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# The effect of breast cancer awareness on young females, their knowledge and self-examination skills

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## ABSTRACT

*Background:* The most prevalent cancer in the world is breast cancer form of cancer in women and its incidence is rising in a number of nations. Breast self-examination is a basic and straightforward method for women to discover breast changes. *Objective:* The purpose of this research is to identify the workshops on breast cancer awareness effect on female students. Using a set of questionnaires developed for the study, breast cancer knowledge and breast self-examination skills of the participants were evaluated prior to and following the workshop. *Methodology:* A quasi-experimental study was carried out. Participants' understanding of breast cancer and prowess in performing breast self-examinations (BSE) were assessed prior to and following the workshop using a collection of surveys created especially for the study. *Results:* After the awareness workshop, participants' understanding of breast cancer increased substantially, according to the data. *Conclusion:* Based on the research's results, we believe that private and public schools in Al-Madina should provide regular workshops in regard to breast self-examination and breast cancer for female students for the purpose of expanding their understanding, confidence and ability to teach other females about early diagnosis of breast cancer.

**Keywords**: Breast cancer, Self-Examination, Awareness, Students

## 1. INTRODUCTION

The most prevalent type of cancer is breast cancer occurring cancer among females worldwide based on the information from the World Health Organization in 2020, over 2.3 million women were given a breast cancer diagnosis and about 685,000 died secondary to the disease. In Middle Eastern countries, in particular Saudi Arabia, it was shown that the number of 5-year breast cancer prevalence cases was 13,632. Unfortunately, Breast cancer instances are discovered at later stage in Saudi pre-menopausal women (40 years and older) as well as in women at younger age. This would increase the mortality rate and reduce the potential cure of the disease.

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Early detection of this malignant disease whether by monthly self-examination, annual mammography (Sharma et al., 2010; Tsegaye et al., 2021: Khalifah et al., 2023) or BRCA testing (Pujol et al., 2021), has a crucial role in treatment effectiveness which considered typically multimodal approach. Patients' treatment plan is tailored according to the stage of the disease which may have one or combined treatment modalities. These include local treatment for a specific area by surgical removal of the tumor or radiation therapy and/or systemic treatment that targets cancer cells all over the body by using chemotherapy or hormonal therapy (Sharma et al., 2010). Intriguingly, early diagnosis of this disease could result in an increase of the survival rate which reaches about 90% in high-income countries. However, lack of awareness and education about this disease factors, prevention and detection using screening methods as self-examination, mammography or sonography, has a major role in increasing cancer metastasis and mortality rate despite the free of charge screening program (Amin et al., 2009; Richard et al., 2020). In addition to the previous factors, cultural taboos may contribute to its increased rate of mortality in Saudi Arabia. This is due to the conservative's culture of the society, as many females out of shyness will not ask for medical checkup (Richard et al., 2020).

Few years ago, the Saudi Arabia's health care infrastructure began to focus on disease prevention through the detection of the asymptomatic patients at early stage (Gosadi, 2019). This was through launching awareness campaigns using different delivery channels such as social media and public interactive activities. Between ages 40 - 50, the recommended protocol for disease prevention is annual breast cancer screening methods and monthly self-examination (Richard et al., 2020). In the case of abnormal screening results, core biopsy will be required for further analysis (Amin et al., 2009).

In this study we aimed to assess how breast cancer awareness can improve the knowledge of young females towards this malignant disease and whether it would result in an increased utilization of screening methods namely self-examination, screening mammography and ultrasonography. Theoretically, these awareness programs should help with reducing the stigma of breast cancer and as a result will increase the survival rate. Thus, we conducted a survey to determine the impact of awareness workshops on breast cancer which may also overcome and improve the barriers between young females and healthcare providers.

## 2. MATERIAL AND METHODS

### Study design

A quasi-experimental design was used to identify the impact of a public campaign for breast cancer workshop on female medical students' Breast cancer awareness and BSE practice prior to and following the session, evaluations were conducted. The workshop was conducted twice by the medical faculty and data were obtained from 200 female medical students living in Madina and studying at medical colleges. The study was carried out from October until the end of November 2022.

### Study population and sampling technique

Each participant was assigned a number to maintain their anonymity, the participants were told that they had the option to withdraw from the study the study and that the pre-and post-test results would be kept confidential. The results will be applied solely for research purposes and would not affect their college grades. After the workshop, the post-test survey was distributed to the students who attended the workshop to complete using their serial unique IDs, the posttest questionnaire and were collected post completion. The designed contained three sections: Personal information, breast cancer knowledge and BSE. The informational portion included closed-ended questions about danger factors for breast cancer, early detection methods and self-examination procedures. Correct responses were tallied to determine each participant's total knowledge score. In addition, a practical session on BSE was conducted. The BSE was demonstrated utilizing various breast modules (normal and abnormal). Participants were permitted to practice BSE on the modules under faculty supervision. Prior to and following the workshop, the participants were evaluated.

### Data management

Statistical analysis was used and data were coded, entered and analyzed using the Statistical Package for Social Science (SPSS) version 21.0 (SPSS, Chicago, IL, USA). Categorical variables using T-test. Data is considered significant if $(P < 0.05)$.

## 3. RESULTS

In this research, 200 female medical students with ages ranging from 19 to 24 and a mean of 22 years old had their breast cancer awareness levels evaluated. Out of the 200 medical students, 198 were single (98.8%) and 2 were married (1.2%). Approximately 8% stated that they have an incidence of breast cancer in the family. Out of the 8% students, 67% of respondents said a close cousin had breast cancer as indicated (Figure 1, 2).

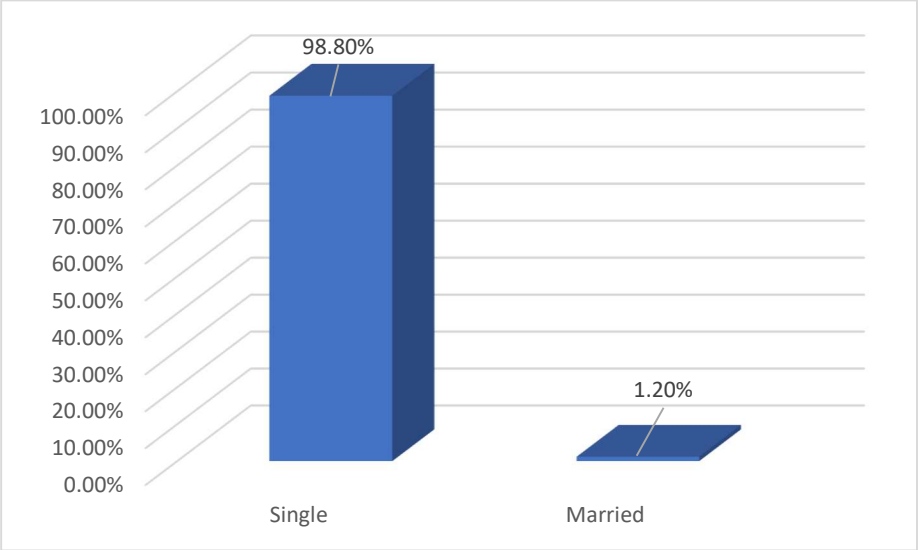


**Figure 1** Participants' Marital status (n = 200)

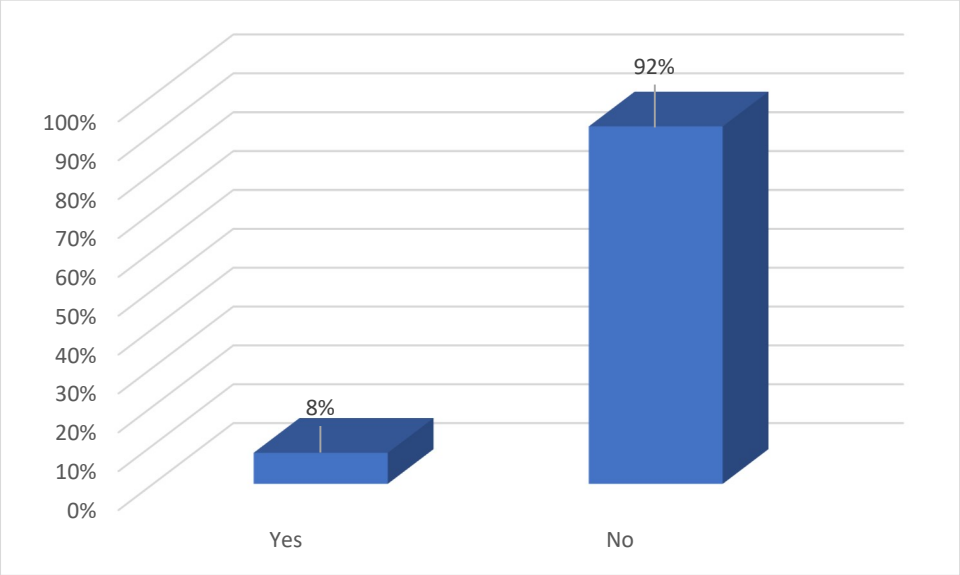


**Figure 2** Participants' Family with breast cancer (n = 200)

73% of those taking part were aware that visible nodules could be signs of breast cancer; however, approximately two-thirds of them were unaware that palpable lymph nodes may also be indicative of breast cancer. 64% of them were unaware that a deviated nipple is one of the breast cancer symptoms. 70% of those surveyed were aware of the typical location of breast cancer tumors. There were statistically significant improvements in knowledge regarding breast cancer symptoms after the workshop (Table 1).

**Table 1** Participant responses regarding breast cancer signs and symptoms

| Breast cancer symptoms & signs | Pre workshop | | Post workshop | | *P-value* |
|---|---|---|---|---|---|
| | Number | % | Number | % | |
| Discernible lumps | 14 | 27 | 21 | 42 | 0.04 |
| Typical site of malignant growth | 36 | 70 | 47 | 94 | |
| Palpable axillary lymph nodes | 15 | 30 | 32 | 61 | |
| Deviated nipples | 18 | 36 | 12 | 24 | |

*Statistically significant at 0.05 **highly significant at 0.01 \ \ Not statistically significant

After the workshop, the attendees' understanding among the breast cancer danger factors significantly improved (Table 2). It's interesting to observe that 82% of the students recognized that age and obesity is a risk factor, only 4% knew that eating fatty foods also breast cancer chance is increased.

**Table 2** Responses of participants regarding breast cancer risk factors

| Risk factors | Pre workshop | | Post workshop | | *P-value* |
|---|---|---|---|---|---|
| | *No* | % | *No* | % | |
| Age | 41 | 82 | 48 | 97 | |
| Obesity | 41 | 82 | 50 | 100 | |
| Late menopause | 11 | 22 | 23 | 46 | |
| Low fiber diet | 38 | 76 | 44 | 88 | |
| Early menarche | 15 | 30 | 46 | 92 | |
| Never breast feeding | 44 | 88 | 47 | 94 | |
| Fatty food consumption | 1 | 4 | 47 | 94 | 0.02 |
| Less exercise | 45 | 90 | 50 | 100 | |
| Hormonal therapy | 44 | 88 | 48 | 98 | |
| extended estrogen intake | 38 | 76 | 50 | 100 | |
| Breast cancer is transmitted | 50 | 100 | 50 | 100 | |
| Breast cancer in the family | 35 | 70 | 50 | 100 | |
| Breast cancer can develop without family background | 48 | 94 | 50 | 100 | |

*Statistically significant at 0.05 **highly significant at 0.01 \ \ Not statistically significant

Prior to the workshop, the vast bulk of participants 72% believed that BSE was neither challenging nor time-consuming. 60% of them, however, stated that BSE causes humiliation and 64% feared discovering an abnormality. Approximately 24% believed that BSE was problematic. Following the workshop, their attitudes toward BSE improved significantly.

## 4. DISCUSSION

Breast cancer is a public health issue in Saudi Arabia. The government is collaborating with the United States government to combat breast cancer (Knoll, 1997). Early breast cancer detection may serve an important role in reducing the number of breast cancer-related deaths by increasing breast cancer early detection awareness. Possessing knowing enough about breast cancer and detection methods may enhance the ability to instruct Saudi women. Attia and his colleagues discovered that one of these is a lack of information the factors preventing women from engaging in BSE (Alkhasawneh, 2007). This study demonstrates awareness workshops' beneficial effects on understanding and attitude of female students regarding breast cancer. This may enable students to educate women on the significance of early identification and therapy (Chiedozi et al., 2003). Therefore, Saudi women may have a better chance of surviving.

Participants in this study reported a significant increase in their knowledge and increased belief in their capacity to instruct other females. However, self-reported confidence in teaching concerning breast cancer and BSE is not necessarily indicative of actual teaching ability in the classroom. The researcher believes that participants' significant post-test knowledge gains may boost their genuine assurance, but it is considered a short-term effect due to the workshop's immediate influence. Continuous intervention is necessary to continue to retain permanent information and confidence (Balkaya et al., 2007).

Compared to other female medical students in Jordan (Haji-Mahmoodi et al., 2002), Iran (Budden, 1999; Turkey et al., 2007) Saudi medical students were significantly larger breast cancer awareness. All participants stated that they had learned about BSE in their curriculum and understood breast cancer is the most prevalent cancer among women. Similar to what was discovered in (Budden, 1999) one-third of medical students performed BSE, among them, only 33% routinely engaged in BSE (monthly). 21% of the participants in this research never engaged in BSE, despite their claims that it is a straightforward and time-efficient procedure. In addition, 40% of these bright students didn't pass the BSE on a regular basis. This might be because the young age of the participants (average age is 22) and their marital status (97% single females). Moreover, it may be associated with their BSE performance humiliation (55%).

Similar to the findings of Budden's study (Budden, 1999), this study failed to cover a significant correlation the connection between BSE usage and the participants' knowledge of ways to check their breasts and their demographic information. Other

research has discovered a substantial correlation between BSE awareness and women's age, level of education and history of breast problems (Seif and Aziz, 2000). Additionally, the research conducted by Haji-Mahmoodi et al., (2002) revealed a significant correlation between BSE practices and age, level of education and personally experienced breast health issues, insufficient exposure to clinical encounters among medical students, as observed in Singaporean medical (Seah and Tan, 2007) and American medical institutions (Budden, 1999). Therefore, it is essential to maintain medical students knowledgeable of any medical conditions that are not thoroughly covered in their college curriculum.

A number of participants were aware that consuming junk breast cancer is one of its risk factors is diet. Because Saudi cuisine is typically rich in fats and oils, this issue must be emphasized when educating students and other females in the community. Nearly 37% believed there was no need for a mammogram if BSE was performed, while 60% believed that mammography causes breast cancer. These misunderstandings among female students may hinder efforts to encourage women to undergo mammograms. Post the workshop, misconceptions were greatly rectified, 20% that continue to believe that mammograms cause breast cancer. At the conclusion of the workshop, participants were able to accurately demonstrate BSE on the modules.

## 5. CONCLUSION

Saudi students are becoming more aware of breast cancer is extremely low for a variety of variables, which may be indicative of a general population decline. The implementation of public awareness strategies is crucial to overcoming the growing burden of breast cancer.

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**Author Contributions**

The authors appreciate the contributions of the participants. Authors' contributions: FM carried out the methodology and the manuscript's creation and writing. The JB and FM carried out sample collections. SA and RM directed and participated in the study's planning, statistical analysis and manuscript writing processes. All authors reviewed and approved the final manuscript.

**Informed consent**

Written informed consent was obtained from all individual participants included in the study. Additional informed consent was obtained from all individual participants for whom identifying information is included in this manuscript.

**Ethical approval**

The study was approved by the Medical Ethics Committee of Alrayan Colleges (Ethical approval code: H-03-M-122-024).

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**Conflict of interest**

The authors declare that there is no conflict of interests.

**Data and materials availability**

All data sets collected during this study are available upon reasonable request from the corresponding author.

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