



Research Article

ISSN : 2277-3657
CODEN(USA) : IJPRPM

Knowledge, Attitude and Practices of Working Women in Tabuk University Regarding Breast Cancer

Saher Abdel-Latif Abdel-Sattar¹, Heba Abdel-Fatah Ibrahim^{2*}, Hanan Abd Elwahab El Sayed³

^{1,3} *PhD, Assistant prof. in assistance medical science department, community College, Tabuk University, Saudi Arabia*

² *Ph.D, Assistant prof. in maternal and child health nursing department, Nursing College, Najran University, Saudi Arabia*

ABSTRACT

Objective: to assess knowledge, attitudes and practices of working women in Tabuk University regarding breast cancer.

Methods: Descriptive design was utilized to fulfill the aim of this study. The study was conducted in female sections at five colleges of Tabuk University, including Science, Applied Medical Sciences, Medicine, Engineering, Education and Arts colleges. Convenience sampling was done on all the working women (n= 60) in the selected five colleges at the time of the study. Three tools of data collection were used; 1) a self-administrated questionnaire sheet: It included socio-demographic data, health history, practices of study subjects to early detection measures and knowledge assessment 2)a modified likert scale: to assess the attitudes of working women regarding breast cancer. 3); an observation checklist, to assess the practices of the women regarding breast self-examination.

Results: The findings revealed that 11.7% of the study participants had a positive family history of breast cancer. 90.0% of them had unsatisfactory knowledge, and 63.3% had neutral attitude regarding BC, and more than half (51.7%) of them obtained poor score regarding their performance of breast self-examination.

Conclusion: The majority of the working women in Tabuk University had unsatisfactory knowledge, and neutral attitudes regarding breast cancer, and poor practices toward breast self-examination, and other early detection screening measures.

Keywords: *Breast Cancer, early detection measures, working women*

INTRODUCTION

Malignant neoplasms have remained as a leading cause of death worldwide. At the beginning of this century, a comprehensive treatment for malignant neoplasm had progressed considerably with advances in molecular targeted therapy, immunotherapy and gene therapy. In spite of all of these progresses, cancer related mortality is very high as most of the patients at advanced stages are present in hospitals [1]. Breast Cancer (BC) has a major impact on the health of women worldwide. It has been regarded as the most widespread malignancy and stands as the second leading cause of cancer deaths after lung cancer [2].

Among Saudi patients, there was a remarkable increase in the number of cases of breast cancer, which was at an earlier age than in Western countries. Continued observation, mammographic screening, and patient education are required to establish early diagnosis and obtain optimal treatment [3]. Earlier examinations have suggested that early

breast cancer detection with suitable treatment could decrease death rates caused by the breast cancer remarkably in the long-term [4].

Many factors have been known to intensify the risk of BC. Some of them are not changeable, like age, family history, early menarche, and late menopause. And, others which are modifiable include postmenopausal obesity, use of combined estrogen and progestin menopausal hormones, and alcohol consumption. Many BC risk factors influence the lifetime exposure of breast tissue to hormones (early menarche, late menopause, obesity, and hormone use). Hormones have been considered to affect BC risk by increasing the cell proliferation, thereby increasing the likelihood of DNA damage, as well as promoting cancer growth [5].

Breast cancer prevention has been the action taken to decrease the chance of developing cancer. It requires an individual to play an active role in avoiding risk factors such as smoking, lack of exercise, obesity, alcohol consumption, radiation exposure, and increasing protective factors such as engaging in regular physical activity, and maintaining a healthy weight and a healthy diet [6].

The nurses play a significant role on early detection of BC. So, more nursing research needs to be conducted in order to increase the nurses' knowledge who greatly influence women's health care regarding breast diseases, screenings, early treatments, and also identifying women with the high risk, and examining them as early as possible. Also, student nurses should be informed about screening practices and preventive measures to translate their knowledge into practice during hospitals training [7].

1.2 Significance of the study:

Breast cancer has been the most common cancer among women, especially in developed countries [8]. It has been estimated that there have been over one million new cases per year worldwide (22% of all cancers diagnosed among women) [9]. According to the Saudi Cancer Registration report in April 2014, BC was ranked the first among all the female cancers, accounting for 27.4% of all the newly diagnosed female cancers (1473/5378 cases) in 2010 [10]. The five regions with the highest incidence were in Eastern region at 41.0/ 100,000, Riyadh at 29.3/ 100,000, Makkah at 25.3/ 100,000, Northern region at 25.0/ 100,000 and Tabuk at 24.9/ 100,000[11]. In addition, it has been expected that the incidence of BC would increase over the coming decades in Kingdom of Saudi Arabia due to the population's growth and aging [12].

1.3 Aim of the study:

To assess knowledge, attitudes and practices of working women in Tabuk University regarding the breast cancer.

1.4 Research Hypothesis:

The majority of working women in Tabuk University have a lack of knowledge and poor attitudes, and practices about breast cancer.

2. Subjects and Methods

2.1. Research Design

Descriptive design was used to fulfill the aim of this study.

2.2. Setting

The study was conducted in female sections at five colleges of Tabuk University (Science, Applied Medical Sciences, Medicine, Home economics, Education and Arts).

2.3. Subjects

2.3.1. Subject Type and Criteria

At the beginning, 25% (5 colleges) of (the total 20 Tabuk University colleges) in female sections of Tabuk University were selected by a simple random sample. Then, a convenience sample of all the working women (n= 60) who worked in the selected five colleges at the time of the study were included.

- Inclusion Criteria:

- Not having a history of breast cancer
- Not being under the treatment of chemotherapy or radiotherapy
- Agreeing to participate in the study

2.3.2. Subject Size

- All the working women (60) in the selected five colleges who agreed to participate in the study, were included.

2.4. Tools of Data Collection

Three tools were used for collecting the data:

I- A self-administrated questionnaire sheet: it was developed by the researchers in Arabic language after reviewing the related literature [13]. It involved three main parts:

- a) Socio-demographic data as (age, residence, marital status, level of education and family history of breast cancer).
- b) The knowledge assessment of the working women at Tabuk University regarding breast cancer as (definition, abnormal sign and symptoms, risk factors and early detection measures, etc.).

The Scoring system for questionnaire sheet was calculated for each item as follows: correct answer was scored (two points), the incomplete answer was scored (one point), while unknown or incorrect answer was scored (zero). The total score for all the questions related to the knowledge was satisfactory if $\geq 60\%$, and unsatisfactory if less than 60.0%.

- c) The practices of working women at early detection measures of breast cancer such as breast self-examination, clinical breast examination and mammogram (through asking questions).

II- A Modified likert scale: to assess the attitudes of working women at Tabuk University regarding breast cancer [14]. The scale was consisted of 15 statements about several issues related to breast cancer, & early detection measures. The items were items rated on 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

III- An observation checklist: It was used to assess the practices of working women regarding breast self-examination [15]. The practice was considered good if the percent score was $\geq 75\%$, average if the percent score $50 < 75\%$, and poor if the percent score was less than 50%.

2.5. METHODS

The study was executed according to the following steps:

2.5.1. Approvals

A written official approval to conduct this research was obtained from the responsible authorities of Tabuk University, and the ethical committee to conduct the study after explaining its purpose.

2.5.2. Tools Validity:

The validity of the questionnaires was reviewed for the content validity by a jury of five experts in the field of community health nursing, obstetrics, & woman health nursing.

2.5.3. Tools Reliability

Reliability was done by using Cronbach's Alpha coefficient test which revealed that each of the three tools was consisted of relatively homogenous items as indicated by the high reliability. An internal consistency of tool I = 0.75, tool II = 0.80 and tool III = 0.74.

2.5.4. Ethical Considerations

The permission was obtained orally from each woman before conducting the interview and after giving a brief orientation to the purpose of the study. The women were reassured that all the gathered information would be confidential, and used only for the purpose of the study. They were also informed about their right to withdraw from the study at any time without giving any reasons, and that the study would not be having any physical, social, or psychological risks.

2.5.5. Pilot Study

A pilot study was carried out on 10 % of the samples of the working women, and was excluded from the main sample with the main purpose to test the relevance and applicability of the tools.

2.5.6. Procedures

The previous mentioned settings were visited by the researchers two days/week according to the free time of each woman. The researchers interviewed each woman after ensuring their health status, explained the aim of the study, and asked for the participation. Upon the consent to participate, women were asked to fill the questionnaire and the Likert scale. The average time for the completion of questionnaires was 20-25 minutes, then each woman was observed for practicing breast self-examination that was recorded in the observation checklist.

2.5.7. Statistical Analysis

Data analysis was performed using Statistical Package for Social Sciences (SPSS version 20.0) Descriptive statistics were used to describe the characteristics of the study subjects (e. g. frequency, percentages, mean, and standard deviation).

RESULTS

Table 1. Distribution of the studied subjects according to their demographic characteristics. (n = 60)

Characteristics	No	%
Age		
- 20-30	18	30.0
- 31-40	28	46.7
- 41-50	12	20.0
- > 50	2	3.3
Mean ± SD	35.67±7.58 years	
Residence		
- Urban	57	95.0
- Rural	3	5.0
Marital status		
- Unmarried	12	20.0
- Married	42	70.0
- Divorced	6	10.0
Level of education		
- University education	49	81.7
- Above secondary education	5	8.3
- Secondary education	6	10.0
Family history of breast cancer		
- Yes	7	11.7
- No	53	88.3

Table (1) shows the demographic characteristics of the studied nurses. It was clear that 46.7% of the subjects were aged from 31-40 years, with the mean age of 35.76±7.58 years. Regarding their residence, 95% of them were urban areas residents. Furthermore, 70% of them were married. In addition, 81.7% of them had University education, and only, 11.7% of them had a positive family history of breast cancer.

Table 2. Percent distribution of the study subjects according to their knowledge regarding breast cancer (n=60).

Items	Unknown or incorrect		Incomplete answer		Correct answer	
	No	%	No	%	no	%
- Definition of breast cancer	6	10.0	49	81.7	5	8.3
- Risk factors of breast cancer	14	23.3	39	65.0	7	11.7
- Sign and symptoms of breast cancer	5	8.3	37	61.7	18	30.0
- Types of breast cancer	49	81.7	4	6.7	7	11.7
- Early detection measures of BC	10	16.7	33	55.0	17	28.3
- Treatment measures for BC	12	20.0	35	58.3	13	21.7
- Definition of BSE	36	60.0	18	30.0	6	10.0
- Frequency of BSE	25	41.7	-	-	35	58.3
- The proper time of BSE	24	40.0	-	-	36	60.0
- Definition of clinical breast exam	45	75.0	14	23.3	1	1.7
- The benefits of mammogram	49	81.7	11	18.3	0	0.0

Table 2 illustrates the Percent distribution of the study subjects according to their knowledge regarding breast cancer. It was found that 81.7%, 65.0%, 61.7, 55.0%, and 58.3 of the studied subjects had incomplete answer regarding the definition, risk factors, sign and symptoms, early detection measures, and treatment measures of breast cancer; respectively. Regarding the BSE, 10.0%, 58.3%, and 60.0% of them had a correct answer considering the definition, frequency, and proper time of BSE; respectively. Only 1.7% of them had a correct answer about the definition of the clinical breast exam, and no one had a correct answer about the benefits of the mammogram.

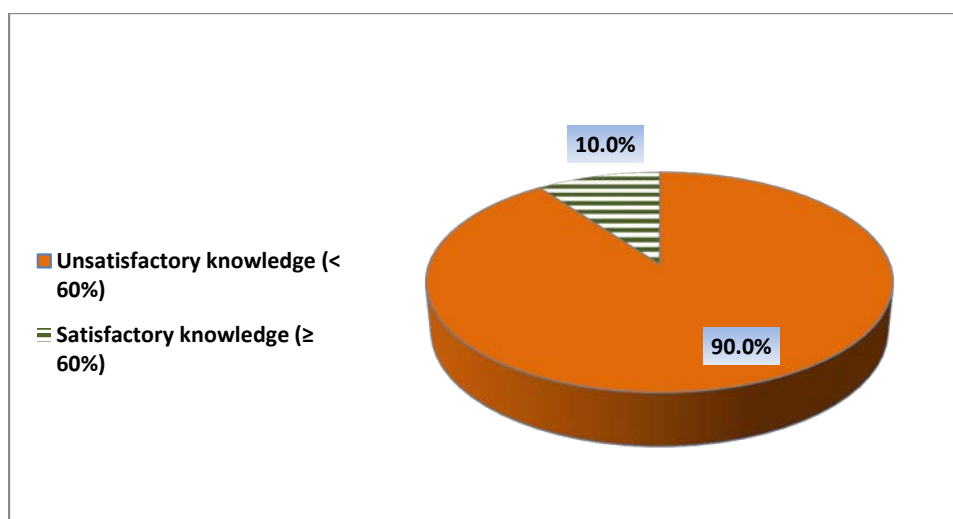


Fig 1. Distribution of the studied subjects according to their total knowledge score regarding BC. (n = 60)

Fig. 1 clarifies the distribution of the studied subjects according to their total knowledge score. It was clear that, 90.0% of the studied subjects had unsatisfactory knowledge regarding BC. Only 10.0% of them had satisfactory knowledge.

Table 3. Percent distribution of the study subjects according to their attitude regarding breast cancer (n=60).

Items	Strongly agree		Agree		sometimes		disagree		strongly disagree	
	no	%	no	%	no	%	no	%	no	%
1. BC is a killer disease that kills all patients. *	7	11.7	7	11.7	27	45.0	12	20.0	7	11.7
2. Finding an abnormal tumor in the breast means BC. *	4	6.7	6	10.0	26	43.3	23	38.3	1	1.7
3. mastectomy should be done in case of BC *	4	6.7	6	10.0	29	48.3	15	25.0	6	10.0
4. Taking a sample of the breast helps spread the tumor *	3	5.0	4	6.7	8	13.3	26	43.3	19	31.7
5. If cancer is detected early, treatment is easier	17	28.3	28	46.7	6	10.0	6	10.0	3	5.0
6. I'm afraid just to think about breast cancer *	10	16.7	10	16.7	24	40.0	9	15.0	7	11.7
7. I will be ashamed if I have breast cancer *	6	10.0	1	1.7	13	21.7	23	38.3	17	28.3
8. If you find a breast tumor the best recourse to folk medicine for treatment *	1	1.7	2	3.3	2	3.3	26	43.3	29	48.3
9. Always look for useful information about breast self-examination via the Internet, books and magazines	8	13.3	27	45.0	16	26.7	7	11.7	2	3.3
10. The woman should perform periodic breast examinations on a regular basis	8	13.3	15	25.0	28	46.7	7	11.7	2	3.3
11. Breast self-examination is essential for any woman aged 20 years or more.	16	26.7	22	36.7	14	23.3	6	10.0	2	3.3
12. Mammography is important to detect any tumor in the early stages.	18	30.0	21	35.0	15	25.0	5	8.3	1	1.7
13. Breast self-examination is not important to any woman in my age *	2	3.3	4	6.7	15	25.0	21	35.0	18	30.0
14. As long as I do not suffer from any problems I do not need BSE *	1	1.7	2	3.3	4	6.7	14	23.3	39	65.0
15. Breast self-examination is a waste of time *	5	8.3	4	6.7	14	23.3	37	61.7	5	8.3

Table 3 shows the distribution of the study subjects according to their attitudes regarding BC. It was found that 11.7% of the studied subjects agreed that BC is a killer disease that kills all the patients. In addition, 16.7% of them were afraid just to think about breast cancer. Also 30.0% of them strongly disagreed with the statement "Breast self-examination is not important to any woman at my age".

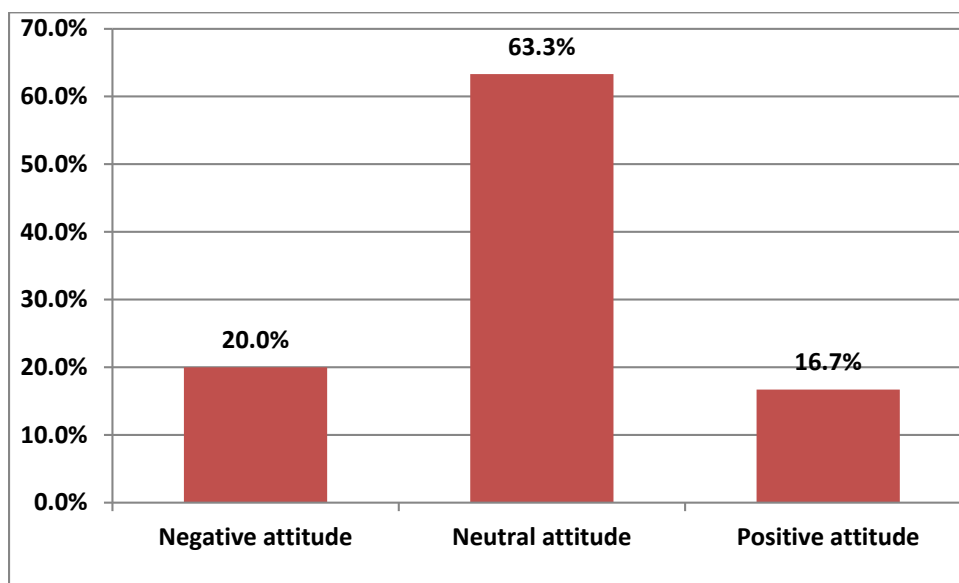


Fig 2. Distribution of the studied subjects according to their total attitude scores regarding BC. (n = 60)

Fig. 2 illustrates the distribution of the studied subjects according to their total attitude scores. It was clear that, 63.3% of the studied subjects had a neutral attitude regarding BC. Only 16.7% of them had a positive attitude regarding BC.

Table 4. Distribution of the studied subjects according to their practices of early detection measure of breast cancer (n = 60).

Items	Number	%
Performance of BSE		
- Yes	22	36.7
- No	38	63.3
The frequency of BSE		
- Once a month	8	13.3
- Once every two months	4	6.7
- Once every 6 months	10	16.7
- Never perform BSE	38	63.3
Barriers to perform BSE (N =38)		
- I don't know the procedure	9	23.8
- I don't have a symptoms	20	52.6
- I don't think it is necessary	3	7.9
- I don't think I will find anything	6	15.7
Performance of clinical breast examination		

- Yes	6	10
- No	54	90
Frequency of clinical breast examination (N =6)		
- Once every year	2	33.3
- only once	4	66.7
Practice of mammogram		
- Yes	5	8.3
- No	55	91.7
The date of last mammogram (N =5)		
- A year ago	1	20
- Since two years	1	20
- Since 3-5 years	3	60

Table (4) displays the distribution of the studied subjects according to their practices of early detection measure of BC. Only 36.7% of them performed BSE. Considering the frequency of BSE, 13.3% of them performed it every month. Regarding the barriers that prevented them from practicing BSE, more than half (52.6%) of them did not have breast problem as reported by the studied women. Considering their practices of clinical breast examination and mammogram, only 10.0% and 8.3% of the studied subjects were performing clinical breast examination and mammogram; respectively.

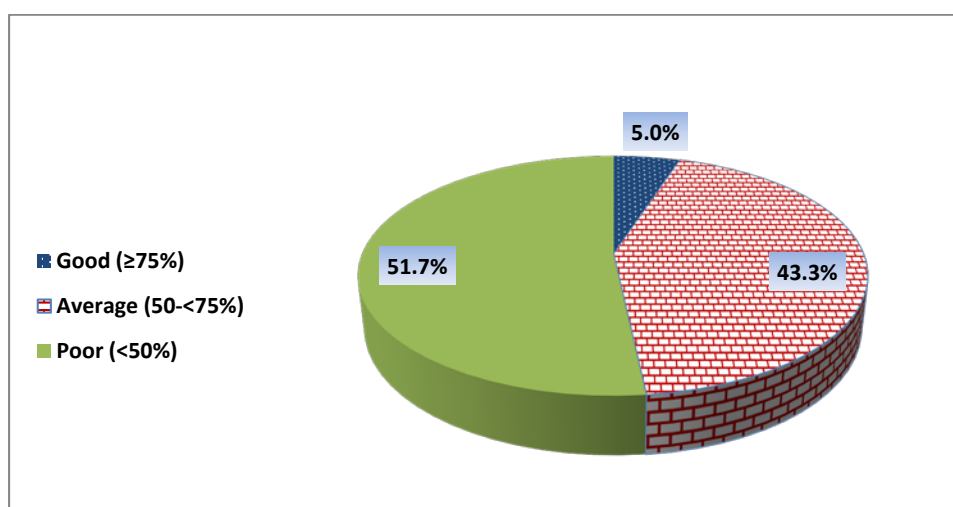


Fig 3. Distribution of the studied subjects according to their score of BSE performance. (n = 60)

Fig. 3 represents the distribution of the studied subjects according to their score of BSE performance. More than half (51.7%) of them obtained poor score regarding their performance of BSE. Only 5.0% of them obtained a good score.

DISCUSSION

Although the incidence of BC in the Middle East region has been lower than western countries, it has substantially increased in the last quarter century. Moreover, the diagnosis of breast cancer in this region has often occurred at a later stage in the progress of the disease and in a higher proportion of women in their thirties and forties than in the industrialized nations [16, 17].

The positive family history of breast cancer has been associated with the women's risk of developing breast cancer and the risk of the greatest magnitude when the first-degree relative was affected. And it has been considered as an important and effective factor in performing breast screening as it was significantly associated with increasing the performance rates of breast screening [18,19]. The present study's findings indicated that 11.7% of the study participants had a family history of breast cancer. This result was in accordance with a previous study in Saudi

Arabia by [20] who carried out a study entitled "using the health belief model to predict breast self-examination among Saudi women" that stated that, family history of BC was reported by 22.9 % of women (3.3 % near relatives & 19.6 % far relatives). In addition, [19] who studied "breast cancer knowledge and screening behavior among female school teachers in Gaza City", found that 23% of their respondents had a positive breast cancer family history. Moreover, [21] who investigated breast cancer risk perceptions of Turkish women attending primary care, found that 6.7% of their participants had a first-degree relative with breast cancer.

Regarding the studied women's total knowledge score, the present study's results revealed that, the majority of the women had unsatisfactory knowledge regarding BC. Only 10.0% of them had satisfactory knowledge. This finding was similar to [22] who studied "awareness, knowledge and practices of breast cancer prevention among women with family history of breast cancer in Ede, Osun State, Nigeria" They reported poor knowledge among the women with family history of breast cancer in spite of their susceptibility to the disease, and recommended a health education program to rectify the poor knowledge and inadequate practices. Moreover, [23] who studied "women's knowledge, attitudes, and practices about breast cancer in a rural district of Central India", documented that women in rural Central India had poor knowledge about breast cancer, its symptoms and risk factors. Furthermore, [24] who examined the "poor knowledge and practice towards breast cancer among women in Baghdad City, Iraq". stated that, 61.2% of the respondents had poor knowledge about BC.

The data obtained in the current investigation was in contrast with that conducted by [25] who studied "knowledge, attitude and practice about breast cancer and breast self-examination among women seeking out-patient care in a teaching hospital in central India", and reported that none of their study participants had any knowledge about BSE or were performing BSE. All the women in their study thought that BC could only be detected by CBE by doctors. This difference between the current study and [25] may be attributed to the social and cultural differences.

It was clear from the current study that, about two third of the studied subjects had neutral attitude regarding BC. Only 16.7% of them had a positive attitude regarding BC. This was in agreement with [26] who assessed "breast cancer awareness, attitude and practices among female university students in Jordan" and stated that, their study participants reported fairly a positive attitude (56.3%) regarding BC. Additionally, the previously mentioned study in Saudi Arabia by [20] concluded that, Saudi women reported a negative attitude towards BC and BSE, and their practices were poor.

The current study's findings revealed that, although 36.7% of the participants performed BSE, only 13.3% of them performed it on a regular basis (every month). This finding was consistent with [27] in the study entitled "Breast cancer screening practices of African migrant women in Australia" that stated while most of the participants heard of breast awareness (76.1%) and mammogram, only 11.4% practiced BSE monthly. Also, [28] who evaluated "the , found that, the majority of the participants heard of breast awareness, clinical breast examination, and mammography. However, only 7.6% practiced BSE monthly. Also, the previously mentioned study [24] reported that, only 30.3% of their study respondents performed breast self-examination. Such similarities between the current study's findings and other researchers could be credited to what has been formulated in the literature about the importance of the knowledge, that its deficits can have a detrimental impact on the education of women on screening practices, and attitudes of women in the adoption of early detection practices [29].

Regarding the barriers towards BSE, the current study's results revealed that the majority of the participants who have never practiced BSE, mentioned that they didn't have the symptoms as the main barrier to practicing BSE (52.6%); followed by they didn't know the procedure (23.8%). Similar findings reported by [30] who had studied ", documented that the most common reasons for not doing BSE was the lack of knowledge (20.3%), and the lack of the symptoms (14.3%). Also, [31] added that the most common reasons for not doing BSE among their respondents were "not knowing how to perform BSE" (98.5%), "not expecting to get breast cancer" (45.6%) and "not having a close relative with breast cancer" (42.9%).

Concerning the practices of screening mammogram, this study showed a poor practice of mammography screening among the studied women. The majority of the women never had mammography screening in their lifetime. Only 8.3% of the studied subjects were performing screening mammogram in the past. Similar findings reported by [32] who studied the "practice and barriers of mammography among Malaysian women in the general population", stated that, while the majority of Malaysian women knew about mammography (68%), only 15% had a mammogram once in their life, and only 2% had the procedure every two or three years. Moreover, [33] found that 70% of the study participants never had mammography screening in their life time.

On the contrary, [34] who studied "Mammography-Seeking Practices of Central Illinois Amish Women" documented that, about two third of their study participants, reported a screening mammogram within the last two years. This incongruity between the current and latter studies might be attributed to the social and cultural differences.

CONCLUSION

Based on the results of the present study, it can be concluded that, the majority of the working women in Tabuk University had unsatisfactory knowledge, and neutral attitudes regarding breast cancer, and poor practices toward BSE and other early detection screening measures of breast cancer as screening mammogram and clinical breast examination.

Recommendations

- Training program about breast cancer and its early detection screening measures should be conducted for the working women in Tabuk University to improve their knowledge, attitudes, and practices.
- The present study should be replicated on a larger sample, and in different settings.

ACKNOWLEDGEMENTS

This project was funded by the Deanship of Scientific Research, Tabuk University, through the Project No. (S -1438-0168). The authors would like to express their appreciation to all the participants who willingly participated in the study.

REFERENCES

1. Shankar A, Rath GK, Roy S, et al. Level of awareness of cervical and breast cancer risk factors and safe practices among college teachers of different states in India: do awareness programmes have an impact on adoption of safe practices? *Asian Pac J Cancer Prev.* 2015;16: 927–32.
2. Al Diab A., Qureshi S., Al Saleh K.A., Al Qahtani F.H., Aleem A., Alghamdi M.A., Alsaif A., Bokhari A.A., Qureshi V.F. and Qureshi M.R. (2013): Review on Breast Cancer in the Kingdom of Saudi Arabia. *Middle-East Journal of Scientific Research.* 14 (4): 532-543.
3. Migowski, A. Early detection of breast cancer and the interpretation of results of survival studies. *Cienc. Saude Coletiva*, 2015, 20, 1309. vol.20 no.4 Rio de Janeiro Apr. 2015. <http://dx.doi.org/10.1590/1413-81232015204.17772014>
4. Saggi, S., Rehman, H., Abbas, Z.K., and Ansari, A., Recent incidence and descriptive epidemiological survey of breast cancer in Saudi Arabia, *Saudi Med J.* 2015 Oct; 36(10): 1176–1180.
5. American Cancer Society (2015): *Breast Cancer Facts & Figures 2015-2016.* Atlanta:11.
6. National Cancer Institute. (2015): Breast cancer prevention. Available at: <http://www.cancer.gov/cancertopics/pdq/prevention/breast/Patient/page1>. Accessed January 21, 2017.
7. Abdelaziz S.H., Salem D., Zaki H. and Atteya S. (2015): Nurse's Role in Early Detection of Breast Cancer through Mammography and Genetic Screening and Its Impact on Patient's Outcome. *International Journal of Medical, Health, Biomedical, Bioengineering and Pharmaceutical Engineering* 9(2): 155-162.
8. Yu Z, Jia C, Geng C, et al. Risk factors related to female breast cancer in regions of Northeast China: a 1:3 matched case-control population-based study. *Chin Med J (Engl)* 2012; 125:733–40.
9. Belaid A, Kanoun S, Kallel A, et al. Cancer du sein avec atteinte ganglionnaire axillaire. *Cancer/Radiothérapie.* 2010; 14: 136–46.
10. Haya S. and Al-Eid S.D. (2014): Cancer incidence report, Saudi Arabia 2010, vol. 14. Kingdom of Saudi Arabia: Ministry of Health, Saudi Cancer Registry: 103.
11. Saudi Health Council, Saudi Cancer Registry, Cancer Incidence Report, Saudi Arabia .2013
12. Ibrahim E.M., Zeeneldin A.A., Sadiq B.B. and Ezzat A.A. (2008): The present and the future of breast cancer burden in the Kingdom of Saudi Arabia. *Medical Oncology* 25 (4): 387–393.
13. Yarbro, C H, Frogge, M H. Goodman, M. (2011). *Cancer nursing.* 6th ed. Jones and Bartlett publishers, Inc. London.1120.
14. Kobeissi L, Samari G, Telesca D, Esfandiari M, Galal O.J The impact of breast cancer knowledge and attitudes on screening and early detection among an immigrant Iranian population in southern California. *Relig Health.* 2014 Dec;53(6):1759-69. doi: 10.1007/s10943-013-9778-y

15. Chen, S.S., Chow, D.M., Loh, E.K., Wong, D.C., Cheng, K.K. and Fung, W.Y. (2007). Using a community-based outreach program to improve breast health awareness among women in Hong Kong. *Public Health Nurs* 24(3):265–273.
16. Tarabeia J, Baron-Epel O, Barchana M, Liphshitz I, Ifrah A, Fishler Y, et al. A comparison of trends in incidence and mortality rates of breast cancer, incidence to mortality ratio and stage at diagnosis between Arab and Jewish women in Israel, 1979–2002. *Eur J Cancer Prev.* 2007; 16 (1):36–42. doi: 10.1097/01.cej.0000228407.91223.85.
17. Miller AB. Screening for breast cancer in the Eastern Mediterranean Region. *East Mediterr Health J.* 2010;16 (10):1022–1024.
18. McPherson K, Steel C, Dixon J. ABC of breast diseases. breast cancer epidemiology, risk factors and genetics. *BMJ*, 2000; 321, 624-8.
19. Abu-Shammala BI, Abed Y. Breast Cancer Knowledge and Screening Behavior among Female School Teachers in Gaza City. *Asian Pac J Cancer Prev.* 2015; 16 (17):7707-11.
20. Abolfotouh MA, BaniMustafa AA, Mahfouz AA, Al-Assiri MH, Al-Juhani AF, Alaskar AS. Using the health belief model to predict breast self-examination among Saudi women. *BMC Public Health.* 2015 Nov 23;15: 1163. doi: 10.1186/s12889-015-2510-y.
21. Kartal M, Ozcakar N, Hatipoglu S, Tan MN, Guldal AD. Breast cancer risk perceptions of Turkish women attending primary care: a cross-sectional study. *BMC Women’s Health.* 2014 Dec 5;14: 152. doi: 10.1186/s12905-014-0152-3.
22. Adeleka, A.L, and Edoni, E.R. Awareness, Knowledge and Practices of Breast Cancer Prevention among Women with Family History of Breast Cancer in Ede, Osun State, Nigeria. *IOSR Journal of Dental and Medical Sciences*, 2012; 2 (2): 42-47.
23. Gangane N, Ng N, Sebastian MS. Women's Knowledge, Attitudes, and Practices about Breast Cancer in a Rural District of Central India. *Asian Pac J Cancer Prev.* 2015; 16 (16):6863-70.
24. Hasan TN, Shah SA, Hassan MR, Safian N, Azhar ZI, Syed Abdul Rahim SS, Ghazi HF. Poor Knowledge and Practice Towards Breast Cancer among Women in Baghdad City, Iraq. *Asian Pac J Cancer Prev.* 2015; 16(15):6669-72.
25. Siddharth R, Gupta D, Narang R, Singh P. Knowledge, attitude and practice about breast cancer and breast self-examination among women seeking out-patient care in a teaching hospital in central India. *Indian J Cancer.* 2016 Apr-Jun; 53(2):226-229. doi: 10.4103/0019-509X.197710.
26. Alsaraireh A, Darawad MW. Breast cancer awareness, attitude and practices among female university students: A descriptive study from Jordan. *Health Care Women Int.* 2017 Aug 29:1-13. doi: 10.1080/07399332.2017.1368516. [Epub ahead of print]
27. Ogunsiji OO, Kwok C, Fan LC. Breast cancer screening practices of African migrant women in Australia: a descriptive cross-sectional study. *BMC Women’s Health.* 2017 Apr 17;17 (1):32. doi: 10.1186/s12905-017-0384-0.
28. Kwok C, Endrawes G, Lee CF. Cultural Beliefs and Attitudes About Breast Cancer and Screening Practices Among Arabic Women in Australia. *Cancer Nurs.* 2016 Sep-Oct;39(5):367-74. doi: 10.1097/NCC.0000000000000325.
29. Oladimeji KE, Tsoka-Gwegweni JM, Igbodekwe FC, Twomey M, Akolo C, Balarabe HS, Atilola O, Jegede O, Oladimeji O. Knowledge and Beliefs of Breast Self-Examination and Breast Cancer among Market Women in Ibadan, South West, Nigeria. *PLoS One.* 2015 Nov 25;10 (11):e0140904. doi: 10.1371/journal.pone.0140904. eCollection 2015.
30. Al-Naggar RA, Al-Naggar DH, Bobryshev YV, Chen R, Assabri A. Practice and barriers toward breast self-examination among young Malaysian women. *Asian Pac J Cancer Prev.* 2011;12 (5):1173-8.
31. Karayurt Ö, Özmen D, Çetinkaya AC (2008). Awareness of breast cancer risk factors and practice of breast self-examination among high school students in Turkey. *BMC Public Health*, 8, 359. doi: 10.1186/1471-2458-8-359.
32. Al-Naggar RA, Bobryshev YV. Practice and barriers of mammography among Malaysian women in the general population. *Asian Pac J Cancer Prev.* 2012;13(8):3595-600.

33. Schwartz K, Fakhouri M, Bartoces M, Monsur J, Younis A (2008). Mammography screening among Arab American women in metropolitan detroit. *j immigrant minority health*: DOI 10.1007/s10903-008-9140-8
34. Geiger SD, Grigsby-Toussaint D. Mammography-Seeking Practices of Central Illinois Amish Women. *J Community Health*. 2017 Apr;42(2):369-376. doi: 10.1007/s10900-016-0265-8.