Knowledge and Barriers toward Breast Cancer Screening among Women in Baghdad-Alkarkh

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ABSTRACT

Background: Breast cancer is the most common cancer in the world, also it's the most common cancer in Iraqi since 1986. Despite the availability of breast cancer screening programs, many women still, do not undergo regular screening. Barriers to breast cancer screening include lack of awareness, fear, anxiety, cultural beliefs, and transportation problem.

Objectives: To explore the barriers to breast cancer screening and assess the knowledge of women ≥ 40 years age toward breast cancer screening program and knowledge about signs, symptoms, and risk factors of breast cancer.

Methods: A cross-sectional study was conducted during 2023 in six primary healthcare sectors and three hospitals in Baghdad City, Al-Karkh to select 500 women attending the selected PHCCs and clinics for early detection of breast cancer. The tool used to collect data was a questionnaire filled out by the researcher through direct interviews.

Results: The overall knowledge score of 500 women about breast cancer screening programs was as follows: 42% had poor knowledge scores, 39% had fair scores, and 19% had good scores. More than quarter of participants 26.8% was embarrassed to go and see the doctor and found the doctor difficult to talk to. More than half of the participants 58.2% were afraid to go and see the doctor.

Conclusion: Most of study participants had fair to good knowledge about breast cancer. Fear was the most predominant barrier to the screening program.

Keywords: Barriers, Breast cancer, Iraq, Knowledge, Screening program.

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Breast cancer is abnormal breast cells grow out of control and form tumor, it surpasses lung cancer as the most common type worldwide with a projected 2.3 million new cases, or 11.7 % of all cancer cases in 2020. Breast cancer ranks the fifth most common cancer mortality cause worldwide with 685,000 deaths; it is the most common cancer among women accounting for 1 in 4 new cases and 1 in 6 cancer-related deaths globally.

There are various risk factors for breast cancer including age, gender, family history, gene mutations, and lifestyle choices[1-3].

Breast cancer screening programs were established to detect breast cancer early before symptoms appear. The standard screening modalities include mammography, clinical breast examination, and breast self-examination (BSE).

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Mammography is the most used screening modality for breast cancer, as it effectively detects tumors that are too small to be felt by physical examination[4,5].

The first step in diagnosing is medical history and physical examination. Second step is images (mammographic, ultrasonography) are typically performed when an abnormality is discovered. Compared to diagnostic mammography, screening mammography has better sensitivity but lower specificity. Additionally guided and unguided biopsies are frequently done to provide a definitive diagnosis[6].

Breast cancer incidence rates among Iraqi women rose from the year 2000 till 2019. In 2019, the average age-standardized incidence rate (ASIR) was 52.70/100,000, more than double the rate anticipated in 2000 (24.364/100,000)[8].

Environmental factors have also been

shown to play a role in the development of breast cancer in Iraq. Higher uranium concentration levels were detected in the blood samples of women with breast cancer than in the blood samples of women without breast cancer. High uranium concentrations in the blood of Iraqi women are associated with an increased incidence of breast cancer[9].

Screening mammography is the most common and widely practiced breast cancer screening modality worldwide. The major benefits of breast cancer screening programs are early diagnosis, explanation and prevention of breast cancer, and timely treatment to lessen the morbidity and reduction in 20% of mortality rate. Worldwide, most countries recommend screening for breast cancer at 50-74 years of age. However, some countries recommend screening mammography earlier, starting at the age of 40 years until 70-74 years[10].

In Iraq, breast cancer has become a major risk to female health. It is the chief cause of death after cardiovascular diseases among women, as the cancer-related mortality rate is 23%. Early detection and appropriate therapy can reduce breast cancer mortality rates. Studies have reported that 19.8% of women with palpable breast lumps were diagnosed with breast cancer, and most of these patients detected the lumps by themselves. However, many of them delayed seeking medical advice, with only 32% consulting a doctor within the first month and 16% waiting for year[11,12].

The aim of this study is to explore the barriers to breast cancer screening (personal barriers and health system barriers) in women aged ≥ 40 years attending primary health care centers and clinics for breast cancer early detection. Assess knowledge of women toward breast cancer screening programs and knowledge about signs, symptoms, and risk factors of breast cancer.

Methods

A cross-sectional study was conducted between March 15th, 2023 to September 12th, 2023, in six primary healthcare sectors and three hospitals.

The primary health care centers (PHCC) in Baghdad City were:

1. Al-Karkh sector for primary health care: Al- Mansur PHCC, Shuhadaa Al Atifiyah PHCC.

2. Al-Adel sector for primary health care: Al-Adel PHCC, Al-Bikria PHCC, Al-Shahid doctor Saif Zaki Al-Saad PHCC.

3. Al-Kadhemia sector for primary health care: Al-Zahraa PHCC, Al-Duwlei PHCC

4. Al-Dora sector for primary health care: Al- Dora PHCC, Al- Hadr PHCC.

5. Abo Guraib sector for primary health care: Al-Zaytun PHCC, Abu Ghraib PHCC, Al-Shuhada PHCC.

6. Al-Amel sector for primary health care: Al-Jihad PHCC.

Hospitals including: Breast clinics of Al-Kadhemia, Al-Yarmouk and Al-Karama teaching hospitals.

A convenient sampling technique was used to select 500 women aged (≥ 40 years) from women attending the selected PHCCs and clinics for early detection of breast cancer. Exclusion criteria pregnant women and women who already diagnosed with breast cancer and under treatment. The tool used to collect data was a questionnaire filled out by the researcher. Data were collected from women through direct interviews.

For knowledge questions, the participants had to select one of three options: (yes), (no), or (don't know). Each successful response received one mark, while each incorrect question received none.

- Knowledge about breast cancer has a total score ranging from 0-15 with higher scores indicating more knowledge.

- Knowledge about the breast cancer-screening program has a total score ranging from 0-14.

Responses were scored using the Likert scale score. With a score more than 75% regarded as good, (50-74) % considered fair, and less than 50% deemed poor.

The data was analyzed in version 28 of the Statistical Package for Social Sciences (SPSS). The statistics were displayed as mean, percentages and frequencies representing categorical data. The association between knowledge scores with demographic characteristics and routine screening was evaluated using Chi-square test. A p-value of 0.05 or less was regarded as significant.

Results

The study involved 500 participants age range from 40 to 88 years with mean age 49.7(±8.83) years. More than half (55.2%) of the enrolled women were within the age group of 40-49 years.

Most of participants (84%) lived in the city center and nearly two-thirds (73.2%) of them were married.

Regarding education level, 69% of participants with college degree or more, (Table 1).

Table 1: Distribution of participant according to sociodemographic characteristics (n=500).

	Demographic data		No.	%
1	Age groups (year)	40-49	276	**55.2**
		50-59	144	**28.8**
		≥ 60	80	**16.0**
2	Residency	City center	420	**84.0**
		Peripheries	80	**16.0**
3	Marital status	Married	366	**73.2**
		Divorced	24	**4.8**
		Single	77	**15.4**
		Widow	33	**6.6**
4	Number of children	>5	78	**15.6**
		1-5	270	**54.0**
		1	100	**20.0**
		No children	52	**10.4**
5	Educational level	College or higher	345	**69.0**
		Secondary school	83	**16.6**
		Intermediate school	36	**7.2**
		Primary school	24	**4.8**
		Literate (read and write)	8	**1.6**
		Illiterate (no read or write)	4	**0.8**
6	Occupational status	Employee	295	**59.0**
		Housewife	170	**34.0**
		Retired	35	**7.0**
7	Income per month	< 600,000 ID	169	**33.8**
		> 600,000 ID	**331**	**66.2**

Nearly three quarter of participants (74%) knew that breast cancer is common in women. The majority of them (91.1%) knew that early detection of breast cancer increases survival, (82.8%) knew that breast cancer can affect old and young women, (87.6%) knew that breast cancer is not a contagious disease. While (25.4%) didn't know that breast cancer can be treated.

Regarding signs and symptoms of breast cancer changes in the size or shape of breast or nipple were not identify by (34%) of participant, changes in skin color

or thickness were not identify by (35.6%) of participant, and nipple discharge or bleeding were not identify by (38%). Where (84.2%) know that mass in the breast or armpit could be a sign of breast cancer.

About risk factors most of participants knew that positive family history increases risk and breast feeding decreases risk of breast cancer (80%), (80.6%), respectively. Nearly one third of them (33.6%) didn't know that radiation exposure is a risk factor for breast cancer. Nearly half of them didn't know that oral contraceptive pills increases risk and knew that alcohol drinking or smoking increases risk for breast cancer (56.2%), (57.6%) respectively, (Table 2).

The overall knowledge score of the participants about breast cancer was as follows: 114 (23%) of participant women had a poor score, 209 (42%) had a fair score, and 177 (35%) had a good score.

This study found statistically significant associations between women's knowledge about breast cancer and (age, residency, number of children, educational level, occupational status, income level) with P-value less than (0.05), (Table 3).

There was no statistically significant association between women's knowledge about breast cancer and marital status, with p-value 0.061.

Table 2: Distribution of the study participants according to knowledge about breast cancer (n=500).

Knowledge about breast cancer	Yes		No		I don't know	
	No.	**%**	**No.**	**%**	**No.**	%
Breast cancer is common in women.	370	74.0	17	3.4	113	**22.6**
Breast cancer can be treated.	345	69.0	28	5.6	127	**25.4**
Increased survival if breast cancer is detected early.	458	91.6	4	0.8	38	**7.6**
Breast cancer can affect old and young women.	414	82.8	18	3.6	68	**13.6**
Breast cancer is not a contagious disease.	438	87.6	14	2.8	48	**9.6**
Knowledge about signs and symptoms						
Changes in the size or shape of the breast or nipple could be a sign of breast cancer.	294	58.8	36	7.2	170	**34.0**
Change in skin colour or thickness could be a sign of breast cancer.	293	58.6	29	5.8	178	**35.6**
Nipple discharge or bleeding could be a sign of breast cancer.	259	51.8	51	10.2	190	**38.0**
A mass in the breast or armpit could be a sign of breast cancer.	421	84.2	23	4.6	56	**11.2**
Knowledge about risk factors						
Positive family history is a significant risk factor for breast cancer.	400	80.0	29	5.8	71	**14.2**
Radiation exposure is a risk factor for breast cancer.	303	60.6	29	5.8	168	**33.6**
Breastfeeding decreases the risk of breast cancer.	403	80.6	16	3.2	81	**16.2**
Using hormonal treatment or OCP is a risk factor for breast cancer.	185	37.0	34	6.8	281	**56.2**
Alcohol drinking or smoking are risk factors for breast cancer.	288	57.6	34	6.8	178	**35.6**
Late menopause or early menarche is a risk factor for breast cancer.	**90**	**18.0**	**110**	**22.0**	**300**	**60.0**

Table 3: Association between women knowledge about breast cancer and their socio-demographic characteristics (n=500).

Socio-demographic characteristics		Women's knowledge about breast cancer score No. (%)			P-value
		Poor	**Fair**	**Good**	
Age groups	**40-49 years**	80 (16.0)	193 (38.6)	277 (45.4)	**<.001**
	50-59 years	156 (31.3)	239 (47.8)	105 (20.9)	
	≥ 60 years	104 (20.9)	252 (50.3)	144 (28.8)	
Residency	**City center**	98 (19.5)	211 (42.1)	191 (38.3)	**<.001**
	Peripheries	200 (40.0)	200 (40.0)	100 (20.0)	
Marital status	**Married**	123 (24.6)	207 (41.3)	170 (34.2)	**0.061**
	Divorced	125 (25.0)	250 (50.0)	125 (25.0)	
	Single	52 (10.4)	214 (42.9)	234 (46.8)	
	Widow	151 (30.3)	197 (39.4)	152 (30.3)	
Number of children	**>5**	217 (43.4)	179 (35.8)	104 (20.8)	**0.004**
	1-5	109 (21.9)	218 (43.5)	173 (34.6)	
	1	119 (23.8)	206 (41.3)	175 (35.0)	
	No children	701 (4.0)	206 (41.1)	224 (44.9)	
Educational level	**College or more**	931 (8.6)	203 (40.6)	204 (40.9)	**<.001**
	Secondary school	120 (24.1)	253 (50.6)	127 (25.3)	
	Intermediate school	166 (33.3)	209 (41.7)	125 (25.0)	
	Primary school	229 (45.8)	166 (33.3)	105 (20.8)	
	Literate	312 (62.5)	188 (37.5)	0 (0.0)	
	Illiterate	250 (50.0)	125 (25.0)	125 (25.0)	
Occupational status	**Employed**	90 (18.0)	193 (38.6)	217 (43.4)	**<.001**
	Housewife	156 (31.2)	229 (45.9)	115 (22.9)	
	Retired	114 (22.9)	243 (48.6)	143 (28.6)	
Income	**≤ 600,000 ID**	165 (33.1)	234 (46.7)	101 (20.1)	**<.001**
	> 600,000 ID	**87 (17.5)**	**197 (39.3)**	**216 (43.2)**	

Questions about mammogram were answered as follows; most responders (82.4%) knew that mammogram is a helpful tool in the early detection of breast cancer even before it is palpable. Nearly half of them knew that mammogram recommended for women from the age of forty onwards, and didn't know that mammogram is painless, and didn't know the nearest health facility that provide mammogram examination (51.6%), (50.2%), (46.6%) respectively. Nearly two thirds of participants (70.6%) knew that mammogram should be done regularly even for women in good health. Less than half of participants (45%) didn't have encouragement from family or friends to do screening mammogram, while more than two thirds of them (75%) encouraged by media to do a mammogram. Nearly one third of them (34.8%) pay charges for mammogram service.

Questions about BSE were answered as follow; Most of them knew that BSE is useful and should be performed regularly (92.4%), (86.6%), respectively, (Table 4).

The overall knowledge score of the participants about breast cancer screening programs was as follows: 210 (42%) women had poor knowledge scores, 193 (39%) had a fair score, and 97 (19%) had a good score.

Association between women knowledge

about screening program and their socio-demographic characteristics

The study revealed statistically significant association between women knowledge about screening program and (age, residency, number of children, educational level, occupational status, income level) with a likelihood ratio of less than (0.05), (Table 5). There was no statistically significant association between women's knowledge about screening programs and marital status, with a likelihood ratio (0.263).

Table 4: Distribution of the study sample according to knowledge about breast cancer screening program (n=500).

Knowledge about breast cancer screening program	Yes		No		I do not know	
	No.	**%**	**No.**	**%**	**No.**	**%**
A mammogram is a helpful tool in the early detection of breast cancer, even before it is palpable.	412	82.4	14	2.8	74	**14.8**
A mammogram is not painful.	224	44.8	25	5.0	251	**50.2**
A mammogram should be done regularly, even for women in good health.	353	70.6	53	10.6	94	**18.8**
A mammogram is recommended for women from the age of forty onwards.	258	51.6	68	13.6	174	**34.8**
Family or friends encourage screening mammograms.	220	44.0	225	45.0	55	**11.0**
The media e.g. (TV-radio-internet) encourages you to do a mammogram.	375	75.0	78	15.6	47	**9.4**
Do you know the nearest health facility that provides mammogram examinations?	150	30.0	233	46.6	117	**23.4**
Breast cancer early detection clinics provide free of charges services.	143	28.6	174	34.8	183	**36.6**
BSE should be performed regularly.	433	86.6	21	4.2	46	**9.2**
BSE is useful.	462	92.4	9	1.8	29	**5.8**
BSE starting age is 20.	362	72.4	31	6.2	107	**21.4**
BSE should be performed monthly on days 5-7 from the menstrual cycle.	225	45.0	54	10.8	221	**44.2**
Knowing the right technique for BSE.	264	52.8	100	20.0	136	**27.2**
I received training in BSE.	**96**	**19.2**	**386**	**77.2**	**18**	**3.6**

Most of the enrolled women (78%) don't do BSE, and the majority of them (96%) don't do regular mammogram, (Table 6).

As demonstrated in table 7, with likelihood ratio less than (0.05) there were statistically significant associations between knowledge about breast cancer with practice of mammography and BSE.

As indicated in table 8, with P-value less than (0.05) there were statistically significant association between knowledge about screening program with practice of mammography and BSE.

Among the participants (26.8%) were embarrassed to go and see the doctor and find the doctor difficult to talk to, (58.2%) were afraid to go and see the doctor, (73.2%) found healthcare providers trustworthy.

Nearly quarter of participants (29.8%) had more than one hour to reach the nearest health facility and nearly one third of participants (39.8%) don't have transportation mean to the health facility.

Table 5: Association between women knowledge about screening program and their socio-demographic characteristics (n=500).

Socio-demographic characteristics		Women Knowledge about screening program score No. (%)			P-value
		Poor	**Fair**	**Good**	
Age groups	**40-49 years**	103 (20.6)	176 (35.3)	221 (44.1)	**<.001**
	50-59 years	59 (11.8)	177 (35.5)	264 (52.7)	
	≥ 60 years	85 (17.1)	202 (40.3)	213 (42.6)	
Residency	**City center**	191 (38.3)	203 (40.5)	106 (21.2)	**<.001**
	Peripheries	306 (61.3)	144 (28.7)	50 (10.0)	
Marital status	**Married**	210 (42.1)	187 (37.4)	103 (20.5)	**0.263**
	Divorced	229 (45.8)	146 (29.2)	125 (25.0)	
	Single	175 (35.1)	241 (48.1)	84 (16.9)	
	Widow	272 (54.5)	182 (36.4)	46 (9.1)	
Number ofchildren	**>5**	368 (73.6)	104 (20.8)	28 (5.7)	**<.001**
	1-5	190 (38.1)	196 (39.2)	114 (22.7)	
	1	206 (41.3)	219 (43.8)	75 (15.0)	
	No children	182 (36.4)	210 (42.1)	108 (21.5)	
Educational level	**College or more**	187 (37.4)	200 (40.0)	113 (22.6)	**<.001**
	Secondary school	199 (39.8)	211 (42.2)	90 (18.1)	
	Intermediate school	250 (50.0)	208 (41.7)	42 (8.3)	
	Primary school	396 (79.2)	83 (16.7)	21 (4.2)	
	Literate	437 (87.5)	63 (12.5)	0 (0)	
	Illiterate	500 (100.0)	0 (0)	0 (0)	
occupational status	**Employed**	178 (35.6)	201 (40.3)	121 (24.1)	**0.002**
	Housewife	264 (52.9)	177 (35.3)	59 (11.8)	
	Retired	214 (42.9)	200 (40.0)	86 (17.1)	
Income	**≤ 600,000 ID**	254 (50.9)	187 (37.3)	59 (11.8)	**0.002**
	> 600,000 ID	**187 (37.5)**	**197 (39.3)**	**116 (23.3)**	

Table 6: Routine breast cancer screening (n=500).

Routine screening	Yes		No	
	No.	**%**	**No.**	%
Doing routine BSE	110	22.0	390	**78.0**
Doing routine mammogram	**20**	**4.0**	**480**	**96.0**

Table 7: Association between knowledge about breast cancer and routine screening (n=500).

Routine screening		Women's knowledge about breast cancer scores			P-value
		Poor	**Fair**	**Good**	
Doing routine BSE	**Yes**	4.5%	38.2%	57.3%	**<.001**
	No	27.9%	42.8%	29.2%	
Doing routine mammogram	**Yes**	0.0%	60.0%	40.0%	**0.004**
	No	**23.8%**	**41.0%**	**35.2%**	

Table 8: Association between knowledge about screening program and routine screening (n=500).

Routine screening		women knowledge about screening program scores			P-value
		Poor	Fair	Good	
Doing routine BSE	**Yes**	**13.6%**	**40.0%**	**46.4%**	<.001
	No	**50.0%**	**36.4%**	**13.6%**	
Doing routine mammogram	**Yes**	**0.0%**	**25.0%**	**75.0%**	<.001
	No	43.8%	39.2%	17.1%	

Discussion

In the present study, most women were married (73.2%), had a college degree or higher (69%), and with a mean age of 49.7 years. Similar to study conducted by Nafissi Nahid et al in Iran in 2012, were the majority of women married (82.6%), and nearly half of them were postgraduates (56.2%), with a mean age of 40.7 years[13].

Disagree with Sahar M Radi et al study in Saudi Arabia in 2013, showed that Saudi females were predominantly single (45.5%) and nearly half of them had college level education (51%), with mean age of 32.3 (± 10.9)[14].

In Iran study by Nafissi Nahid et al in 2012 explored that 60.8%, and 44.9% of participants knew that painless mass and bloody nipple discharge were significant symptoms of breast cancer, respectively. These findings are nearly identical to those from the present study, where 84.2% and 51.8% knew that a mass in the breast or armpit and nipple discharge or bleeding could be a sign of breast cancer, respectively[13].

Study by Nafissi Nahid et al stated that most of participants (74.6%) knew that a positive family history of breast cancer was important risk factor of breast cancer. This finding is nearly identical to the present study were 80% of participants knew that family history was a significant risk factor for breast cancer[13].

The present study revealed that 80%, 37%, and 57.6% of participants knew that positive family history, OCPs and alcohol drinking or smoking were significant risk factors for breast cancer, respectively.

The present study found that knowledge scores about breast cancer had a significantly associated with educational level and occupational status. Moreover, there is no significant association between knowledge score and marital status.

Abdulbari Bener et al conducted a study in UAE in 2000 and found that less than half of participants (48%) believed that mammography could show a lump in the breast before woman can feel it, while the present result was 82.4%. In addition 31% of women in the UAE study believed that mammography is not painful, while the present result was 44.8%. This difference might be attributed to the essential role of physicians in breast clinics in raise awareness about early detection of breast cancer and reassuring patients to do mammography[15].

Ahmed H. Abdelaziz et al conducted research in 2017 in Egypt. Discovered that 16% of participants were affected by friends, 5% of participants were affected by family, and nearly half of participants (51%) were affected by television, radio, and social media. These results differed from the present study results, where 44% of responders reported that family and friends and most responders (75%) reported that the media encouraged them to do mammogram. This suggests that television, radio, and social media are important sources of information about breast cancer screening for women in both Egypt and Iraq[16].

The results of the present study differ from a study conducted by Abdulbari Bener's et al in UAE concerning

embarrassment, accommodate time and proper transportation.

Regarding embarrassment, Iraqis 26.8%, Emiratis 5% agreed that embarrassment affect having their breast examination by physicians. This difference might be attributed to cultural believes in Iraq.

Accommodate time, as a barrier to perform routine screening, the present study score was 29.8% compared to 5.5% in UAE[15].

In conclusion; most of the study participants had fair to good knowledge about breast cancer (general understanding, symptoms and risk factors). Nearly half of participants don't know the nearest health facility that provides mammogram examination. Also, in general nearly half of them had poor knowledge about screening program. Several barriers prevent women from doing routine breast cancer screening including (embarrassment, communication issues with doctors, availability of transportation, poor knowledge about screening program and family support). Fear was the most predominant barrier to the screening program; more than half of the participants didn't seek screening because of fear of breast cancer diagnosis and treatments.

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