Medical Science

pISSN 2321–7359; eISSN 2321–7367

Knowledge and attitude of adult females regarding breast cancer and its early detection in Alqunfudhah district: A cross sectional community based study

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To Cite:
Alkalash S, Alzubaidi M, Alqarni G, Alzubaidi H, Alamri L, Alqarni G. Knowledge and attitude of adult females regarding breast cancer and its early detection in Alqunfudhah district: A cross sectional community based study. Medical Science, 2022, 26, ms94e2129.
doi: https://doi.org/10.54905/disssi/v26i121/ms94e2129

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Peer-Review History
Received: 06 February 2022
Reviewed & Revised: 08/February/2022 to 01/March/2022
Accepted: 03 March 2022
Published: 08 March 2022

Peer-review Method
External peer-review was done through double-blind method.

URL: https://www.discoveryjournals.org/medicalscience

ABSTRACT

Background: Breast cancer (BC) is the commonest cancer among Saudi women. Awareness about its screening among females is a crucial issue for early detection of breast abnormalities and interference to reduce its complications. *Methods:* A cross sectional study was conducted on a sample of 421 adult females in Alqunfudhah district. Data were collected through a self-administered questionnaire to assess their knowledge and attitude towards breast cancer screening. *Results:* A total of 421 females responded to survey 83.4%, 63.4 % and 44.4% of them respectively knew about breast self-examinations, clinical examinations, and mammography. Most information was from media (67.9%). The commonest risk factor was family history (88.1%) while occurrence of a breast mass was the most identified warning sign (96.9%). Good knowledge was significantly higher among highly educated females *(P 0.008)* and whose high family income *(P 0.000)* whiles their positive attitude was significantly higher among younger females *(P 0.003)*. *Conclusion:* Females' knowledge and attitude towards breast cancer screening were not up to expected and this indicated necessity to promote breast cancer screening by intensifying educational campaigns and increasing screening programs.

Keywords: Attitude, Breast cancer, Knowledge, Screening.

1. INTRODUCTION

Globally; Breast malignancy constitutes a high prevalence rate among women and it is responsible for the highest level of disability and mortality amongst female cancer (Radi, 2013). Incidence rates of breast cancer are greatly varied worldwide being the highest in high income countries (Tfayli et al., 2010). About two million new patients with breast cancer were diagnosed

worldwide in 2018, accounting for 11.6 percent of all cancers (Heena et al., 2019). Malignant tumors of breast constitute 28% of total cancers numbers among Saudi women (Ahmed et al., 2019; Elasbali et al., 2021). The most common predisposing factors that may lead to breast cancer are female gender, advanced age, high estrogen, positive family history of breast cancer, gene mutations, and an unhealthy lifestyle like smoking and physical unfitness (Sun et al., 2017). It is typically discovered at advanced stages in Saudi Arabia where it is more common among young women compared to west countries (Chiedozi et al., 2003).

Malignant tumors of breast are highly spreading cancers that spread to distant organs like lung, bones, brain and liver making it nearly impossible to cure (Sun et al., 2017). Breast cancer screening is a significant step towards reducing its morbidity and mortality. There are different approaches for screening includes breast self-examination (BSE), mammography, and clinical breast testing. The perfect route to effectively reduce burden of disease is cooperation amongst different screening modalities (Anne & Michael, 2009; Alrashid et al., 2021; Tsegaye et al., 2021).

Breast Health Global Initiative (BHGI) reported that adequate awareness of women about breast cancer self-examination (BSE) increases early detection and treatment of this disease (Jahan et al., 2006). In 2014, a national survey was applied to assess awareness and practices about breast cancer screening among Saudi women more than 50 years old, and it revealed a very low breast screening rate in a country where all people receives health care services without any charge. These results are of great significance and call for urgent action to improve rate of breast cancer screening in Saudi Arabia (El Bcheraoui et al., 2015).

Researchers studied incidence and mortality of cancer breast in Saudi Arabia by use data through a Global Burden of Disease database, the study displayed; In 1990, about 350 women were newly diagnosed as having malignant breast tumor and it climbed 10-fold to 3400 cases in 2016 (Althubiti & Nour Eldein, 2018). Inadequate women awareness and their perception that mammography is uncomfortable was substantially linked to unsatisfactory rate of screening for cancer breast among women (Al-Zalabani et al., 2018).

Despite many previous studies were performed in Gulf region to assess the same issue but there weren't any studies to address awareness of adult females in Alqunfudhah district about risk factors, warning signs and different modalities for screening of breast cancer. Alqunfudhah district is being far away any big cities and there is little information about its population awareness. So, current study was developed to assess level of knowledge and attitudes among adult females towards breast cancer and its screening in Alqunfudhah district.

2. METHODOLOGY

Study design

A cross sectional community based study was executed to identify knowledge and attitude regarding early screening of breast cancer among adult females in Alqunfudhah district, Kingdom Saudi Arabia (KSA), during period from October 2020 to July 2021. A validated self-administered questionnaire was used in gathering the required research data.

Sample size

Sample size was calculated using EPI-INFO 7 and it was 421 based on total number of adult females in Alqunfudhah district(130739) and frequency of good knowledge about cancer breast screening (50%) at confidence interval (95%). Participants were selected by simple random sample technique.

Tools for data collection

An electronic questionnaire of closed end questions was designed and used in data gathering. It was formed of three sections: first section to assess socioeconomic data of the participants as age, social states, education level, work status, monthly family income. Second section involved 14 questions to evaluate their awareness by cancer breast screening as breast self-examination, clinical breast examination, mammography, and risk factors, manifestations of breast cancer. Third section consisted of five statements to assess participant's level of attitude towards screening of cancer breast, were measured using five-point Likert scale ranging from very agree (5) to very disagree (1).

Knowledge score

Mean knowledge score (0.62) indicated a 62% level of knowledge. The overall score was divided into three categories using a three-point scale with the following weighting: adequate knowledge (0.76-1.00), moderate adequate knowledge (0.51-0.75), and inadequate knowledge (0.00-0.50).

Attitude score

Mean attitude score (3.78) indicated a 76% level of attitude towards accepting screening. Overall attitude score was categorized as three-point scale given weight as follows: negative attitude (1.00-2.49), neutral attitude (2.50-3.49) and positive attitude (3.50-5.00).
In order to ensure validity, clarity of questions and assess need for any modifications in survey items, so a pilot study was implemented for thirty adult females. Results of this piloting were excluded from main study results.

Statistical analysis

Four hundred and twenty one participants were incorporated into this study. Data analysis process of this study included two stages. First stage involved a descriptive analysis where means and standard deviations described numerical variables, while categorical variables were delineated using frequencies and percentages. Knowledge and attitude mean score was computed .The second stage included hypothesis testing using Chi-Squared test and Likelihood Chi-Squared test, it was applied by IBM SPSS Statistics 25.0.

3. RESULTS

A sample of 421 adult females was involved in this study, based on a total number of adult females in Alqunfudhah district, during period from October 2020 to July 2021. Most of them were 18-35 years old (79%), while (17.1%) were at age group of 36-45, and the lowest percentage was for participants aged 46-59. Approximately half of participants were unmarried (49.4). The majority of respondents had university education (63.4%) and non-employees (79.6%) and regarding monthly income; (39.2%) of participants had 5000-10000 Saudi Riyals (SR) (Table 1).

Table 1 Sociodemographic data of participants

Characteristics	N	(%)
Age (n=421)		
18 - 35 years	336	79.8
36 - 45 years	72	17.1
46 - 59 years	13	3.1
Social status (n=421)		
Married	192	45.6
Unmarried	208	49.4
Divorced	12	2.9
Separated	5	1.2
Widow	4	1.0
Education level (n=421)		
Primary school	7	1.7
Secondary school	11	2.6
Tertiary school	115	27.3
University	267	63.4
High education	21	5.0
Work status (n=421)		
Employee	86	20.4
Non-employee	335	79.6

Monthly family income (n=421)		
Less than 5000 SR	132	31.4
5000-10000 SR	165	39.2
More than 10000 SR	124	29.5
All values presented as numbers and percentages.		

Mean of participants' knowledge about breast self-examination was (0.83) and (0.85) for breast self-examination is being a beneficial screening procedure for cancer breast. Mean of participants' knowledge about clinical breast examination was (0.63) while effective method for screening was (0.69) (Table 2).

Table 2 Participant's level of knowledge as regards screening for breast tumors

Statement	Mean	SD	Rank	Level of Knowledge
-Heard about breast cancer (BC)	1.00	.049	1	AK
-Heard about Breast Self-Examination (BSE)	.83	.373	12	AK
-Breast Self-Examination can early detect BC	.85	.357	10	AK
-Heard about clinical examination of breast (CBE)	.63	.482	20	MAK
-Importance of CBE in detection of BC	.69	.463	18	MAK
-Who should conduct CBE?.	.70	.458	16	MAK
-Clinical Breast Examination is done using	.42	.495	26	IAK
-Frequency of breast assessment by a physician	.23	.420	32	IAK
-Heard about mammography	.44	.497	24	IAK
-Age of starting mammography	.33	.469	30	IAK
-Frequency of mammography	.28	.450	31	IAK
-Previously performed a mammography	.01	.084	35	IAK
Potential precipitating factors for breast malignancies:				
-Increasing age	.70	.458	17	MAK
-Positive family history	.88	.324	6	AK
-High-fat diet	.66	.474	19	MAK
-Smoking	.80	.404	13	AK
-Race/ ethnicity	.40	.490	28	IAK
-Working class women	.12	.329	34	IAK
-First child at late age	.38	.486	29	IAK
-Early onset menarche	.23	.422	33	IAK
-Late menopause	.42	.493	27	IAK
-Stress	.49	.501	22	IAK
-Obesity	.59	.493	21	MAK
-Larger breast	.43	.496	25	
Sign and symptoms of breast tumors:				
-Lump in the breast	.97	.173	2	AK
-Discharge from the breast	.85	.357	11	AK
-Pain in the breast	.89	.309	5	AK
-Change in size of the breast	.87	.337	7	AK
-Change in shape of the breast	.92	.273	3	AK
-Discoloration of the breast	.86	.348	8	AK
-Ulceration of the breast	.86	.345	9	AK

-Weight loss	.47	.499	23	IAK
-Inversion in of nipple	.77	.422	14	AK
-Swelling or enlargement of the breast	.92	.269	4	AK
-Nipple dryness	.71	.452	15	MAK
Mean Score	.62			

AK: Adequate knowledge, MAK: Moderate Adequate knowledge, IAK: Inadequate knowledge.

Nearly all study respondents (99.8%) had previous background about breast cancer. Main source of their information was media as (TV, radio, internet, etc.) constituted (67.9%) and followed by lectures (14.3%), books (7.1%) and friends (5.1%) while the least source was from health care system (4.3%) (Figure 1).

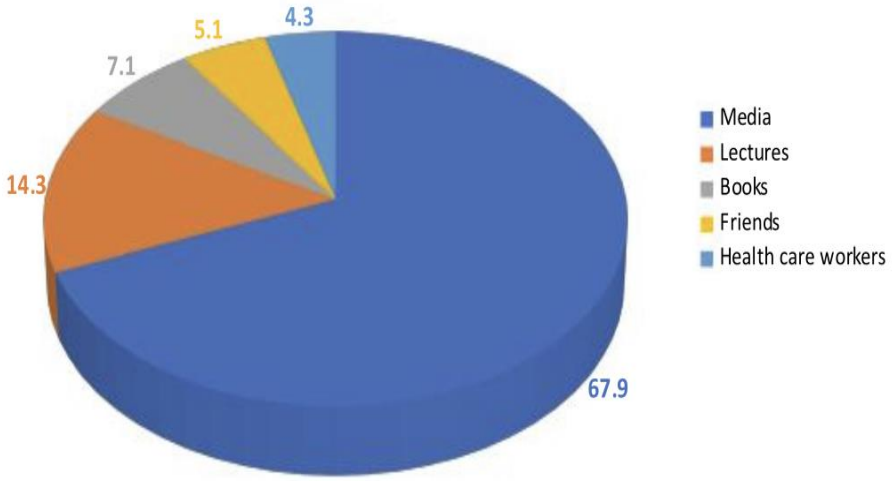

Figure 1 Source of information among participants.

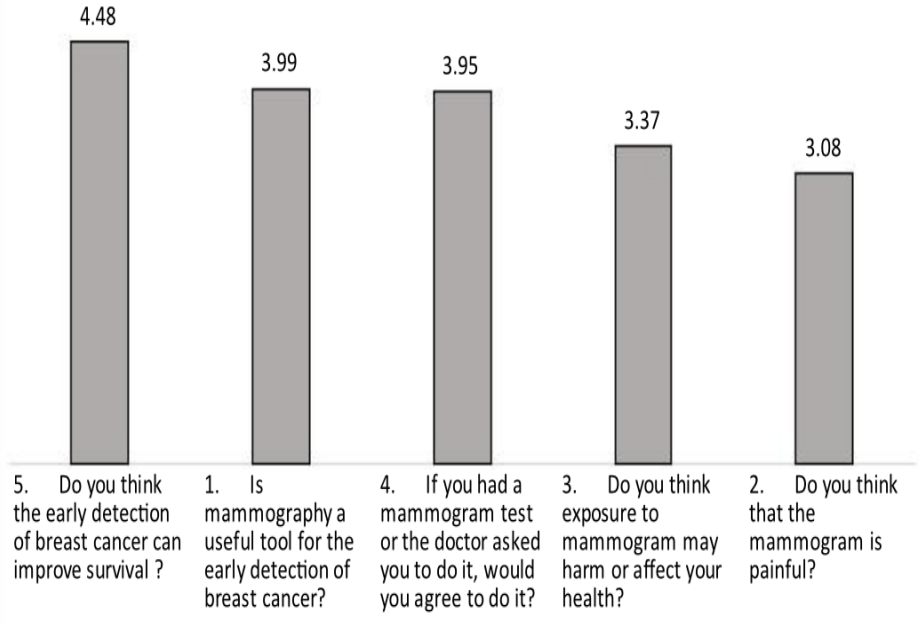

Figure 2 Participants' level of attitudes regarding screening of breast tumors.

Regarding their family history; we found that majority of them (83.8 %) had positive family history of cancer breast (16.2 %), their relationships with participants were as follows: (38.2%) were their cousins, (26.5%) far relatives and (22.1%) were aunts while first degree relationships represented (8.8%), mothers or (4.4%) sisters. The mean of participants' attitude that screening could

improve survival was (4.48) and mammogram is a beneficial approach was (3.99) and these findings categorized as a positive attitude while mean of participants' attitude that mammogram is painful was (3.08), exposure to mammogram might be harmful of affecting their health was (3.37), and these findings categorized as negative attitude (Figure 2).

Statistically significant associations were detected between respondents' knowledge with their education levels (P 0.008) and monthly income (P 0.000), while there was no relation between participants' ages or work status with their level of knowledge. (Table 3). Respondents' ages and their monthly income were significantly affecting females' perspectives as regards screening for breast tumors (P 0.003 & 0.047) (Table 4).

Table 3 Association between the respondents' socio-demographic factors with their knowledge

Demographics	Level of knowledge			P-value
	Inadequate knowledge N (%)	Moderately adequate knowledge N (%)	Adequate knowledge N (%)	
Age				
18 – 35 years	63 (78.8)	217 (79.8)	56 (81.2)	0.855
36 – 45 years	15 (18.8)	45 (16.5)	12 (17.4)	
46 – 59 years	2 (2.5)	10 (3.7)	1 (1.4)	
Social status				
Married	30 (37.5)	137 (50.4)	25 (36.2)	0.051
Unmarried	46 (57.5)	124 (45.6)	38 (55.1)	
Divorced	3 (3.8)	4 (1.5)	5 (7.2)	
Separated	1 (1.3)	4 (1.5)	0 (0.0)	
Widow	0 (0.0)	3 (1.1)	1 (1.4)	
Education level				
Primary school	2 (2.5)	3 (1.1)	2 (2.9)	0.008*
Secondary school	0 (0.0)	9 (3.3)	2 (2.9)	
Tertiary school	27 (33.8)	76 (27.9)	12 (17.4)	
University	42 (52.5)	173 (63.6)	52 (75.4)	
High education	9 (11.3)	11 (4.0)	1 (1.4)	
Work status				
Employee	13 (16.3)	63 (32.2)	10 (14.5)	0.165
Non-employee	67 (83.8)	209 (76.8)	59 (85.5)	
Monthly Family Income				
Less than 5000 SR	37 (46.3)	68 (25.0)	27 (39.1)	0.000*
5000-10000 SR	26 (32.5)	122 (44.9)	17 (24.6)	
More than 10000 SR	17 (21.3)	82 (30.1)	25 (36.2)	
*Association found at 0.05 level of significant.				

Table 4 Association between the respondents' socio-demographic factors with their attitudes

Demographics	Level of attitude			P-value
	Negative attitude N (%)	Neutral N (%)	Positive attitude N (%)	
Age				
18 – 35 years	3 (75.0)	90 (73.2)	243 (82.7)	0.003*
36 – 45 years	0 (0.0)	24 (19.5)	48 (16.3)	
46 – 59 years	1 (25.0)	9 (7.3)	3 (1.0)	
Social status				
Married	2 (50.0)	55 (44.7)	135 (45.9)	0.881
Unmarried	2 (50.0)	63 (51.2)	143 (48.6)	
Divorced	0 (0.0)	3 (2.4)	9 (3.1)	
Separated	0 (0.0)	2 (1.6)	3 (1.0)	
Widow	0 (0.0)	0 (0.0)	4 (1.4)	
Education level				
Primary school	0 (0.0)	2 (1.6)	5 (1.7)	0.663
Secondary school	0 (0.0)	3 (2.4)	8 (2.7)	
Tertiary school	2 (50.0)	42 (34.1)	71 (24.1)	
University	2 (50.0)	71 (57.7)	194 (66.0)	
High education	0 (0.0)	5 (4.1)	16 (5.4)	
Work status				
Employee	1 (25.0)	24 (19.5)	61 (20.7)	0.936
Non-employee	3 (75.0)	99 (80.5)	233 (79.3)	
Monthly Family Income				
Less than 5000 SR	3 (75.0)	47 (38.2)	82 (27.9)	0.047*
5000-10000 SR	0 (0.0)	41 (33.3)	124 (42.2)	
More than 10000 SR	1 (25.0)	35 (28.5)	88 (29.9)	
*Association found at 0.05 level of significant.				

4. DISCUSSION

Cancer breast is a fatal disease when diagnosed at its late stages. Makkah region is considered the third region with the highest age-standardized rates (ASR) at 13/100,000 (Alghamdi et al, 2021). Alqunfudhah district is one of the largest governorates in Makkah, therefore it is mandatory to advance perception of its population regarding cancer breast screening. This community based cross sectional study anticipated to appraise knowledge and attitude of adult females about screening of cancer breast in Alqunfudhah district. This study disclosed that most risk factors of breast cancer involved family history as recorded by (88.1%) of study respondents followed by smoking (79.6%) then increasing age (70.1%), which supported by a previous study conducted in Abha city, KSA, that reported most identified risk factor was hereditary (74.4%%), followed by age (68.5%) (Mahfouz et al., 2013).

Present study found out the highest identified warning sign/symptom was breast mass (96.9%), and this is consistent with several previous studies in Riyadh city, Al-Madina Al-Munawara, United Arab Emirates (Almutairi et al., 2016; Rahman et al., 2019; Dandash & Al-Mohaimeed, 2007) followed by swelling or enlargement of breast (92.2%) and change in its shape (91.9%). As the

most obvious sign of breast malignancy is presence of lump so it is logic to find most of women knew that emerging of new masses in breast is an abnormal situation that makes them inquiring about its nature. In the opposite side, participants ignored that rapid weight loss is a warning sign/symptom of breast malignancy and this disagrees with the previous study conducted in Riyadh city, KSA which reported weight loss as being the second most identified warning sign/symptom among participants (Heena et al., 2019). The difference between our and their results may be correlated to difference in nature and background of both studies' respondents where population of Alqunfudhah are far away any big cities and we can consider this district as a distant place where little awareness campaigns might be held there.

Most of respondents were aware by breast self-examination and knew its importance in detecting breast tumors in its early stage while fewer of them previously heard about clinical examination and mammography and these findings are the same as other studies conducted in Saudi Arabia (Heena et al., 2019; Mahfouz et al., 2013; Dandash & Al-Mohaimeed, 2007; Alshahrani et al., 2019). So we can consider there was insufficient efforts to provide women with evidence based information about different screening modalities not only in Alqunfudhah district but also many different places in Kingdom Saudi Arabia. Therefore many frequent campaigns should be prepared and introduced for all females all over Kingdom Saudi Arabia in order to encourage women reach and uptake this very important health care service which already presented costless in most health care facilities. Mean knowledge score was adequate regarding manifestations of breast malignancy, its predisposing factors and screening modalities which is in disagreement with a study in Bangladesh where most of respondents had insufficient knowledge about this important issue (Alam et al., 2021). The differences between current and their results may be owing to difference in cultures, background and educational levels of both studies' participants.

Currently, fundamental origin of information among participants was from social media (67.9%) which is corresponding to several studies (Al-Zalabani et al., 2018; Rahman et al., 2019; Alshahrani et al., 2019).While the lowest source was from health care workers (4.3%). Social media greatly impact people as it reaches large spectrum of people in an interesting way. Therefore, we recommend directing this influence to maximize awareness and education among population through using social media under portage of health care system to ensure that all provided data for public is evidence based. Also there is a necessity for immediate actions by health care workers to promote awareness about breast and screening methods among females in Alqunfudhah district. Current study revealed that 16.2% of these study respondents had family history of breast malignancy and their relationships were described as the following: (38.2%) were their cousins, (26.5%) far relatives and (22.1%) were aunts while first degree relationships represented (8.8%) mothers or (4.4%) sisters. This study findings were approximated to other studies conducted in Bangladesh and Germany (Alam et al., 2021; Pöhls et al., 2004) where 10–25% had at least family members with breast cancer. We should not ignore this high percentage of family history of tumors in breast among participants, because genetic base of breast cancer.

Most of study respondents decided that mammogram is a helpful instrument to aid women for early identification of breast tumors and it can improve survival rates. A study in Brazil denoted similar results (MarinhoJosé et al., 2008). This finding is very promising step in order to prompt females' compliance to screening. Currently, adult females showed positive attitude regarding importance of screening especially mammogram for improving survival rate but they reported their fear of pain associated with mammography. These findings were similar to that was reported by (Marinho José et al., 2008) as most of their study participants (97.1%) had adequate attitude about importance mammography while they found that main barrier for utilization of it was lack of referral by physicians working at the health center. Educational level and economic status of adult females were determinants for their knowledge as high education level and high monthly family income tend to be more aware breast tumors and different screening approaches while their attitude was affected by their ages as younger females (18-35 years) showed positive attitude. These findings are in agreement with a study in Bangladesh (Islam et al., 2016). This reflects the important role of education to magnify females' adherence to their health care services.

5. CONCLUSION

Overall, knowledge among adult females as regards breast tumors screening was moderate but still insufficient as some warning signs and risk factors were failed to be identified by most participants. A further holistic approach should be followed to educate women in Alqunfudhah about breast cancer. Particular consideration should be paid to familiarize cancer breast screening behaviours and their benefits among adult females. So we recommend many awareness campaigns regarding screening programs should be introduced for all population not just married women; involvement of information about nature of breast tumors and its screening modalities in educational curriculum of school students.

Limitations

This study gave us a snapshot about women's knowledge and attitude regarding screening of breast tumors without any deep understanding their rational about this knowledge or attitude. So further qualitative studies involving focus group discussion and in depth interview are recommended to get more in depth women's information and their opinions in doing breast cancer screening.

Acknowledgement

We thank all participants who contributed in this study.

Authors' contributions:

SHA: conceptualization, designed study and survey and revising finally proofed and submitted it on the journal web site. MAA: designing survey, research materials, collected and organized data and editing article. GSA: designing survey, data acquisition, editing of manuscript. HMA: data acquisition, editing of manuscript. LAA: data acquisition, editing of manuscript. GJA: data acquisition, editing of 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 Umm Al-Qura University (ethical approval code: XVQV030321).

Funding

This study has not received any external funding.

Conflict of interests

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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