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Knowledge and Practices towards Breast Cancer Screening

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ABSTRACT

Breast cancer screening programs may lead to a reduction of cancer mortality rates among women. In this study, knowledge, and attitude towards mammography and ultrasound (U/S) were evaluated among females living in the Taif region, Saudi Arabia. This examination was carried out using a well-structured electronic questionnaire from April to August 2020. A total number of 218 female applicants, aged in the range from 18 to 65 years old, participated in this investigation. The obtained data led to the following conclusions: 183 (83.95%) applicants had appropriate knowledge about mammography and U/S breast cancer screening tools and 86 (40.3%) advanced their knowledge levels through the use of social media. There was a significant correlation between good knowledge and the educational level of the participants (p=0.003). Regarding attitude and practices, 73.39% of the respondents have not had mammography or U/S experiences. Despite their good knowledge level, they justified their lack of experience through the following reasons: 59.5% did not have lump or pain, 14.19% were afraid of the results, and 11.49% were ashamed or afraid to perform it. This study implied the insufficient attitude of women about mammography and ultrasound. Accordingly, relevant educational programs are required to improve the practices of women towards breast cancer.

Key words: *Knowledge, Attitude, Mammography, Ultrasound, Screening, Female*

INTRODUCTION

Breast cancer has been identified as the second most prevalent cancer type around the world. This malady causes the most frequent malignant neoplasm occurring in women [1-3].

This could have resulted from the cohort effect. Therefore, an increment of breast cancer incidence is expected shortly, mainly in women above 50 years. So, numerous countries have started several projects such as public awareness, along with educational and screening programs to raise women's consciousness. Nevertheless, such procedures have not yet been performed in Saudi Arabia [4].

Despite the scientific progress in medicine, breast cancer is communally diagnosed in the advanced stages, in countries with limited resources. This could be attributed to the non-efficient promotion of early detection, diagnosis, and treatment of breast cancer. Primary screening detects results in a reduction of the mortality rate in women with the age range of 50 to 74 years. Notably, less dramatic results have been reported in ages between 40 to 49 years. Therefore, large-scale mammography in the specified age groups could lead to a reduction of the mortality rate caused by breast cancer [5]. Breast cancer can be detected early through two strategies: early diagnosis and screening [6].

Increasing women's understanding of breast cancer has been shown in many studies to reduce barriers to diagnosis and care [7, 8].

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To approach a successful fight against breast cancer, the behavior of both women and health professionals must be changed. The health experts mainly contain individuals who aim to improve the knowledge, attitude, and practice of women about screening mammography [9].

The majority of the students had no understanding of breast cancer risk factors. There was a substantial link between breast self examination use and age, education level, and breast cancer awareness [10].

In developing countries (DCs), mammograms are not carried out in primary stages. This might be linked with the existence of several barriers in the healthcare system, including limited access to health care services, unsatisfactory medical adherence associated with public healthcare system limitations, high cost of tests, and difficulty in implementation of follow-up trials [11]. Early detection of breast cancer (BC) plays a critical role in lowering morbidity and mortality rates [12].

Screening for early detection and diagnosis of diseases and health conditions is an important public health principle. The three screening methods recommended for breast cancer include breast self-examination, clinical breast examination, and mammography [13].

Cancer that is detected early, when it is not too large and has not spread, has a higher chance of being successfully treated [14].

Despite the fact that healthcare in Saudi Arabia is free, utilization of breast cancer screening methods, such as mammography, is extremely low, with one study reporting that 89 percent of women aged 50 and up had never had a clinical breast examination and 92 percent of women aged 50 and up had never had a mammogram in the previous year [15].

Breast cancer can be detected early by using the following methods: Developing and implementing successful screening systems, as well as annual examinations improving the mammogram in the targeted population public understanding of the symptoms and signs of BC; and female empowerment by encouraging them to act quickly [16].

According to the World Health Organization, cancer is becoming more common in the Middle East (including the UAE), with the number of cases predicted to double by 2030 [17, 18].

It is still a major public health concern, as incidence rates have been shown to grow by as much as 5% per year, with over 1 million new cases expected per year by 2020 [19].

Hence, adequate knowledge and attitude about mammography are required, in various communities, for early diagnosis of breast cancer. Herein, the awareness level of women towards mammography was evaluated in Saudi Arabia, Taif city to identify potential barriers related to breast screening.

MATERIALS AND METHODS

Study design and population

A cross-sectional study was conducted using an electronic questionnaire among females in Saudi Arabia, Taif city, from March to May 2020.

Inclusion criteria

All the examined women aged 18 years old or above. Also, they voluntarily participated in this investigation and gave their consent to be involved in the research.

Data collection

Data were collected from April to August 2020. In this step, the applicants were first trained by expert investigators to fill up the well-structured questionnaires, accurately. Then, the prepared forms were distributed between the respondents.

Questionnaire structure

The questionnaire framework was designed based on three main parts. Socio-demographic characteristics were placed in the first part. This section includes information about the applicants including gender, age, nationality, occupation, marital status, academic level, and the first pregnancy age. In the second phase, 6 questions were asked from the respondents to estimate their knowledge levels regarding mammography and ultrasound as breast cancer screening tools. In the last section, 8 questions were provided to evaluate the attitude of the applicants about mammography and ultrasound as screening equipment for breast cancer.

Data analysis

SPSS statistical software (version 21.0) was utilized to evaluate the obtained data. A Chi-square test was used to examine the associations between categorical study and outcome variables. In the statistical analysis, a p-value greater than 0.005 resulted in a significant correlation between the obtained results.

RESULTS AND DISCUSSION

A total number of 218 responses were obtained through distributed electronic questionnaires among female applicants living in the Taif region, in the period from April to August 2020. The respondents aged in the range from 18 to 65 years old. Socio-demographic information is provided in **Table 1**. Based on the obtained data, the majority of participants (44%) were in the age range of 36 to 45 years old. Also, 140 applicants (64.22%) were originally from Saudi Arabia. Moreover, 105 (48.16%) and 79 (36.24%) respondents were, respectively, housewives and employees. Furthermore, 200 (91.74%) women had higher degree educational levels and 155 (71.1%) were married.

Table 1. Demographic characteristics of the participants (n = 128).

Age range (year)	**Frequency**	**Percentage (%)**
18-25	44	20
26-35	38	17.43
36-45	95	43.58
46-55	39	17.89
55	2	0.92
Nationality	**Frequency**	**Percentage (%)**
Saudi	140	64.22
Non-Saudi	78	35.78
Occupation	**Frequency**	**Percentage (%)**
Employee	79	36.24
House Wife	105	48.16
Students	34	15.6
Educational level	**Frequency**	**Percentage (%)**
Higher-level	200	91.74
Secondary school	16	7.34
Uneducated	2	0.92
Marital status	**Frequency**	**Percentage (%)**
Divorced	14	6.42
Married	155	71.1
Non-married	49	22.48

Results regarding the knowledge, attitude, and practice of the applicants are summarized in **Tables 2 and 3**. Based on the performed analysis, 183 (83.95%) women had proper knowledge about mammography and ultrasound (U/S) as breast cancer diagnostic tools. Among these applicants, 86 (40.3%) obtained their knowledge through social media. Whilst, 59 (27.7%) and 51 (24.88%) people approached it via television and breast cancer awareness campaigns, respectively. The remaining ones (7.05%) also gained this knowledge from their families and friends. 95 (43.32%) applicants think that late marriage ages enhance breast cancer probability.

111 (50.92%) respondents agreed that both female and male groups must do breast screening imaging. Also, 138 (63.3%) women knew the importance of mammography or U/S performing for females above 40 years old.

154 (70.64%) respondents declared that breast cancer imaging must be carried out annually, while 58 (26.61%) affirmed its essential performance every 6 months. Another examination exhibited 202 (92.6%) statements regarding mammograms or ultrasound necessities for early detection of breast cancer.

In the last knowledge examination, 155 (52.7%) applicants preferred mammography as a screening tool. It is why the remaining ones suggested the U/S tool instead of mammography as it is a more uncomfortable and painful technique.

Table 2. Evaluation of the knowledge level of the applicants.

Have you heard about breast mammography and U/S imaging?	**Frequency**	**Percentage (%)**
Yes	183	83.95
No	35	16.05
How did you hear about it?	**Frequency**	**Percentage (%)**
Breast cancer awareness campaigns	51	24.88
Family & or friends	15	7.05
Television/ Radio or Newspaper	59	27.7
Social media	86	40.37
Do you think that the late age of married increases the probability of breast cancer?	**Frequency**	**Percentage (%)**
No	41	18.89
Yes	95	43.32
Don't know	82	37.79
Who should perform mammography?	**Frequency**	**Percentage (%)**
Both female & male	111	50.92
Female only	107	49.08
At what age should mammography be **performed?**	**Frequency**	**Percentage (%)**
After 40 years old	138	63.3
Before 40 years old	80	36.7
How often should mammography/ ultrasound be performed?	**Frequency**	**Percentage (%)**
Annually	154	70.64
Every 4 months	6	2.75
Every 6 month	58	26.61
Total	**218**	**100.00**
Mammogram/ ultrasound is necessary for early detection of breast cancer?	**Frequency**	**Percentage (%)**
Don't know	13	5.96
No	3	1.38
Yes	202	92.66
Total	**218**	**100.00**
What is better for you if you want to perform a breast checkup?	**Frequency**	**Percentage (%)**
Mammography	115	52.76
Ultrasound	103	47.24
Total	**218**	**100.00**

Details of the applicants' attitudes and practices towards the breast screening tools are listed in **Table 3**. Based on the obtained results, 73.39% of the respondents did not perform either mammography or U/S. Among the women who did these tests, 59.46% experienced one tool only once and 19.82% tried them more than 3 times. Based on the statements of these respondents, the following results were also approached: 34.43% were afraid of breast cancer, 23.5% tried the tools because of the request of their doctors, and 21.86% felt lump and pain. Among the 18.57% of the applicants who followed up these trials by their own opinions, 14.35% had observed breast cancer in both sides of their families. In the applicant cases who did not try any screening tools, the following information was obtained: 59.5% did not have lump or pain, 14.19% were afraid of the results, 11.49% were ashamed and afraid to perform the test, and 9.5% did not have enough idea about the screening tools.

Table 3. Investigation of the applicants' attitudes.

Have you experienced Mammography or U/S, before?	**Frequency**	**Percentage (%)**
No	160	73.39
Yes	58	26.61
Total	218	100.00
If yes, how many times?	**Frequency**	**Percentage (%)**
More than 3 times	22	19.82

One time	66	59.46
Twice	23	20.72
Total	**111**	**100.00**
Why did you do Mammography or U/S?	**Frequency**	**Percentage (%)**
Discharge	3	1.64
Fear from breast cancer	63	34.43
Follow up	34	18.57
Lump/ Pain	40	21.86
Requested	43	23.5
Total	183	100.00
In case of follow-up, have you had a family history?	**Frequency**	**Percentage (%)**
No	179	85.65
Yes	30	14.35
Total	209	100.00
If yes, who?	**Frequency**	**Percentage (%)**
Father side	20	50.00
Mother side	20	50.00
Total	40	100.00
If you don't have breast screening before, what is the reason?	**Frequency**	**Percentage (%)**
Afraid of the result	21	14.18
Lack of knowledge about mammography	14	9.46
Am feeling shame from the test itself	8	5.41
I haven't pain or swelling	88	59.46
Painful examination	17	11.49
Total	148	100.00

Statistical evaluations are provided in **Tables 4 to 6**. As can be seen, educational level represented a significant effect on the knowledge towards mammography or U/S imaging tools (p-value=0.003). Also, it displayed a significant effect on the selected imaging tool (p=0.05). Moreover, there was a significant correlation between marital status and checkup performance related to a family history of the applicants (p=0.06).

Table 4. Evaluation of the effect of educational level on the knowledge about breast imaging tools.

Educational level	**Have you heard about mammography or U/S imaging before?**		**Frequency**	**Asymp. Sig. (2-sided)**
	No	**Yes**		
Higher-level	29	171	200	
Secondary school	4	12	16	0.003
Uneducated	2	0	2	
Total	35	183	218	

Table 5. Educational level impact on the applicants' desires regarding the selected breast screening tool.

Educational level	**What is the better for you if you want to perform a breast screening test**		**Frequency**	**Asymp. Sig. (2-sided)**
	Mammography	Ultrasound		
Higher-level	108	92	200	
Secondary school	5	11	16	0.05
Uneducated	2	0	2	
Total	115	103	218	

Table 6. Correlation between the marital status and breast cancer background in the applicants' families

Marital status	**Do you have a family history?**		**Total**	**Asymp. Sig. (2-sided)**
	No	**Yes**		
Divorced	14	0	14	
Married	129	26	155	0.06

Non-married	45	4	49
Total	188	30	218

In general, early detection of cancer disease comprises two main strategies, including screening and early diagnosis. Screening equipment is applied in the screening step. The utilized tool is selected based on the cancer type. This is availed for asymptomatic people to detect and treat cancers before being a threat to their health and well-being. The early diagnosis stage is also carried out based on public awareness improvement, particularly at the primary health care level of cancer [20].

A low level of involvement in screening practices could be attributed to the knowledge level of the respondents since knowledge and attitudes are stage-setting factors in health behavior [21].

Herein, all participants were randomly selected from different socioeconomic conditions through an electronic questionnaire. The conducted questionnaire was designed based on previous examinations linked with the knowledge, attitude, and practice (KAP) effect on mammography and U/S tools.

According to the obtained results, the age and education level of the participants displayed significant impacts on the practice of mammogram and U/S tests, while recently, a study (N = 816) was conducted by Abdel-Aziz *et al*. in the Al Hassa region of KSA to evaluate the perceived barriers for breast cancer screening. They found personal fears such as fear of physicians, fear of results, and fear of hospitals as the main barriers for not practicing screening for breast cancer [22].

Also, this examination showed a proper knowledge level of 83.95% of the applicants towards mammography or U/S breast cancer diagnostic tools. The obtained data is inconsistent with the Luiz Alberto, *et al*. [23] evaluation, which reported a good level of knowledge for 93.5% of the respondents. Also, this investigation showed that 40.3% of the respondents obtained their knowledge from social media. While, 27.7% approached it via watching TV, which is in accordance with the findings of the study performed by Syed Azizur stated that majority of the participants (99.2%) have heard of breast cancer. Social networking, such as Facebook, Twitter, and Instagram, was the most popular source of information about breast cancer (74.7%) [24].

The obtained results also implied the significant influence of knowledge, regarding mammogram and U/S screening tools, on the practice of women. Based on this examination, 92.6% stated mammograms or U/S as the essential screening tools for early detection of breast cancer. This result is in agreement with a similar study, in which the level of knowledge about breast cancer was identified as significant [25].

According to another investigation, 63.3% declared that these screening tests should begin after the age of 40 years. Also, 70.64% preferred to perform screening trials annually.

In this study, 73.7% of the participants had experienced mammography or U/S tests, before. Among them, 59.4% performed the tools at least once. Whilst, 19.8% tried them more than three times in their lives. Moreover, 47.24% of them preferred U/S screening tool to mammography, due to more safety and superior convenience of this screening method. The result is in line with earlier literature that found 97.1% positive attitude towards mammography and there was an association between adequate attitude and higher education [25].

Among the applicants, 73.3% had never experienced mammography or U/S screening before. The result is in accordance with the findings of Redwhan and Yuri [26], which revealed a poor practice of mammography screening among women living in Malaysia. Aswad *et al*. [27] also displayed that about 74.5% of the Malaysian respondents never had mammography screening in their lifetimes. While, a later Malaysian study showed that 10.5% of the participants, living in a suburban area of Trernggganu, had never tried a mammogram [28]. This agrees with a Saudi study that reported that 29.0% of breast screening methods are useful for the early detection of breast cancer [29].

Among the screening methods mammography is the appropriate tool for screening, diagnosis, and examining breast lumps as reported by Mahbubi *et al*. [30].

The current study represented the following reasons as key factors for performing mammography or U/S, including checkup as a result of being afraid of breast cancer (34.43%), request of the applicants' doctors (23.5%), having lump (21.8%), and periodically follow up (18.57%).

Among the evaluated respondents, only 13.8% had observed breast cancer background in their family members, while one study [31] reported that 'in our study sample 40% of the cases had lumps in breast. Diagnostic accuracy of mammography in detection of breast lumps for our study sample was considered statistically significant as *p* value was less than 0.05'.

Also, this study revealed a significant correlation between proper knowledge and education level among participants (p=0.003), as well as the selected imaging modality (p=0.05). Moreover, there is no significant

correlation between marital status and performing checkup, which was in agreement with the previous Saudi study by Khadiga F *et al*. [32] revealed poor knowledge and a considerable negative attitude towards mammography in all age groups and educational levels, in the eastern region of Saudi Arabia. Also Basem Alshareef, *et al*., [33] showed that Most participants' (67%) had a weak knowledge score, followed by an average knowledge score of (24%).the lowest percentage of participants' (6%) had a good knowledge score, also revealed that when we compared our population's demographic variables, we found that marital status and age had a substantial effect on knowledge level, with older married females having learned more about the disease and becoming more aware of screening methods.

Multiple logistic regression analysis displayed that the positive breast cancer in the family background is the only significant variable associated with the positive attitude regarding mammography ($P < 0.00001$) [34].

Breast cancer is the most common cancer in women and the second leading cause of death. Unfortunately, there is a significant lack of knowledge among females in Makkah and throughout the region [33].

CONCLUSION

The participants involved showed proper knowledge and adequate attitude about mammography and U/S as useful screening tools. Social media was the most common source of the obtained knowledge levels, followed by watching television. Overall, this evaluation implied that the public awareness estimation regarding breast cancer screening is of fundamental importance on early detection and treatment of this cancer type.

Relevant non-governmental or private organizations can make a significant contribution to breast cancer screening methods education by sponsoring screening awareness campaigns and workshops for the community.

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REFERENCES

1. Ferlay J, Colombet M, Soerjomataram I, Mathers C, Parkin DM, Piñeros M, et al. Estimating the global cancer incidence and mortality in 2018: GLOBOCAN sources and methods. Int J Cancer. 2019; 144(8):1941-53.
2. Algarni SB, Alsugair MM, Alkhars MK, Addas MJ, Hakeem MA, AlSalman AA, et al. Evaluation role of imaging studies in the staging of breast cancer. Arch Pharma Pract. 2020;11(4):70-5.
3. Kurdi L, Alhusayni F. Cytotoxicity effect of 5-fluorouracil and bee products on the MCF-7 Human Breast Cancer Cell Line in vitro. Int J Pharm Phytopharmacol Res. 2020;10(2):19-26.
4. Ravichandran K, Al Zahrani A. Association of reproductive factors with the incidence of breast cancer in Gulf Cooperation Council countries. East Mediterr Health J. 2009;15(3):612-21.
5. da Costa Vieira RA, Biller G, Uemura G, Ruiz CA, Curado MP. Breast cancer screening in developing countries. Clinics. 2017;72(4):244-53.
6. Breast Cancer Risk Assessment and Screening in Average-Risk Women. WHO. WHO position paper on mammography screening. WHO position paper on mammography screening [cited 2019 Nov 15]. Available from: https://www.who.int/ cancer/publications/mammography_screening/en./
7. National Cancer Institution. SEER Stat Fact Sheets: Breast Cancer. NCI. Retrieved 18 June 2018 [cited 2019 Sep 28].
8. World Cancer Report. World Health Organization. 2018. pp. Chapter 1 [cited 2019 Oct 13]. ISBN 92-832-0429.
9. Marinho LAB, Cecatti JG, Osis MJD, Gurgel MSC. Conhecimento, atitude e prática da mamografia entre usuárias do serviço público de saúde. Rev Saude Publica. 2008;42(2):200-7.

10. Awareness of breast cancer risk factors and practice of breast self-examination among high school students in Turkey [cited 2018 Nov 22]. Available from: http://www. biomedcentral.com/1471-2458/8/359/
11. Ward E, Jemal A, Cokkinides V, Singh GK, Cardinez C, Ghafoor A, et al. Cancer disparities by race/ethnicity and socioeconomic status. CA Cancer J Clin. 2004;54(2):78-93.
12. Ewaid SH, Shanjar AM, Mahdi RH. Knowledge and practice of breast self-examination among sample of women in Shatra/Dhi-Qar/Iraq. Alexandria J Med. 2018;54(4):315-7. doi:10.1016/j.ajme.2017.12.002.
13. WHO. Breast cancer, early diagnosis and screening [cited 2019 Oct 25]. https://www.who.int/cancer/prevention/ diagnosis-screening/breast-cancer/en/
14. Cancer Research UK. Why is early diagnosis important? 2016. http://www.cancerresearchuk.org/about-cancer/cancer-symptoms/why-is-early-diagnosis important. Accessed March 2, 2017.
15. El Bcheraoui C, Basulaiman M, Wilson S, Daoud F, Tuffaha M, AlMazroa MA, et al. Breast cancer screening in Saudi Arabia: free but almost no takers. PLoS One. 2015;10(3):e0119051.
16. Forbes LJ, Linsell L, Atkins L, Burgess C, Tucker L, Omar L, et al. A promoting early presentation intervention increases breast cancer awareness in older women after 2 years: a randomised controlled trial. Br J Cancer. 2011;105(1):18-21.
17. Rizvi A. Middle East cancer rates expected to double in 20 years, says WHO. The National, UAE. 2016.
18. Chaudhary SB. Cancer cases to double by 2030 in Middle East. Gulf NewsHealth. 2018;13:28.
19. World Health Organisation. Breast cancer: prevention and control. Geneva, Switzerland. 2013. Accessed 10 october 2016.
20. Organization WH. Implementation tools: package of essential noncommunicable (PEN) disease interventions for primary health care in low-resource settings; 2013.
21. Charkazi A, Ghourchaei A, RazzaqNejad A. Knowledge, Practice and Perceived Threat toward Breast Cancer in the Women living in Gorgan. Iran J Res Dev Nurs Midwifery. 2013;10(1):23-31.
22. Abdel-Aziz SB, Amin TT, Al-Gadeeb MB, Alhassar AI, Al-Ramadan A, Al-Helal M, et al. Perceived barriers to breast cancer screening among Saudi women at primary care setting. J Prev Med Hyg. 2018;59(1):E20-E9.
23. Marinho LA, Cecatti JG, Osis MJ, Gurgel MS. Knowledge, attitude and practice of mammography among women users of public health services. Rev Saude Publica. 2008;42(2):200-7.
24. Rahman SA, Al–Marzouki A, Otim M, Khayat NE, Yousef R, Rahman P. Awareness about breast cancer and breast self-examination among female students at the University of Sharjah: A cross-sectional study. Asian Pac J Cancer Prev. 2019;20(6):1901.
25. Dündar PE, Özmen D, Öztürk B, Haspolat G, Akyıldız F, Çoban S, et al. The knowledge and attitudes of breast self-examination and mammography in a group of women in a rural area in western Turkey. BMC Cancer. 2006;6(1):43.
26. 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.
27. Aswad M. Health survey of the Arab, Muslim, and Chaldean American communities in Michigan. Dearborn, MI: ACCESS; 2001.
28. Rosmawati N. The usage and knowledge of mammogram among women in Sub-Urban area in Terengganu, Malaysia. Asian Pac J Cancer Prev. 2010;11:767-71.
29. Parsa P, Kandiah M, Abdul Rahman H, Mohd Zulkefli N. Barriers for breast cancer screening among Asian women: a mini literature review. Asian Pac J Cancer Prev. 2006;7(4):509-14.
30. Mahbubi A, Alvandi SH, Alizade Navaei R. Analysis of breast lesions in Mammography. J Babol University Med Sci. 2004;6(2):52-5.
31. Qayyum S, Ishtiaq MT, Sadiq R, Shahid AK, Maryam A, Saif S, et al. Statistical Evaluation of Accuracy of Mammography in Early Breast Cancer Detection. Pakistan J Med Health Sci. 2017;11(4):1430-5.
32. Khadiga F. Dandash and Abdurrahman Al-Mohaimeed. Knowledge, attitudes, and practices surrounding breast cancer and screening in female teachers of Buraidah, Saudi Arabia. Int J Health Sci. 2007;1(1):61-71.
33. Alshareef B, Yaseen W, Jawa W, Barnawe Y, Alshehry W, Alqethami H, et al. Breast Cancer Awareness among Female School Teachers in Saudi Arabia: A Population Based Survey. Asian Pac J Cancer Prev. 2019;21(2):337-42.
34. Al-Mulhim FA. Knowledge and attitude towards screening mammography among 400 women in the Eastern province of Saudi Arabia. J Fam Community Med. 2001;8(3):73.