Assessing the Knowledge of Breast Cancer Risk Factors, Warning Signs, Self-Examination, and Mammography among Women in the Eastern Region of Saudi Arabia

Adel Albargi[1], Fatimah Z Alkhars[2]*, Ahmed Z Alkhars[3], Abdullah Z Alkhars[3], Alreem A Albagshi[3] and Abdullah H Bukannan[3]

[1]*Family Medicine Consultant, Collage of Medicine, King Faisal University, Alahsa, Saudi Arabia*
[2]*Medical Intern, Collage of Medicine, King Faisal University, Alahsa, Saudi Arabia*
[3]*Medical Student, Collage of Medicine, King Faisal University, Alahsa, Saudi Arabia*

*Corresponding Author: Fatimah Z Alkhars, Medical Intern, Collage of Medicine, King Faisal University, Alahsa, Saudi Arabia.

Abstract

Background: Breast cancer accounts for 23% of all cancer cases. It is also set as the most common cause of death among women in 140 countries around the world. The incidence in Saudi Arabia is (22.4/100,00). Early detection significantly improves the prognosis, however knowledge about the risk factors and early signs is needed. Previous studies showed low levels of awareness in Saudi females.

Objectives: The study aims to assessing the levels of breast cancer awareness among Saudi females in the eastern area of Saudi Arabia, assessing if the level of education will affect the level of awareness, and assessing if having a family history of breast cancer will affect the level of awareness.

Methods: This research is a questionnaire based cross-sectional descriptive study conducted on 438 females in the eastern area of Saudi Arabia. The statistical tests of choices were frequencies, percentages and independent T-test and ANOVA test.

Results: One-way ANOVA test has been used to assess the relationship between level of education and breast cancer knowledge. It has been observed that (ANOVA F = 1.127), (P = 0.338 which is > 0.05) hence the relationship between level of education and breast cancer knowledge is not significant. Independent T-test has been used to assess the relationship between positive family history of breast cancer and breast cancer knowledge. It has been observed that (P = 0.396 which is > 0.05) (T = 0.85) hence, no significant relationship has been found between positive family history of breast cancer and breast cancer knowledge level.

Conclusion: The overall knowledge levels are sub-optimal and need more improvement. No relationship has been found between Breast Cancer knowledge levels and educational level or positive family history of breast cancer.

Keywords: Breast Cancer; Lump; Mass; Awareness; Breast Self-Examination; Mammography

Abbreviations

BSE: Breast Self-Examination; CBE: Clinical Breast Examination; SPSS: Statistical Package for Social Sciences

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Introduction

One of the most common diagnosed cancers among women around the world is breast cancer (BC), which accounts for 23% of all cancer cases [1]. It is also set as the most common cause of death among women in 140 countries around the world [2]. In the Arabic gulf countries, breast cancer has highest incidence rates in Bahrain (49.8/100,000), while the incidence in Saudi Arabia is (22.4/100,00) [4]. Breast cancer must be early diagnosed in order to improve the chance of early detection in early stages and the get the successful treatment, which is going to improve survival rate and life quality. The early detection needs knowledge and awareness about warning signs and screening methods [4]. Screening methods include breast self-examination (BSE), clinical breast examination (CBE), and mammography [5]. Studies showed that only low percentage of women in low and middle-income countries perform breast self-examination regularly [6-8]. The cause can be referred to women fear of finding that they have (BC), or the lack of knowledge on how to perform (BSE) or what to do if she found a lump [9,10]. Early studies in Saudi Arabia explored female's knowledge about breast cancer proved the lack of knowledge about risk factors, warning signs, the importance of breast self-examination and mammography [11]. Few studies were conducted to address breast cancer awareness among Saudi females in the eastern area of Saudi Arabia.

Purpose of the Study

The purpose of the study will be to assess the levels of breast cancer awareness among Saudi females in the eastern area of Saudi Arabia, and if the level of education or having a family history of breast cancer will affect the level of awareness.

Methods

The research is a cross-sectional descriptive study conducted between November and December 2019. An electronic questionnaire was written in Arabic and was randomly distributed among females from Al-Ahsa, Saudi Arabia, whose age was 15 years and above. The average time was needed to fill the questionnaire was 3 - 5 minutes. Electronic consent was taken from all participants. For data analysis, the Statistical package for Social Sciences (SPSS) was used.

Results

The total number of participants was 438. The majority (154 participants) (35.20%) of participants age was between 21 - 30 (Table 1). Most of participants were Saudi (431 participants) (98.40%) (Table 2). As for the educational levels, most of the participants had a university level education (314 participants) (71.70%) (Table 3). In terms of participants with family history of breast cancer, (277 participants) (63.20%) had family history (Table 4). The study showed that the knowledge about risk factors for breast cancer is as follow: the percentages of participants that correctly identified the mentioned risk factors is as shown on table 5. The percentages of participants that falsely identified these are risk factors: (20.80%) identified breast size, (1.80%) identified breast feeding, (16.00%) identified wearing bra, (35.80%) identified using deodorants. The study showed that the knowledge about alarming symptoms for Breast Cancer demanding doctor visit is as shown on table 6. The percentages of participants that falsely identified the following as an alarming symptom that requires a doctor visit:(5.30%) changing breast size during periods, (3.20%) changing breast size during pregnancy, (6.40%) seeing discharge from nipples during pregnancy, (8.20%) pain before and during periods. Regarding participants' practices and knowledge about breast self-examination, it has been observed that only (10.70%) of participants practices regular breast self-examination, (32.40%) practices breast self-examination irregularly and (56.80%) did not practice breast-self-examination. the percentages of participants that correctly answer the following in regard of breast self-examination: (72.90%) knew that the best time to perform breast self-examination is few days after the period, (87.20%) knew that the breast self-examination includes both the breast and arms, (96.90%) knew that the proper response when they find a mass while performing the breast self-examination is to visit a doctor. Furthermore, the study showed that the Practices and Knowledge about Mammography is as follow: that the percentage of participants who have heard about mammography as a screening method for breast cancer was (63.50%). So, the percentages of participants that correctly answer the questions in regard of mammography is shown on table 7. We assessed the relationship between Level of Education and Breast Cancer Knowledge

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Level through one-way ANOVA test. It has been observed that (ANOVA F = 1.127), (P = 0.338 which is > 0.05), hence the relationship is not significant (Table 8). The mean and the standard deviation of correct answers according to each educational level was as follow, (Primary school, mean = 14, SD= 2), (Intermediate school, mean = 15, SD =5), (High school, mean = 15, SD = 6), (University, mean = 16, SD = 6). On the other hand, the relationship Between family history of breast cancer and breast cancer knowledge Level is shown in table 9, independent T-test has been used. It has been observed that (P = 0.396 which is > 0.05) (T = 0.85) hence no significant relationship has been found between positive family history of breast cancer and breast cancer knowledge level.

Discussion

The study has revealed that the most identified risk factors were radiation to the breast 65%, positive family history 58% and previous personal history of breast cancer 63%. Which is considered a sub-optimal level. However, it also showed that the following risk factors

Variable		N	%
Age	15 - 20	81	18.50%
	21 - 30	154	35.20%
	31 - 40	86	19.60%
	41 - 50	78	17.80%
	Above 50	39	8.90%

Table 1: Participants age groups.

Variable		N	%
Nationality	Saudi	431	98.40%
	Non-Saudi	7	1.60%

Table 2: Participants nationality.

Variable		N	%
Education level	Primary school	3	0.70%
	Secondary school	13	3.00%
	High school	108	24.70%
	University	314	71.70%

Table 3: Participants educational levels.

Variable		N	%
Family History of Breast Cancer	No	277	63.20%
	Yes	161	36.80%

Table 4: Participants family history of breast cancer.

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Variable	N of correct answers	% of correct answers
Positive family history of breast cancer	277	63.20%
Previous history of breast cancer	253	57.80%
Aging	167	38.10%
Obesity	126	28.80%
Being a woman	129	29.50%
Breast size	347	79.20%
Early menarche less than 12 years old	67	15.30%
Late menopause more than 55 years	78	17.80%
Radiation on breast	283	64.60%
Nulliparity	109	24.90%
Having the first baby after the age of 30	77	17.60%
Using of oral contraceptive pills	182	41.60%
Breast feeding	430	98.20%
Drinking alcohol	147	33.60%
Exercise	435	99.30%
Smoking	178	40.60%
Wearing bra	368	84.00%
Using deodorant	281	64.20%

Table 5: Percentage of participants having correct knowledge about warning signs and risk factors of breast cancer.

Variable	N of correct answers	% of correct answers
Mass on breast	401	91.60%
Mass on under arm area	342	78.10%
Redness or darkness on breast color	258	58.90%
Redness or darkness on under arm area	110	25.10%
Change on breast shape or size	312	71.20%
Changing breast size during periods	415	94.70%
Changing breast size during pregnancy	424	96.80%
Changing on skin texture on breast or under arm	247	56.40%
Itching of nipples	191	43.60%
Seeing sudden discharge from nipples	438	100.00%
Seeing discharge from nipples during pregnancy	410	93.60%
Depressed nipple or any area of breast	239	54.60%
Persistence pain of breast	257	58.70%
Pain before and during periods	402	91.80%

Table 6: Percentage of participants having correct knowledge about alarming symptoms for breast cancer demanding doctor visit.

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Variable	N of correct answers	% of correct answers
Age at which mammography screening should be started	191	63.50%
Best time to do mammography in relation to the period.	191	63.50%
Frequency of mammography screening at proper age.	265	84.70%
Can mammography be done during pregnancy or breastfeeding	281	90.40%
Is mammography diagnostic for breast cancer	281	90.40%

Table 7: Percentage of participants having correct knowledge about mammography.

		Mean	Standard Deviation	P-Value	ANOVA F	95% CI
Education level	Primary school	14	2			9.16/19.5
	Secondary school	15	5	0.338	1.127	12.43/18.49
	High school	15	6			13.43/15.57
	University	16	6			15.04/16.46

Table 8: Relationship between level of education and breast cancer knowledge level via one-way ANOVA test

		Mean	Standard Deviation	P-Value	T	95% CI
Family History of Breast Cancer	Yes	16	6	0.396	0.85	14.88/16.35
	No	15	6			14.14/16.05

Table 9: Relationship between family history of breast cancer and breast cancer knowledge level via independent T-test.

have been poorly identified, age 38%, obesity 29%, being a woman 30%, early menarche 15%, late menopause 18%, nulliparity 25% and delayed 1st pregnancy 18%. These findings are consistent with the results found in previous studies including one in Jeddah done by Radi S [12] and another in Riyadh done by Alam A., *et al.* [13], that had shown that the most identified risk factors was having a family history of breast cancer. It was also shown that early menarche and late menopause were poorly identified as risk factors. The study has revealed that the most identified alarming symptoms for breast cancer were mass on breast 92%, seeing sudden discharge from nipples 100% and 78% mass on under arm area reflecting decent knowledge. On the other hand, the following alarming symptoms were not well identified: redness or darkness on under arm area 25%, itching of nipples 44%. These findings are similar to that found in previous researches, where a study in Abha, Al Madina had shown that the most identified alarming symptoms for breast cancer is a mass on breast and changes in the nipple [14,15]. It has been observed in this study that a low percentage of woman practicing breast self-examination regularly (11%), while the majority (57%) are not practicing breast self-examination at all. Such findings were unlike the study made in Riyadh in which higher percentages of breast self-examination were detected and the author attributed this to the high socioeconomical backgrounds of the participants [13]. As for the knowledge related to breast self-examination, it was shown in this study that participants had moderate to high knowledge. 73% Knew the proper timing for BSE in relation to period, 87% knew about the correct areas of BSE, and 97% knew how to properly response when finding an abnormality in BSE. Such findings are incongruent with the finding in multiple studies done in Saudi Arabia where it has been shown that participants had poor knowledge related the BSE [15,16]. This incongruent can be attributed to few possibilities, one is that the questionnaire was distributed to a sample with averagely higher awareness level, it can also be due to the fact that most of participants are from young age, or due to the increased emphasis of breast cancer awareness in health

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campaigns that happened with time. The present study showed that 63% heard about mammography as a screening method for breast cancer, 64% knew the proper timing in relation to the period, 85% knew about the correct frequency for woman at proper age. 90% knew that mammography should not be done during pregnancy or breastfeeding, 90% knew that mammography is not diagnostic for breast cancer. Which are fair numbers reflecting reasonable knowledge about mammography. These findings are not aligning with some other studies done in Saudi Arabia and it reflect higher levels of knowledge. The study in Jeddah and a study in Buraidah showed markedly lower levels of knowledge related to mammography [12,17]. It has been observed that the relationship between level of education and breast cancer knowledge is not significant (ANOVA F = 1.127), (P = 0.338 which is > 0.05). This finding comes contradictory to the previous studies that showed a strong correlation between level of education and knowledge about breast cancer [12,17]. This contradiction needs to be investigated more. A possibility that can explain the indifference is that most people have low to moderate level of knowledge regardless of their educational backgrounds. Another one is that during the past few years the awareness increased due to a variety of factors. It has been observed that there is no significant relationship between positive family history of breast cancer and breast cancer knowledge (P = 0.396 which is > 0.05) (T = 0.85). No previous researches established the relationship between family history of breast cancer and the knowledge levels about breast cancer. We assumed that having a family member affected by breast cancer may lead to increased demands answering many questions about the diseases which eventually lead to higher level of knowledge. However, the result of this study proves that such a relationship does not exist. We recommend further investigation on this point.

Conclusion

In conclusion, it has been revealed that the overall knowledge levels are sub-optimal, thus we highly recommend initiating and improving the methods that aims to increase the awareness of the population like awareness campaigns and social media. Moreover, this research showed that there is no relationship between educational level and breast cancer knowledge levels. We also noticed that there is no relationship between positive family history of breast cancer and knowledge levels of breast cancer. Further studies are needed to confirm these findings.

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