized by means and standard deviations for normal data and medians and interquartile ranges for non-normal data. Comparison between groups for categorical variables was done using Chi-square test. We used t-test or Mann–Whitney U-test for comparison between groups for quantitative variables for two groups and analysis of variance (ANOVA). To identify the risk factor or to estimate the adjusted association, we used logistic regression models. All statistical analyses were performed using SPSS version 25.

Ethical considerations

Ethical approval was taken from the ethical committee; before interviewing, the researchers explained the purpose to all respondents, and oral consent was obtained from all the participants. The participants had the right not to participate in the study or to withdraw from the study before completion. Confidentiality and privacy were guaranteed for all participants.

Results

Demographics

The mean age of 384 participants in our study was 31.9 ± 8.6 years. Table 1 shows the demographics of participants in percentages.

Knowledge of breast cancer warning sign

Table 2 shows the answers of the questions about their knowledge of breast cancer warning sign; the questions asked women whether they think any of the following signs mentioned below in the table are considered as a warning sign of breast cancer.

Knowledge about breast cancer risk factor

On calculating total scores about participants knowledge of risk factors for breast cancer, we considered whose total score answer more than 50% out of the total estimated score has a good knowledge. A total of 291 women (75.8%) had

| Table 1: Demographics analysis among Saudi females at primary care clinic in Security Forces Hospital, Riyadh |
|-----------------------------------------------|
| Marital status                                | Percentage |
| Divorced/widow                                | 1.6         |
| Married                                       | 68.7        |
| Single                                        | 29.7        |
| Level of education*                           |             |
| Illiterate                                    | 3.1         |
| College                                       | 50          |
| High school                                   | 28.9        |
| Postgraduate study                            | 10.55       |
| Primary school                                | 7.45        |
| Employment status                             |             |
| Employed                                      | 29.7        |
| Housewife                                     | 53.2        |
| Retired                                       | 2.3         |
| Student                                       | 14.8        |
| Family history**                              |             |
| Yes                                           | 14          |
| No                                            | 86          |

*Mean 15 subject with missing data, **Mean 3 subject with missing data
a good knowledge, and only 93 women (24.4%) had a poor knowledge [Figure 1].

Table 3 ANOVA test was used to assess the difference in breast cancer knowledge by demographic variables (age, marital status, level of education, employment status, and family history). A significant relationship was seen between the increase in the knowledge of breast cancer risk factors between age ($F = 4.3, P = 0.03$) and marital status ($F = 5.2, P = 0.001$).

Knowledge about breast cancer screening method

We described participants’ knowledge using breast cancer screening method, assuming that participants who answered correctly to the questions had a good knowledge. BSE and CBE are the methods of early detection of breast cancer answered by 60.9% of women. BSE should start at the age of 20 years and should be done monthly. Most women have heard about CBE (53.1%). However, only 26.6% know that CBE should be done yearly. About 43% of women have heard of mammography, but only a minority of them (25%) knew that 45 years is the recommended age for mammography.

While calculating total scores for participants who answered correctly to the questions estimating the degree of their knowledge about breast cancer screening method, 33 women (8.6%) had a good knowledge, and 351 women (91.4%) had an imperfect knowledge [Figure 2].

Pearson’s product method correlation coefficients were used to assess the relationships between females’ breast cancer knowledge regarding risk factors and screening methods and demographic variables (age, marital status, level of education, employment status, and family history) [Table 4].

A significant correlation was found between the increase in the knowledge of breast cancer risk factors between age ($r = 0.1, P = 0.03$) and marital status ($r = -0.2, P = 0.05$), and a significant correlation was also seen between an increase in the knowledge of breast cancer screening method and employment status ($r = -0.7, P = 0.01$).

Source of information about breast cancer

Although books, printed material, and Internet (10.9%) are common in most of the participants’ answers, social media represented the highest percentage of source of information about breast cancer (20.3%). Television, radio, and Internet are the second source of information (16.4%). Physician is the third source of information about breast cancer (15.6%).

Discussion

The aim of this study is to assess the level of knowledge about breast cancer risk factor and screening among Saudi females at a primary care clinic in SFH, Riyadh. With regard to awareness
of knowledge about breast cancer risk factors, most participants assured that history of breast cancer (57.7%), using hormone replacement therapy (HRT) (12.5%), and family history of breast cancer (54.7%) greatly influence their knowledge as leading causes of breast cancer. These answers were “agree and strongly agree” depending on the level of their certainty. Although the overall knowledge was good (75.8%). However, knowledge of other factors was limited to high percentages of participants’ answers of “not sure” regarding being overweight, first pregnancy after 30 years, having menopause after the age of 50 years, and doing less physical activity.

This finding is in agreement with what was reported by two studies conducted in Saudi Arabia. The first one conducted in Jeddah concluded that the majority of participants (57.5%) knew about family history and having a close relative with breast cancer as established risk factors for the disease; also, 41.0% and 35.5% of participants were aware of alcohol drink and HRT as other risk factors of breast cancer, respectively.[14]

The second one conducted in Riyadh reported heredity and HRT as common breast cancer risk factors as perceived by women in Riyadh.[19]

Our study revealed that BSE and CBE are the methods of early detection of breast cancer, which was answered by 60.9% of women. This result was in accordance with a study which had 824 students, with an average age of 17.0 years. There was more than 50% agreement that early detection of BC enhances the chances of recovery that BC is treatable, and that CBE and breastfeeding provide protection from BC.[16]

A systematic review conducted in Iran assured that the number of people with sufficient knowledge about BSE in various studies was between 5% and 79.8%.[20] Our study result on knowledge about screening method falls between the range (8.6%) which is considered as a poor knowledge.

Social media represented the highest percentage of source of information about breast cancer (20.3%). A study conducted by Kratzke concluded that television, radio, and Internet are the second source of information (16.4%). The most common information sources were Internet (75%), magazines (69%), provider (76%), and friends (61%). The least common sources were radio (44%), newspapers (34%), and mothers (36%).[23]

Table 3: Differences in knowledge about breast cancer risk factor by demographics among Saudi females at primary care clinic in Security Forces Hospital, Riyadh

|                        | Mean squares | ANOVA | F     | P    |
|------------------------|--------------|-------|-------|------|
| Age                    |              |       | 317.3 | 0.03 |
| Marital status         |              |       | 66.7  |      |
| Level of education     | Between groups | 0.7   | 5.2   | 0.001|
|                        | Within groups | 0.13  |       |      |
| Employment status      | Between groups | 1.3   | 1.8   | 0.1  |
|                        | Within groups | 0.7   |       |      |
| Family history         | Between groups | 0.8   | 1.2   | 0.2  |
|                        | Within groups | 0.6   |       |      |

ANOVA: Analysis of variance

Table 4: Relationships among breast cancer awareness and demographic variables among Saudi females at primary care clinic in Security Forces Hospital, Riyadh

|                        | r   | P    |
|------------------------|-----|------|
| Knowledge of breast cancer risk factor |     |      |
| Age                     | 0.1 | 0.03 |
| Marital status          | −0.2| 0.05 |
| Level of education      | 0.07| 0.1  |
| Employment status       | 0.05| 0.2  |
| Family history          | −0.001| 0.9 |

Knowledge of breast cancer screening method

|                        | r  | P   |
|------------------------|----|-----|
| Age                    | 0.17| 0.7 |
| Marital status         | 0.06| 0.2 |
| Level of education     | 0.08| 0.9 |
| Employment status      | −0.7| 0.01|
| Family history         | −0.04| 0.3|

Physician is the third source of information about breast cancer (15.6%). In other studies, the most important source of information was the healthcare team.[24]
Conclusion

Findings indicate that knowledge of breast cancer warning sign and screening method were very limited although knowledge of breast cancer risk factors is slightly adequate which is significantly different by age and marital status. The results of poor knowledge about cancer breast observed in this study reflect the need for greater efforts to increase breast awareness education.

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Conflicts of interest

There are no conflicts of interest.

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