

# What do Omani Women know about Breast Cancer Symptoms?

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## ARTICLE INFO

### Article history:

Received: 14 April 2014

Accepted: 2 November 2014

### Online:

DOI 10.5001/omj.2014.110

### Keywords:

Awareness; Knowledge;

Breast Cancer; Symptoms.

## ABSTRACT

**Objectives:** Breast cancer is one of the most common cancers and a leading cause of cancer-related mortality in women worldwide. Studies to detect the awareness of breast cancer among Arab women are few and point to a lack of breast cancer knowledge among females. Early detection of breast cancer plays a leading role in reducing mortality rates and improving prognosis. This study aims to assess the knowledge and awareness of breast cancer symptoms among Omani women. **Method:** A descriptive, cross-sectional survey design was carried out in Muscat, Oman. The study was conducted at three health centers and three shopping malls using convenience sampling. A total of 369 women consented to be part of the study and completed a questionnaire. Responses to the questionnaire were summed to give an overall knowledge score. Descriptive statistics were used to summarize the data, which was also analyzed statistically. **Results:** Among the total number of women 68 (19%) were calculated to have poor knowledge, 219 (59%) had average knowledge, 77 (21%) had good knowledge, and five (1%) had excellent knowledge on breast cancer. Among the variables, education status ( $p=0.002$ ,  $p<0.050$ ), and family history of breast cancer ( $p=0.000$ ,  $p<0.010$ ) was significantly related to a higher knowledge level. **Conclusion:** The study revealed that there was lack of awareness and knowledge on breast cancer symptoms among Omani women. Breast cancer awareness and early detection through regular breast screening is important to reduce the mortality and morbidity of the disease.

Breast cancer ranks second in global cancer incidence. It is reported that the incidence of breast cancer is increasing at the rate of 3–4% in developing countries.<sup>1,2</sup> The Sultanate of Oman is a developing country in the Gulf region with a developing health care system. Breast cancer in Omani women accounts for approximately 32% of the total cancer cases<sup>3</sup> and is the second leading cause of mortality in Oman.<sup>4</sup>

The incidence of breast cancer has increased from 53 reported cases in 1996 to 104 cases in 2008.<sup>5</sup> According to the National Cancer Registry of Oman, the highest incidence of breast cancer cases recorded in Muscat was in 2008 (45/100,000). One out of five Omani women is diagnosed with breast cancer in her lifetime and the overall standardized incidence rate is 15.6 cases per 100,000.<sup>6</sup> The frequency of cancers among Omani females has increased steadily from 58 in 1999 to 147 in 2011.<sup>7</sup>

Annually, almost half of the females diagnosed with breast cancer belong to developing countries,

where they present in advanced-stages of the disease at a younger age. These women have poor overall outcomes compared to women in developed countries. In Oman, age at diagnosis is younger than in the western world, and the majority of patients present at advanced stages of disease (III and IV).<sup>6</sup> This was attributed to a lack of mass education and screening programs, poverty, poor access to health care facilities, cultural barriers, lack of expertise, and poor country infrastructure. The same concept has been reaffirmed by many researchers.<sup>8,9</sup>

Breast cancer is a progressive disease, small tumors are likely to be at an early stage and early detection is likely to result in successful treatment, and a good prognosis. Though breast cancer is one of the most prevalent cancers in the world, it has a better survival rate than other cancers.<sup>10-12</sup> Breast cancer is the most common cancer among women and second most common cancer overall, but it ranks fifth as a cause of death because of the relatively good prognosis.<sup>12</sup>

The recommended screening methods for early

detection of the disease are mammography, clinical breast examination and breast self-examination (BSE).<sup>13</sup> Studies that assess the awareness of breast cancer and the practice of BSE among Arab women were also few and pointed to a lack of breast cancer knowledge among women.<sup>9,14</sup>

Efforts to target the early detection of breast cancer would play a major role in reducing the stage of cancer at diagnosis, its cost effective management, and improving the odds of survival and cure. There are few published studies related to the awareness of the symptoms of breast cancer among the Omani female population, indicating the need for steps to raise breast cancer awareness and to introduce breast cancer screening programs in Oman. This study aims to assess the knowledge and awareness of breast cancer symptoms among Omani women.

## METHODS

A descriptive, cross sectional survey design was used to conduct the study through convenient sampling technique. The study was conducted in different areas of Muscat, at three health centers (in Wattayah, Muttrah and Ruwi) and three shopping malls (Muscat Grand Mall, Qurum City Centre, and Lulu Hypermarket, Bousher). Omani women, between the age of 18 and 60, were asked to fill in questionnaires aimed at gaining an understanding of their awareness and knowledge of breast cancer. The study and its possible benefits were explained and the women willing to participate were asked to sign an informed consent. Confidentiality and anonymity were guaranteed to all study participants.

The sample size of 369 women was calculated using 95% confidence interval and prevalence of 40% (the Arab prevalence rate). Non-Omani women and Omani women in the medical field were excluded from the study. A standardized tool was selected, modified and translated from English to Arabic by a bi-lingual expert. The questionnaire consisted of two parts and was given to all the participants. The first part recorded demographic data, including: age, marital status, number of children, educational status, occupation, and family history of breast cancer. The second part was related to breast cancer awareness, including: the symptoms of breast cancer, common screening methods, risk factors, treatment, possibility of spread to other parts of the body, and the national awareness program by the Oman

Cancer Association. The questions were partly multiple choice and partly fill-in-the-blanks. There were single and multiple answers for questions. The tool included instructions and, when needed, the research assistants aided the participants. Answers that suggested the woman was breast cancer aware scored one mark, up to a maximum of 16 marks. The marks were divided in to four categories. A score of one to four indicated poor knowledge; five to eight, average knowledge; nine to 12, good knowledge; and 13 to 16, excellent knowledge. The women took 10 to 15 minutes to complete the form.

An oncology specialist and oncology research nurses validated the questionnaire. A pilot test of the tool, using 40 Omani women, determined its validity, reliability, and application. Following the pilot study, some questions were reworded and two questions were added.

The Cronbach's alpha reliability of the tool was  $r=0.81$ . Data was analyzed using Statistical Package for Social Sciences (SPSS) version 19. Descriptive statistics were used for quantitative variables and frequency, and percentage for categorized variables.

Ethical clearance was given by the Research and Ethical Review and Approve Committee, Ministry of Health, Muscat.

## RESULTS

A total of 369 Omani women participated in the study. The majority of the study participants were in the 20–30 year old age group (73%). More than half of the participants were single (52%), and nearly half were married (47%). One-third of the participants (31%) had one to five children, and 6% had more than five children. More than half of the women had a postgraduate degree (52%), 38% had primary and secondary education, and only 2% were illiterate. Nearly half of the participants were employed part-time or full-time (4% and 40%, respectively). Nearly a fifth (17%) of participants had a family history of breast cancer [Table 1].

The distribution of the women's knowledge scores were as follows: 19% had poor knowledge (score one to four); 59% had average knowledge (score five to eight); 21% showed good knowledge (score nine to 12); and 1% had excellent knowledge (score 13 to 16) [Figure 1].

The most common breast cancer symptoms given [Table 2] were breast lump (43%), change in shape of the breast (13%), and change in shape of the breast

**Table 1:** Demographic characteristics of women (n=369).

| Variables                              | Frequency (f) | Percentage (%) |
|--|---------------|----------------|
| <b>Age groups (years)</b>              |               |                |
| 20–30                                  | 270           | 73             |
| 31–40                                  | 68            | 18             |
| 41–50                                  | 24            | 7              |
| 51–60                                  | 7             | 2              |
| <b>Marital status</b>                  |               |                |
| Single                                 | 190           | 52             |
| Married                                | 174           | 47             |
| Divorced                               | 5             | 1              |
| <b>Number of children</b>              |               |                |
| No children                            | 43            | 12             |
| 1–5                                    | 113           | 31             |
| More than 5                            | 23            | 6              |
| Not applicable                         | 190           | 51             |
| <b>Educational status</b>              |               |                |
| Illiterate                             | 6             | 2              |
| Literate                               | 24            | 7              |
| Primary/secondary                      | 142           | 38             |
| Undergraduate                          | 4             | 1              |
| Postgraduate                           | 193           | 52             |
| <b>Occupation</b>                      |               |                |
| Unemployed                             | 208           | 56             |
| Part-time                              | 13            | 4              |
| Full-time                              | 148           | 40             |
| <b>Family history of breast cancer</b> |               |                |
| Yes                                    | 64            | 17             |
| No                                     | 305           | 83             |

and discharge from the nipples (13%). Eleven percent were unaware about any of the breast cancer symptoms. Awareness about screening programs for breast cancer was low with 81% unaware of any screening program and 91% aware of mammography; however, 62% of woman had heard about BSE. Nulliparity was believed to be a risk factor for breast cancer by 4% of women, other risk factors given were exposure to radiation (24%), and a family history of breast cancer (25%). Over a third of women (36%) do not know of any risk factors.

Fifty percent of women did not know that breast cancer could spread to other parts of the body. Only 39% were aware of the Oman Cancer Association. Of those 39% of women, the sources of information were television (46%), newspaper (34%), friends (27%) and relatives (17%).

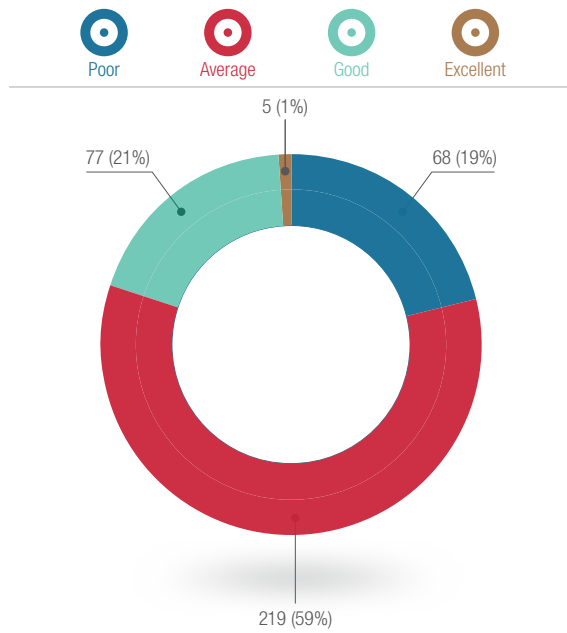
Among the variables, education was significantly related to the higher knowledge level of breast cancer and its symptoms ( $p=0.002, p<0.050$ ). Family history of breast cancer ( $p=0.000, p<0.010$ ) also showed a

**Table 2:** Respondents' awareness and knowledge of breast cancer symptoms and treatment (n=369).

| Variable   | Frequency (f) | Percentage (%) |
|--|---------------|----------------|
| <b>Most common symptoms of breast cancer*</b>              |               |                |
| Breast lump  | 172           | 43             |
| Pain and discharge   | 22            | 6              |
| Change in shape of breast                                  | 52            | 13             |
| Breast lump and change in shape                            | 31            | 8              |
| Breast lump, pain, and discharge                           | 20            | 5              |
| Change in shape, pain, and discharge from nipple           | 4             | 1              |
| Change in shape of breast and discharge from nipple        | 52            | 13             |
| Don't know   | 45            | 11             |
| <b>Screening program for breast cancer</b>                 |               |                |
| Yes  | 69            | 19             |
| No   | 300           | 81             |
| <b>Have you heard about breast self-examination</b>        |               |                |
| Yes  | 227           | 62             |
| No   | 142           | 38             |
| <b>Have you heard about mammography</b>                    |               |                |
| Yes  | 34            | 9              |
| No   | 335           | 91             |
| <b>Risk factors for breast cancer</b>                      |               |                |
| Family history   | 92            | 25             |
| Exposure to radiation                                      | 89            | 24             |
| Nulliparity  | 13            | 4              |
| Family history and exposure to radiation                   | 30            | 8              |
| Nulliparity and exposure to radiation                      | 4             | 1              |
| Nulliparity and family history                             | 4             | 1              |
| Family history, exposure to radiation and nulliparity      | 3             | 1              |
| Don't know   | 134           | 36             |
| <b>Treatment for breast cancer</b>                         |               |                |
| Yes  | 131           | 36             |
| No   | 238           | 64             |
| <b>Spread of breast cancer to other parts of the body</b>  |               |                |
| Yes  | 185           | 50             |
| No   | 184           | 50             |
| <b>Awareness of Oman Cancer Association</b>                |               |                |
| Yes  | 124           | 39             |
| No   | 225           | 61             |
| <b>If you know OCA: Source of information (out of 124)</b> |               |                |
| Friends  | 27            | 22             |
| Newspaper  | 34            | 27             |
| Television   | 46            | 37             |
| Relatives  | 17            | 14             |

\*The participants could choose more than one response and the percentages are based on total responses.

significant association. All other variables showed no significant association with knowledge level [Table 3].



**Figure 1:** A pie chart illustrating the knowledge score of Omani women asked about breast cancer symptoms and treatment. A score of one to four indicated poor knowledge, five to eight, average knowledge nine to 12, good knowledge, and 13 to 16, excellent knowledge (n=369).

## DISCUSSION

This study revealed that there was lack of knowledge and awareness of breast cancer symptoms among Omani women with 78% reporting poor or average knowledge. Deeper analysis found 50% of the women were unaware of the signs and symptoms, screening methods, and the risk factors of breast cancer. This study also showed that women had inadequate knowledge about other breast cancer symptoms such as nipple retraction, and skin changes, which are warning signs of breast cancer. The lack of awareness and knowledge of breast cancer among Omani women may be the link between the increasing number of cases, late diagnosis of the disease and its poor prognosis.

Data was collected only from the Muscat region, where the majority (52%) of participants had completed higher education. This study suggests that there is an urgent need for a breast health awareness campaign across the capital. There is no available data on knowledge and awareness of breast cancer among the rural women, although the assumption would be that the education level of the rural women population would be less than those living in urban areas, and their awareness and

**Table 3:** Association between entered variables and breast cancer knowledge score.

| Variables entered               | Chi-square value | Significance (p) |
|---------------------------------|------------------|------------------|
| Women's age                     | 7.104            | 0.626            |
| Marital status                  | 1.971            | 0.922            |
| Number of children              | 26.798           | 0.172            |
| Educational status              | 31.749           | 0.002            |
| Occupational status             | 8.410            | 0.210            |
| Family history of breast cancer | 30.246           | 0.000            |

knowledge would also be lacking. Any awareness campaign should be conducted across the country.

Our findings are consistent with a study from Saudi Arabia, which found that the awareness and knowledge of breast cancer among university students, with regard to early warning signs, screening programs, and risk factors, was inadequate.<sup>15</sup> In Iran, 1402 women were interviewed and only 61% of respondents knew about BSE.<sup>13</sup> BSE helps the women to report any differences or changes from the normal, and although there is controversy regarding this screening method as preventive measure, still it remains a method of choice for early identification of breast cancer in developing countries.

In a recent study, the contribution of mammography to the decrease in mortality in Norway was estimated to be only about 10%, with the remainder of the 28% decrease ascribed to a time effect, presumed to be the result of increased breast cancer awareness.<sup>16</sup> The importance of screening for mammography has been emphasized by other researchers.<sup>17,18</sup> In the UK and USA, effective education and screening have saved between 12 and 37 lives per day, respectively.<sup>19</sup> Breast cancer screening behaviors are key to lowering mortality from breast cancer in women but screening modalities are still underutilized by the majority of women.<sup>19-22</sup> In Nigeria, a study of patients with breast cancer revealed that the overall survival rate was low and survival was better among patients with early breast cancer than those with advanced disease. Furthermore, it recommends improving public enlightenment of breast cancer, and screening centers to encourage early diagnosis.<sup>23</sup> In our study, 25% of the women were aware that family history of breast cancer is the risk for breast cancer and 24% were aware that radiation exposure was a risk factor. However, 36%

were unaware of any risk factors of breast cancer. The knowledge of risk factors such as early menarche, late menopause, obesity, oral contraceptive pills were not understood by the participants.

Patients aware of the Oman Cancer Association had found out through television and newspaper advertisements, or via friends and relatives. None of the participants reported receiving information on breast cancer from healthcare workers, which was alarming. It is important to note that healthcare workers have a major role to play in educating public on breast cancer.

As most women are unaware of the symptoms of breast cancer, there is a need for education and encouragement to go for screening to aid in early identification. This concept was emphasized by a study which found that, in Oman, failure to detect breast cancer at early stages impacted negatively on patient survival, caused significant physical and psychological morbidity, and increased financial expenditure at the national level.<sup>24</sup> There is consistent evidence that breast cancer awareness contributes to earlier identification and reporting symptoms.<sup>25</sup>

Studies in Oman show that woman still present with advanced stages of disease at a relatively young age. Mass education and establishment of screening programs are basic ways to decrease the disease burden and enable diagnosis at an earlier stage.<sup>6</sup> Many campaigns need to take place in both urban and rural areas. The topic of breast cancer screening and awareness should be included in the high school syllabus and the collegiate curriculum. Videos played in the waiting areas of hospitals and health centers would benefit women visiting, as well as the availability of pamphlets to take away and read. Mass media also needs to take up an important role in raising awareness by advertising frequently in the newspaper, and by having announcements and live shows on television and radio. Flyers, banners, and posters placed in public places like shopping malls, airports, and exhibitions centers would also help to raise awareness. Furthermore, health educators and other healthcare professionals in primary health centers need to take up a major role in educating the women who are visiting the health centers on a daily/weekly basis. Women over the age of 40 should have a mammography.

The limitations of the current study include that the surveys were carried out in only a few

health centers and shopping malls, and the use of the convenient sampling technique used to select the women. Moreover, the standardized tool was not used, however, the current tool was modified from a standardized tool, which was validated and reliability found to be acceptable. Finally, the study was limited to assessing the knowledge of breast cancer symptoms among Omani women.

## CONCLUSION

The current study result shows that there was a lack of awareness and knowledge of breast cancer among Omani women living in Muscat, which has a more educated population than the rural areas of Oman. We recommend an extensive study in the rural areas of the country with a greater sample size to make the result more generalized. A program aimed at increasing the awareness of breast cancer and the importance of regular breast screening is needed to reduce the mortality and morbidity among Omani women.

### Disclosure

The authors declared no conflict of interests. No funding was received for this work.

### Acknowledgements

We thank the Oman Cancer Association, who made the data collection possible in the shopping malls. We would also like to thank Dr. Nabil Al-Siyabi for his encouragement, and the volunteers during data collection process. We thank all the participants without whom the study would not have happened and all the students who volunteered to do data collection especially Abdullah Al-Wahiabi and Haitham Al-Dughaishi.

## REFERENCES

1. Parkin DM, Bray F, Ferlay J, Pisani P. Estimating the world cancer burden: Globocan 2000. *Int J Cancer* 2001 Oct;94(2):153-156.
2. Babu GR. Response to 'Cancer incidence rates among South Asians in four geographic regions: India, Singapore, UK and US'. *Int J Epidemiol* 2009 Aug;38(4):1157-1158, author reply 1158-1159.
3. "Global conference on Breast cancer Report" Muscat Daily 13th February, 2011.
4. Singhvi A. Management Guidelines for Breast Cancer in Oman" Second Edition 2011; [www.moh.gov.om/en/reports/breast\\_cancer\\_guidelines.pdf](http://www.moh.gov.om/en/reports/breast_cancer_guidelines.pdf)
5. Mohammed AJ, Al-Lawati JA, Al-Lawati NA, Siyabi NH, Gharbi DO. Cancer incidence in Oman. Ministry of Health, Sultanate of Oman. 2008
6. Kumar S, Burney IA, Al-Ajmi, Al-Moundhri MS. Changing trends of Breast Cancer survival in Sultanate of Oman. *J Oncol* 2011;316243. doi:10.1155/2011/316243.
7. Al-Mandari Z, Bahrani BA, Lawati TA, Kharusi SA, Lawati FA, Balakrishnan R, et al., Management Guidelines for Breast Cancer in Oman. Royal Hospital, Dept of NCDSC

- and DGHA. Second edition 2011.
8. Al-Junaibi RM, Khan SA. Knowledge and Awareness of breast cancer among university female students in Muscat, Sultanate of Oman- A pilot study. *Journal of Applied Pharmaceutical Science* 2011;01(10):146-149. [https://www.japsonline.com/admin/php/uploads/316\\_pdf.pdf](https://www.japsonline.com/admin/php/uploads/316_pdf.pdf).
  9. Al-Harbi NA, Malik Alshammari, Barjas M Almutairi, Gamal Makhoul, Medhat K El Shazly. Knowledge, awareness and practices concerning breast cancer among Kuwaiti female school teachers. 2012; 48: 75-82.
  10. Sharif F, Narjes A. Sedigheh Tahmasebi, Maryam Hazrati, Najaf Zare, Sarah Masoumi. The effect of peer-led education on the life quality of mastectomy patients referred to breast cancer-clinics in Shiraz, Iran. *Health Qual Life Outcomes* 2010;8:74.
  11. Somi MH, Farhang S, Mirinezhad SK, Naghashi S, Seif-Farshad M, Golzari M. Cancer in East Azerbaijan, Iran: results of a population-based cancer registry. *Asian Pac J Cancer Prev* 2008 Apr-Jun;9(2):327-330.
  12. Parkin DM, Bray F, Ferlay J, Pisani P. Global cancer statistics, 2002. *CA Cancer J Clin* 2005 Mar-Apr;55(2):74-108.
  13. Montazeri A, Vahdaninia M, Harirchi I, Harirchi AM, Sajadian A, Khaleghi F, et al. Breast cancer in Iran: need for greater women awareness of warning signs and effective screening methods. *Asia Pac Fam Med* 2008;7(1):6.
  14. Alsaif AA. Breast self-examination among Saudi female nursing students in Saudi Arabia. *Saudi Med J* 2004 Nov;25(11):1574-1578.
  15. Habib F, Salman S, Safwat M, Shalaby S. Awareness and knowledge of Breast Cancer among University Students in Al-Madina Al-Munawara Region. *Middle East Journal of Cancer* 2010;1(4):159-166.
  16. Kalager.M.M.D, Marvin.Z, Froydis.L, & Hans-Olov.A. Effect of Screening Mammography on Breast Cancer Mortality in Norway *N Engl J Med*. 2010; 363: 1203-1210. DOI: 10.1056/NEJMoa1000727.
  17. Welch HG. Screening mammography—a long run for a short slide? *N Engl J Med* 2010 Sep;363(13):1276-1278.
  18. Sadeghpour M. A close call: the role of screening mammography in the fight against breast cancer: health and medicine for women: a multidisciplinary, evidence-based review of mid-life health concerns. *Yale J Biol Med* 2011 Mar;84(1):43-45.
  19. World Health Organization. Screening for breast cancer, 2010
  20. American Cancer Society report 2009-2010, Atlanta.
  21. L Ponhold, Bikel H, Pinder K, Thomas HH. Mammography screening and follow-up of breast cancer Hamdan medical Journal. 2009; 5(1); DOI: 10.7707/hmj.v5i1.104
  22. Han HR, Lee H, Kim MT, Kim KB. Tailored lay health worker intervention improves breast cancer screening outcomes in non-adherent Korean-American women. *Health Educ Res* 2009 Apr;24(2):318-329.
  23. Kene TS, Odigie VI, Yusufu LM, Yusuf BO, Shehu SM, Kase JT. Pattern of presentation and survival of breast cancer in a teaching hospital in north Western Nigeria. *Oman Med J* 2010 Apr;25(2):104-107.
  24. Al-Moundhri M. The need for holistic cancer care framework: breast cancer care as an example. *Oman Med J* 2013 Sep;28(5):300-301.
  25. Anderson BO, Jakesz R. Breast cancer issues in developing countries: an overview of the Breast Health Global Initiative. *World J Surg* 2008 Dec;32(12):2578-2585.

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