

# Knowledge, Attitude, and Practice Regarding Mammography Among Women in Baghdad City, Iraq

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## ABSTRACT

**Background:** A low-dose X-ray mammogram is considered the most useful tool for detecting early-stage breast cancer among women. Both mortality and morbidity prove to be reduced when cancer is detected early, before any signs and symptoms appear. This study aims to determine the knowledge level, attitude, and practice of women at general hospitals/consulting clinics in Baghdad city in 2017.

**Methods:** This cross-sectional study was conducted on a sample of 657 women in general hospitals/consulting clinics in Baghdad. The women were selected as an improbability sample. Their average age was between 20 and 59 years. Data collection extended from 1<sup>st</sup> April to the end of July 2017. A pre-tested questionnaire was adopted and filled through a face-to-face interview. Data were analyzed using descriptive and analytical statistics.

**Results:** The sociodemographic features of the participant women showed a mean age of  $37.6 \pm 11.3$  years with a majority of them (71.1%) having no education and 34.6% being of high social class. More than half of the women (61.2%) had heard of mammography, and this is significantly related to age and social class ( $< 0.001$ ). Only 7.6% had adequate knowledge on mammography according to the American Cancer Society (ACS) recommendations, and the women with adequate practice of mammography had higher knowledge scores than those with inadequate practice.

**Conclusion:** The study results suggested that the practice of breast cancer screening or mammography was inadequate in a majority of the participants and needs to be improved.

**Keywords:** Mammography, Knowledge, Attitude, Practice, Iraq

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**DOI:** <https://doi.org/10.37319/iqnjm.3.2.9>

**Received:** 22 Mar 2021

**Accepted:** 20 May 2021

**Published online:** 1 July 2021

## INTRODUCTION

The early detection of non-communicable diseases, especially those affecting a large proportion of people around the world, such as breast cancer, can play a huge role in increasing the cure rate and improving survival. Studies found that around 95% of patients with breast cancer get a better prognosis if their disease is diagnosed before metastasis and late stages.<sup>1,2</sup>

Mammography is still considered the most effective tool for detecting the smallest lump in the breast at the earliest possible stage before it can be palpable by manual examination. Thus, the American Cancer Society (ACS) has recommended yearly mammography examinations for all women starting from the age of forty.<sup>3,4</sup> The sensitivity of mammography was mentioned as (75%–94%), which is greater than the values obtained for Clinical Breast Examination alone or breast self-examination, and the specificity of mammography is also high (83%–98%).<sup>5</sup>

Mammography itself proved to be of no benefit for pregnant women, breastfed women, and young women because of the density of their breasts, which may hold tumors out.<sup>6</sup> But it was found that routine breast screening with mammograms for women aged 50–69 years has decreased the mortality rate by 30%. So, the National Cancer Institute (NCI) adopted guidelines in 1997 that all women aged  $\geq 40$  years must receive mammography every 1–2 years.<sup>5</sup> The latest recommendation is to do it annually for women in good health.<sup>7,8</sup> However, mammography is not sufficient for screening

breast cancer in different regions around the world.<sup>8</sup> There are a lot of barriers such as cost, unavailability, the need for professional manpower to operate it, and the lack of knowledge among women about it.<sup>9</sup>

Women's knowledge and attitudes can positively affect the importance of this practice as mentioned in previous studies.<sup>10</sup> Insufficient knowledge about mammography and a lower rate of screening practice can be considered as major barriers that prevent some women from getting proper medical advice. Therefore, we need to raise awareness about mammography among women to curb the problem of late detection of breast cancer and improve their survival. For that reason, this study aims to measure women's knowledge, estimate their attitude, and assess the current practice of mammography. In addition, it assesses the association between the knowledge and practice of mammography among the participant women.

## MATERIALS AND METHODS

**Study design and setting:** An observational cross-sectional study was conducted in Baghdad city. Three government hospitals in Baghdad were selected randomly to conduct this study.

**Study time and duration:** Data were collected for 4 months starting from the 1st of April until the end of July 2017.

**Sampling method and sample size:** A convenient (non-random) sample of women attending the consulting clinic in three general hospitals in Baghdad city was taken.

**Inclusion criteria:** Women between 20 and 60 years of age and those who could communicate well with the interviewer were considered.

**Exclusion criteria:** Any current or previous breast-related problems for the participant or first-degree relatives.

The minimum sample size required for this study was calculated using the single population proportion formula. The minimum sample size required was 597. With the addition of a 15% non-response rate, the final sample size required was 687.

**Data collection:** The researcher conducted the interview using a structured questionnaire form designed for the present study by two experts specialized in gynecology.

Part 1: Questions related to socio-demographic characteristics:

1. Age
2. Educational level
3. Employment
4. Crowding index (persons/rooms in the household) to assess the social class.

Part 2: Knowledge and practice of and attitudes towards mammography.

Their knowledge of mammography was assessed by 5 items, which were “yes” or “no” questions. Their attitude was assessed by 2 items and was answered by 5 grades using the “Likert Type” scale. Practice was marked as adequate for women who did annual mammograms starting from the age of 40.

**Ethical consideration:** Official approval was obtained from the Ministry of Health

(MOH) and hospital managers before the study.

The aim of the study was explained to all the participants, and their consent was obtained. The consenting women were interviewed either while they were waiting to be seen by a doctor or after their consultation. The questionnaire ensured the anonymity of the respondents and required no names or contact information to be provided. The interviews were conducted in a discreet corner/room, away from other persons to avoid any witnessing or overhearing of the conversation. At the end of the interview, a leaflet prepared by the MOH containing the answers to any questions raised in the questionnaire was given to all the participants to increase their knowledge and awareness of the importance of mammogram screening.

**Statistical analysis:** Data analysis was computer-aided using SPSS version 23. Quantitative variables were presented as means and standard deviations (SD) while qualitative variables were presented by frequencies. To assess the association, the researcher used the chi-square test in addition to an independent samples t-test for differences in the mean of the quantitative variables. A *P*-value of less than 0.05 was considered statistically significant.

## RESULTS

Of the 723 women interviewed to get an eligible sample size, 14 (1.9%) had a family history of breast cancer and 22 (3%) had present or past breast pathology that needed medical care. Of those 687 eligible women, only 30 (4.3%) did not respond, resulting in a

response rate of 95.7%. So, the results presented were based on an analysis of 657 women.

In this study, the mean age and standard deviation of the participant women were  $37.6 \pm 11.3$  years. The sociodemographic features of the women who participated in this study are listed in Table 1 and show that 22.8% (less than a quarter) of the respondents never had any education at all, while 20.2% had completed their bachelor's degree and higher education. A majority of the respondents (71.1%) were unemployed.

Table 2 shows the frequency distribution of the respondents who had ever heard of mammography according to the selected socio-demographic characteristic. More than half of the respondents (61.2%) had heard of mammography. There were significant associations between hearing about mammography and age, education, and social class. However, no significant association was found between knowledge and employment status.

The mean age for women who had heard of mammography was  $40.5 \pm 9.8$  years. The lowest frequency was in the group that had illiterate women and those who could just read and write in addition to the low social class group.

Table 3 displays positive knowledge items for mammography among those who had heard about it. A majority (93.8%) knew the correct starting age for mammography and 72.9% believed mammography to be safe X-ray radiation. Additionally, 85.3% were aware that a mammogram is the most effective test for breast cancer.

The positive attitude items for those who had heard of mammography are illustrated in Table 4. A majority believed that mammography is useful for the early detection of cancer.

The mean  $\pm$  SD knowledge and attitude scores for mammography were  $51.2 \pm 44$  and  $58 \pm 13$ , respectively.

The frequency distribution of mammography practice among women aged 40 years and older showed that a majority had never done mammography in their lives. Only 22 (7.6%) women had it done adequately (annually) according to the ACS recommendations, as shown in Table 5.

Table 6 shows a statistically significant difference between those who adequately practiced mammography and those who did not. The mean knowledge score for women with adequate practice was higher than those with inadequate practice with a mean score of 97.3.

**Table 1:** Sociodemographic characteristics of the respondents in Baghdad city.

variables	Mean (SD)	Number	Percentage
Age in years	37.5(11.3)		
Educational level			
No education		150	22.8
Primary level		125	19.0
Intermediate level		125	19.0
Secondary level		124	18.9
Bachelor and higher		133	20.2
Employment status			
unemployed		467	71.1
Previously employed		30	4.6
Employed		160	24.4
Social classes			
High class		227	34.6
Middle high		102	15.5
Middle low		212	32.3
Low class		116	17.7

**Table2:** Frequency distribution of those who have heard about mammography according to their socio-demographics.

Socio-demographic variables	Ever heard of mammography								
	No		Yes		Total		P value		
Age in years: mean (SD)	32.9	(11.9)		40.5	(9.8)		37.5	(11.3)	<0.001
									(t-test)
	n	(%)		n	(%)		n	(%)	
Educational levels									<0.001
No education	125	(83.3)		25	(16.7)		150	(100.0)	(Chi-square)
Primary	16	(12.8)		109	(87.2)		125	(100.0)	
Intermediate	8	(6.4)		117	(93.6)		125	(100.0)	
Secondary	53	(42.7)		71	(57.3)		124	(100.0)	
Bachelor and higher	53	(39.8)		80	(60.2)		133	(100.0)	
Employment status									0.09[NS]
Unemployed	169	(36.2)		298	(63.8)		467	(100.0)	(Chi-square)
Previously employed	14	(46.7)		16	(53.3)		30	(100.0)	
Employed	72	(45.0)		88	(55.0)		160	(100.0)	
Social classes									<0.001
High class	55	(24.2)		172	(75.8)		227	(100.0)	(Chi-square)
Middle high	34	(33.3)		68	(66.7)		102	(100.0)	
Middle low	81	(38.2)		131	(61.8)		212	(100.0)	
Low class	85	(73.3)		31	(26.7)		116	(100.0)	
Total	255	(38.8)		402	(61.2)		657	(100.0)	

**Table 3:** Frequency distribution of positive knowledge items for mammography among 402 women who have heard of it.

Positive knowledge items for mammography	Number	Percentage
A mammogram is a safe X-ray radiation	293	72.9
A mammogram is the most effective test for breast cancer	343	85.3
A mammogram is recommended for women from the age of forty onwards	377	93.8
A mammogram can detect breast cancer even before it is palpable	308	76.6
A mammogram should be done regularly even for women in good health	361	89.8

**Table 4:** Frequency distribution of attitude items for mammography among 402 women who have heard of it.

Attitude items for mammography	Number	Percentage
Having a mammogram will decrease the chances of dying from breast cancer	327	82.0
Mammography is useful for the early detection of cancer	357	89.5

**Table 5:** Mammography practice among 288 women aged 40 years and above.

Mammography practice	Number	Percentage
Never	247	85.8
Less than every 5 years	18	6.3
Once every 5 years	0	0.0
Once every 3 years	1	.3
Once a year	22	7.6
Adequacy of practicing mammography		
Not adequate	266	92.4
Adequate (at least once a year)	22	7.6

**Table 6:** Comparison of the mean knowledge score of mammography between those who adequately practiced it and those who did not among 288 women aged 40 years and older.

Knowledge score	The practice of mammogram (only for those 40+ years of age)		P (t-test)
	Not adequate	Adequate	
Knowledge score for mammography			< 0.001
Range	(0 – 100)	(40 – 100)	
Mean	56.4	97.3	
SD	40.3	12.8	
N	266	22	

## DISCUSSION

All health organizations related to breast health and breast cancer consider mammography as the most beneficial tool for the diagnosis of breast cancer among women.<sup>11</sup>

In the present study, around two-thirds of the respondents had heard about mammography and had a mean knowledge score of  $51.2 \pm 44$ . On the contrary, studies from Iran<sup>12</sup> and Nigeria<sup>13,14</sup> have shown unsatisfactory lower knowledge levels about this practice among women.

Despite having this level of knowledge and a positive attitude regarding mammography, the results confirmed low screening practice. A majority of the women aged 40 years and above in this study had never practiced mammography in their lives. Only 7.6% adequately (annually) practiced it according to the recommendations by ACS and other international agencies.<sup>15</sup> This result is similar to those of studies conducted among civil servants in Nigeria<sup>16</sup> and women in Malaysian.<sup>17</sup>

Many studies have established that women do not get a mammogram done regularly.<sup>14,18,19</sup> Even though the rate of annual mammography examination in this study was low, it is still higher than those in the studies in Iran and Nigeria.<sup>12,20</sup> Mammography screening in Nigeria was very low, and this might be related to a lack of awareness in addition to the unavailability of adequate facilities in some centers.<sup>13,21</sup> In a study on Jordanian women, only 5 (16.7%) women had had a mammogram. In addition to social norms, it was hypothesized that some fatalistic beliefs may have influenced these Jordanian women's mammography intentions.<sup>22</sup>

Compared to developed countries, the rate of undergoing a recommended mammography practice was low in this study. It was lesser than a study performed in a large German city where 55.5% of the women had a mammography.<sup>23</sup> Also, in a study done on Arab American female immigrants, 70% reported of never having done a mammogram. Of the women who reported of having done a mammogram, 58.1% have had

a mammogram performed every 1–2 years. The women who had not had a mammogram were more likely to have had no formal education, to have been in the US for 0–10 years, and to be from Iraq.<sup>24</sup> Additionally, 59.1% of women in Beirut had performed adequate mammogram examinations.<sup>25</sup>

Other studies in the United States found that mammography screening rates ranging from 41% to 66% were reported among Filipino and Korean immigrants.<sup>26,27</sup> The difference may be due to the screening program facilities and community education programs available in the U.S.

The low rates of mammography tests among the women in this study can be partly explained by the lack of knowledge and awareness among women about the benefits of mammography in the early detection of breast cancer.

Another reason could be since it is not done as a routine screening method in hospitals and primary health care centers.

A report stated that women who were informed about breast cancer were more likely to practice breast cancer screening. This was confirmed in a study done on a sample of Turkish women, which found that women who knew about mammography guidelines were 10 times more likely to get regular mammograms.<sup>28</sup> So, the first step should be aimed at increasing the knowledge base of Iraqi women to make them aware of this screening practice.

Recruiting a non-random sample can be considered as one of the limitations of the current research. In addition, restricting the



study to Baghdad city may also affect the generalizability of the results.

## CONCLUSIONS

Even with relatively good knowledge and a positive attitude regarding mammography, the sample group of women in the current study illustrated an inadequate practice of screening mammography.

A positive association between knowledge and practice illustrates a good indicator of a future possibility of an awareness program regarding the early detection of breast cancer. More promotions are needed regarding mammography screening to increase women's knowledge and awareness regarding its importance. Some recommendations for future research include designing larger studies with more varied populations.

## Conflict of Interest Statement

The authors declare that they have no conflict of interest.

## References

1. Tavafian SS, Hasani L, Aghamolaei T, Zare S, Gregory D. Prediction of breast self examination in a sample of Iranian women: An application of the health belief model. *BMC Women's Health*. 2009;9: 37–43.
2. Bassey RB, Irurhe NK, Olowoyeye A, Adeyomoye AA, Onajole AT. Knowledge, attitude and practice of breast self examination among nursing students in Lagos University Teaching Hospital, Nigeria. *Educational Research J*. 2011;2(6):1232–36.
3. American Cancer Society. Cancer Facts and Figures 2005. [<http://www.cancer.org>].
4. Tieng'O JG, Pengpid S, Skaal L, Peltzer K. Knowledge, attitude and practice of breast cancer examination among women attending a health facility in Gaborone, Botswana. *Gender and Behaviour*. 2011;9(1):3513–27.
5. Lawson HW, Henson R, Bobo JK, Kaeser MR. Implementing recommendations for the early detection of breast and cervical cancer among low-income women. *MMWR*. 2000;49(2):35–55.
6. Uwuseba L. Knowledge, attitudes, and behaviors of African American women regarding breast cancer screening: [dissertation on the Internet]. College of Health Sciences: Walden University; 2010.; Available from: ProQuest Dissertations and Thesis (AAT 3433761).
7. Dellie ST, Neguse TM, Demissie M, Rao D. Knowledge about breast cancer, risk factors, breast screening method and practice of breast screening among female healthcare professionals working in governmental hospitals, Addis Ababa, Ethiopia. *J Pharm Biol Sci*. 2012;2(1):05–12.
8. Seely J, Alhassan T. Screening for breast cancer in 2018—what should we be doing today? *Curr. Oncol*. [Internet]. 2018 Jun 14 [cited 2020 Oct 21];250:S115–S124. Available from: <https://current-oncology.com/index.php/oncology/article/view/3770>
9. 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):6–13.
10. Ahmed AM, Farghaly S, Darwish E. Knowledge, attitude, and practice of breast cancer screening among women visiting primary health care centers in Dubai. *EJCM*. 2010;28(4):21–38.
11. Smith RA, Cokkinides V, Brooks D, et al. Cancer Screening in the United States, 2010: A review of current American cancer society guidelines and issues in cancer screening. *CA Cancer J Clin*. 2010;60(2):99–119.
12. Heidari Z, Mahmoudzadeh-Sagheb H, Sakhavar N. Breast cancer screening knowledge and practice among women in Southeast of Iran. *Acta Medica Iranica*. 2008;46(4):321–28.
13. Oche MO, Ayodele SO, Umar AS. Breast cancer and mammography: Current Knowledge, attitudes, and practices of female health workers in a tertiary health institution in Northern Nigeria. *Public Health Res*. 2012;2(5):114–119.
14. Akhigbe AO, Omuemu VO. Knowledge, attitudes, and practice of breast cancer screening among female health workers in a Nigerian Urban City. *BMC Cancer*. 2009;9(1): 203–208.
15. Smith RA, Saslow D, Sawyer KA, Costanza ME, Evans WP, Foster RS, et al. American Cancer Society guidelines for breast cancer screening update. *Cancer J Clin*. 2003;53(3):141–169.
16. Osime OC, Okojie O, Aigbekaen ET, Aigbekaen IJ. Knowledge attitude and practice about breast cancer among civil servants in Benin City, Nigeria. *Ann. Afri. Med*. 2008;7(4):192–197.
17. Al-Naggar RA, Bobryshev Y. Practice and barriers of mammography among Malaysian women in the general population. *Asian Pacific J Cancer Prev*. 2012;13(8):3595–3600.
18. Amin TT, Al Mulhim AR, Al Meqihwi A. Breast Cancer Knowledge, risk factors, and screening among adult Saudi Women in a primary health care setting. *Asian Pac J Cancer Prev*. 2009;10(1):133–138.



19. Parsa P, Kandiah M. Predictors of adherence to clinical breast examination and mammography screening among Malaysian women. *Asian Pac J Cancer Prev.* 2010;11(3):681–8.
20. Khalili AF, Shahnazi M. Clinical breast exam and mammography in women referred to health centers in Tabriz, Iran. *JCS.* 2011;16(4):34–42.
21. Obajimi MO, Ajayi IO, Oluwasola AO, Adedokun BO, Adeniji-Sofoluwe AT, Mosuro OA, et al. Level of awareness of mammography among women attending outpatient clinics in a teaching hospital in Ibadan, South-West Nigeria. *BMC Public Health.* 2013;13(1):40–46.
22. Othman AK, Kiviniemi MB, Wu YW, Lally R. Influence of demographic factors, knowledge, and beliefs on Jordanian Women's intention to undergo mammography screening. *J Nurs. Scholarsh.* 2012;44(1):19–26.
23. Klug SJ, Hetzer M, Blettner M. Screening for breast and cervical cancer in a large German city: Participation, motivation, and knowledge of risk factors. *Eur J Public Health.* 2005;15(1):70–77.
24. Schwartz K, Fakhouri M, Bartoces M, Monsur J, Younis A. Mammography Screening among Arab American Women in Metropolitan Detroit. *J Immigr Minor Health.* 2008;10(6):541–9.
25. El Asmar M, Bechnak A, Fares J, Al Oweini D, Al Razim, A, El Achkar, A, Tamim, H. Knowledge, attitudes and practices regarding breast cancer amongst Lebanese females in Beirut. *Asian Pac J Cancer Prev.* 2018;19(3):625–631. DOI: 10.22034/APJCP.2018.19.3.625
26. Maxwell AE, Bastani R, Warda US. Breast cancer screening and related attitudes among Filipino-American women. *Cancer Epidemiol Biomarkers Prev.* 1997;6(9):719–26.
27. Maxwell AE, Bastani R, Warda US. demographic predictors of cancer screening among Filipino and Korean immigrants in the United States. *Am J Prev Med.* 2000;18(1):62–68.
28. Secginli S, Nahcivan N. Factors associated with breast cancer screening behaviors in a sample of Turkish women: A questionnaire survey. *Int J Nursing Studies.* 2006;43(2):161–71.