



Original Research

Facilitating Factors for the Early Detection of Breast Cancer among a Sample of Women Attending Primary Health Care Centers

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Abstract

Background:

Breast cancer is the most common cancer and the leading cause of death among Iraqi women. It has a significant impact on the patient's social life, family life, and employment situation. Factors facilitating early detection of breast cancer include knowledge of disease, access to information sources, physician recommendation, and social networks.

Objectives:

To identify factors facilitating early detection of breast cancer, and barriers that prevent women from attending a consultation for early detection of breast cancer.

Subjects and methods:

A cross sectional study was carried out at Primary Health Care Centers at Al-Karkh health directorate in Baghdad from 1st of February 2023 till end of November 2023. Data of 400 woman aged 20 and older, who had never been diagnosed with breast cancer before were obtained by direct interview. Chi² test (or fisher's exact test) was used. P value of less than 0.05 was considered statistically significant.

Results:

Most common age group was 30-39 years 130 (32.5%). Concerning knowledge about risk factors of breast cancer among participants family history of breast cancer represent 352 (88.0%), exposure to radiation 295 (73.8%), smoking 230 (57.6%), and use of hormonal replacement therapy 193 (48.3%). Poor knowledge was associated significantly with housewife, negative family history of breast cancer, and those who didn't have breast cancer check-up before; (P=0.001, P=0.022, and P=0.002) respectively. Most common barriers that prevent women from attending a consultation for early detection of breast cancer were feeling afraid of getting tested 123 (30.8%), feeling ashamed of getting tested 114 (28.5%), and fear of checkup because of result 111 (27.8%).

Conclusions:

The level of knowledge about risk factors of breast cancer and family history of the disease were significantly associated with seeking regular checkups, suggesting that these risk factors and the family history of the disease play a pivotal role in facilitating early detection of breast cancer.

Housewife, negative family history of breast cancer, and those who didn't have breast cancer check-up before were risk factors for Poor knowledge. Most common barriers that prevent women from attending a consultation for early detection of breast cancer were feeling afraid of getting tested 30.8%, feeling ashamed of getting tested 28.5%, and fear of checkup because of result 27.8%.

Keywords: Breast Cancer, Primary Health, Social Life, Hormon

Introduction

Breast cancer is the most common cancer and the fifth leading cause of cancer mortality in females globally. In 2020, it is estimated that 2.3 million females were diagnosed with breast cancer representing 11.7% of all cancer cases, and 685,000 deaths representing 6.9% of all cancer deaths in females. In Iraq, breast cancer is the most common cancer and the leading cause of death among Iraqi women. A total of 72,022 breast cancer cases were identified between 2000 and 2019. According to the Iraqi Cancer Registry in 2021, the highest numbers were recorded among women aged 45 to 50 years mainly in Baghdad, Basrah, and Nineveh (1-4).

Breast cancer has physical, emotional, and economic effects on women who suffer from it. It has a significant impact on the patient's social life, family life, and employment situation thus, breast cancer is one of the three main diagnoses of temporary incapacity that exceeds 365 days of sick leave⁽⁵⁾.

Risk Factors of Breast Cancer:

Non-Modifiable Risk Factors

Female sex:

The female has an increased risk of breast cancer primarily due to enhanced hormonal stimulation. Circulating estrogens and androgens are positively associated with an increased risk of breast cancer.^(6,7)

Older Age:

More than 40% of breast cancer cases are diagnosed in patients older than 65 years old⁽⁸⁾.

Family History:

The risk of breast cancer significantly increases with an increasing number of first-degree relatives affected; the risk might be even higher when the affected relatives are under 50 years old^(9, 10).

Genetic Mutations:

Several genetic mutations were reported to be highly associated with an increased risk of breast cancer. Two major genes characterized by a high penetrance are BRCA1 (located on chromosome 17) and BRCA2 (located on chromosome 13).

They are primarily linked to the increased risk of breast carcinogenesis⁽¹¹⁾.

Race/Ethnicity: The breast cancer incidence rate remains the highest among white non-Hispanic women. Contrarily, the mortality rate due to this malignancy is significantly higher among black women⁽¹²⁾.

Reproductive History:

The pregnancy itself provides protective effects against potential cancer⁽¹³⁾.

Density of Breast Tissue:

Generally, greater breast tissue density correlates with greater breast cancer risk; this trend is observed both in premenopausal and postmenopausal females⁽¹⁴⁾.

History of Breast Cancer and Benign Breast Diseases:

Personal history of breast cancer is associated with a greater risk of renewed cancerous lesions within the breasts⁽¹⁵⁾.

Previous Radiation Therapy:

Young women who receive radiation therapy for Hodgkin's lymphoma have a breast cancer risk that is 75 times greater than that of age-matched control subjects⁽¹⁶⁾.

Modifiable Risk Factors

Body Mass Index:

According to epidemiological evidence, obesity is associated with a greater probability of breast cancer. Females above 50 years old with greater Body Mass Index (BMI) are at a greater risk of cancer compared to those with low BMI^(17, 18).

Alcohol Intake:

It was proved that alcohol intake is linked to the risk of breast cancer. It is explained as the increased levels of estrogens induced by alcohol intake and thus hormonal imbalance affecting the risk of carcinogenesis within the female organs^(19, 20).

Insufficient Vitamin Supplementation:

Vitamins exert anticancer properties, which might potentially benefit in the prevention of several malignancies including breast cancer, however, the mechanism is not yet fully understood⁽²¹⁾.

Intake of Processed Food/Diet:

According to the World Health Organization (WHO), highly processed meat is classified as a Group 1 carcinogen that might increase the risk of breast cancer. Similar observations were made in terms of an excessive intake of saturated fats ⁽²²⁾.

Exposure to Chemicals:

Chronic exposure to chemicals can promote breast carcinogenesis by affecting the tumor microenvironment subsequently inducing genetic alterations along with the induction of pro-carcinogenic events. ^(23, 24)

Methods for Early Detection

- Breast Physical Examination refers to the inspection and palpation of the breast, nipple, and lymph-draining areas surrounding the armpit. This can be performed by a physician (CBE) or by the patient (BSE). Abnormal physical features detected by CBE include breast and axillary lumps, thickening, redness, swelling, asymmetry of the breasts, and nipple abnormalities such as ulceration and discharge. BSE can detect tumors of similar size to those found by CBE. It usually detects tumors in younger women than CBE, since the median age of detection is 60 years and 67 years respectively. This is due to older women who tend to omit their palpable lesions or do not attend screening consultations ⁽²⁵⁾.
- Mammography is the current gold standard method for breast cancer screening. This method aims to identify malignant tumors before they are noticed. The test can detect abnormal areas but cannot prove that it is cancer. If there is any suspicion of cancer, a biopsy of the breast tissue is recommended for histopathology analysis and molecular evaluation. A major drawback of conventional mammography is overdiagnosis, where benign tissue abnormalities or nonaggressive tumors can be misinterpreted, leading to unnecessary procedures and treatment ⁽²⁶⁾.
- Magnetic Resonance Imaging (MRI), which is more sensitive than mammography, has also been implemented and studied during the last decade. The major drawbacks are the high cost

of MRI examinations and high rates of false positives. Breast MRI is used along with mammograms to screen women who are at high risk for getting breast cancer ⁽²⁷⁾.

Specific population screening

Women with pathogenic germline mutations in cancer susceptibility genes — that is, in BRCA1 or BRCA2 (BRCA1/2) — may choose to undergo prophylactic bilateral mastectomy; primary chemoprophylaxis with tamoxifen or other selective estrogen receptor modulators has also been recommended in this group, although the uptake is low. Members of this high-risk group have been identified on an opportunistic basis following self-referral of women with a family history of breast or ovarian cancer, or based on an ancestry associated with an increased prevalence of clinically significant pathogenic variants of BRCA1/2 (for example, in those of Jewish descent). Currently, genetic testing remains restricted for women with breast cancer; those with bilateral or young-onset disease might be offered a test at diagnosis, but most will be offered testing only if they also have a noted family history of the disease ⁽²⁸⁾.

According to Iraqi screening program for BC, low-risk groups the following screening tests should be done (BSE should be done monthly from the age of 20 years, CBE every 2-3 years since the age of 20 years, and annually since the age of 30 years, a mammogram should be done at the age of 40 years every 2 years and annually since the age of 50 years. while for the high-risk group the following should be done since the age of 20 years (BSE monthly, CBE annually) and a mammogram every 3 years starting at the age of 30 and then annually at the age of 40 years and above) ⁽²⁹⁾.

Barriers and Facilitating Factors for Early Detection of Breast Cancer

It was revealed that three major themes were related to the delay in the presentation: individual barriers (limited/lack of knowledge, negative reactions to the disease, belief in fate, fear of being diagnosed with cancer, an embarrassment to consult the doctor and nonavailability of female doctors), environmental barriers (insufficient social support, inaccurate information sources, and alternative therapy recommendations), and

organizational barriers (poor quality of health services, inadequate access to health services, and role of media in informing people, nonavailability of health resources nearby or lack of specialty hospitals).

In Iraq, it was concluded that there were many different barriers to screening and early detection of breast cancer, some of them were individual-specific barriers, and others correlated with socioeconomic conditions as well as barriers to health organization services ⁽³⁰⁾.

Objectives of the study:

1. To identify factors facilitating early detection of breast cancer.
2. To identify the barriers that prevent women from attending a consultation for early detection of breast cancer.

To assess the association between sociodemographic factors of participants and knowledge about risk factors of breast cancer.

Subjects and methods:

A cross sectional study with analytical component that was conducted from 1st of February 2023 till end of November 2023, primary Health Care Centers at Al-Karkh health directorate in Baghdad.

Study population were women aged 20 years and older, who had never been diagnosed with breast cancer before, and attending primary healthcare centers during the period of the study were interviewed and included.

Convenience sampling was used to select the PHCCs, From AL-Karkh Health Directorate four PHCCs were chosen. A sample of 400 women was interviewed and included in the study after having verbal consent from them.

The data collection was done by direct interview by the researcher using a questionnaire. ⁽³¹⁾ Data was collected for three consecutive months; 2 days per week, and 5 hours/day.

The questionnaire was composed of four parts: Sociodemographic variables, practice about breast

cancer, Knowledge about risk factors of breast cancer, Barriers that prevent women from attending a consultation for early detection of breast cancer.

Scoring of knowledge:

One point was given for each correct answer and zero point for uncertain answers or incorrect answers. Maximum total score was 12 points; total score of 6 points or less was considered as poor knowledge about risk factors of breast cancer, while total score of 7 or more was considered as acceptable knowledge about risk factors of breast cancer ⁽³²⁾. Approval was obtained from the Scientific Committee of Iraqi Board for Medical Specializations, research and development center of Ministry of Health, Al-Karkh Health Directorate, Verbal consent was taken from participants after explaining the study objectives and assuring confidentiality.

Data were submitted to SPSS version (26) and presented in the following way: Descriptive analysis was presented in numbers, tables, and graphs. Analytical statistic using Chi-square test to show the association between dependent variables and certain sociodemographic variables. P value of less than 0.05 was considered as statistically significant.

Results:

There were 400 participants in this study. Most common age groups were 30-39 years 130 (32.5%) and 40-49 years 98 (24.5%).

Participants' correct responses regarding knowledge about risk factors of breast cancer were age factor 149 (37.3%), early menarche 53 (13.3%), nulliparous 83 (20.8%), being late at first delivery 69 (17.3%), late menopause 68 (17.0%), family history of breast cancer 352 (88.0%), obesity 114 (28.5%), use of contraceptive drugs 151 (37.8%), Women who do not breastfeed 169 (42.3%), smoking 230 (57.5%), exposure to radiation 295 (73.8%), and use of hormonal replacement therapy 193 (48.3%). (**table 1**)

Table (1): Participants' knowledge about risk factors of breast cancer

Risk Factors	Yes		No		I don't know	
	No.	%	No.	%	No.	%
Age factor	149	37.3%	182	45.5%	69	17.3%
Early menarche	53	13.3%	245	61.3%	102	25.5%
Nulliparous	83	20.8%	220	55.0%	97	24.3%
Late at first delivery	69	17.3%	213	53.3%	118	29.5%
Late menopause	68	17.0%	202	50.5%	130	32.5%
Family history of breast cancer	352	88.0%	23	5.8%	25	6.3%
Obesity	114	28.5%	194	48.5%	92	23.0%
Use of contraceptive drugs	151	37.8%	161	40.3%	88	22.0%
Women who do not breastfeed	169	42.3%	159	39.8%	72	18.0%
Smoking	230	57.5%	116	29.0%	54	13.5%
Exposure to radiation	295	73.8%	65	16.3%	40	10.0%
Use of hormonal replacement therapy	193	48.3%	108	27.0%	99	24.8%

Barriers that prevent women from attending a consultation for early detection of breast cancer were feeling afraid of getting tested 123 (30.8%), feeling ashamed of getting tested 114 (28.5%), fear of checkup because of result 111 (27.8%), health centers and hospitals are far from my home

67(16.8%), difficulty getting an appointment 63 (15.8%), those who don't trust the test result 54 (13.5%), refusal of close people to checkup 29 (7.3%), checkup cost 23 (5.8%), and difficulty in communication with the doctor 19 (4.8%) (Figure 1)

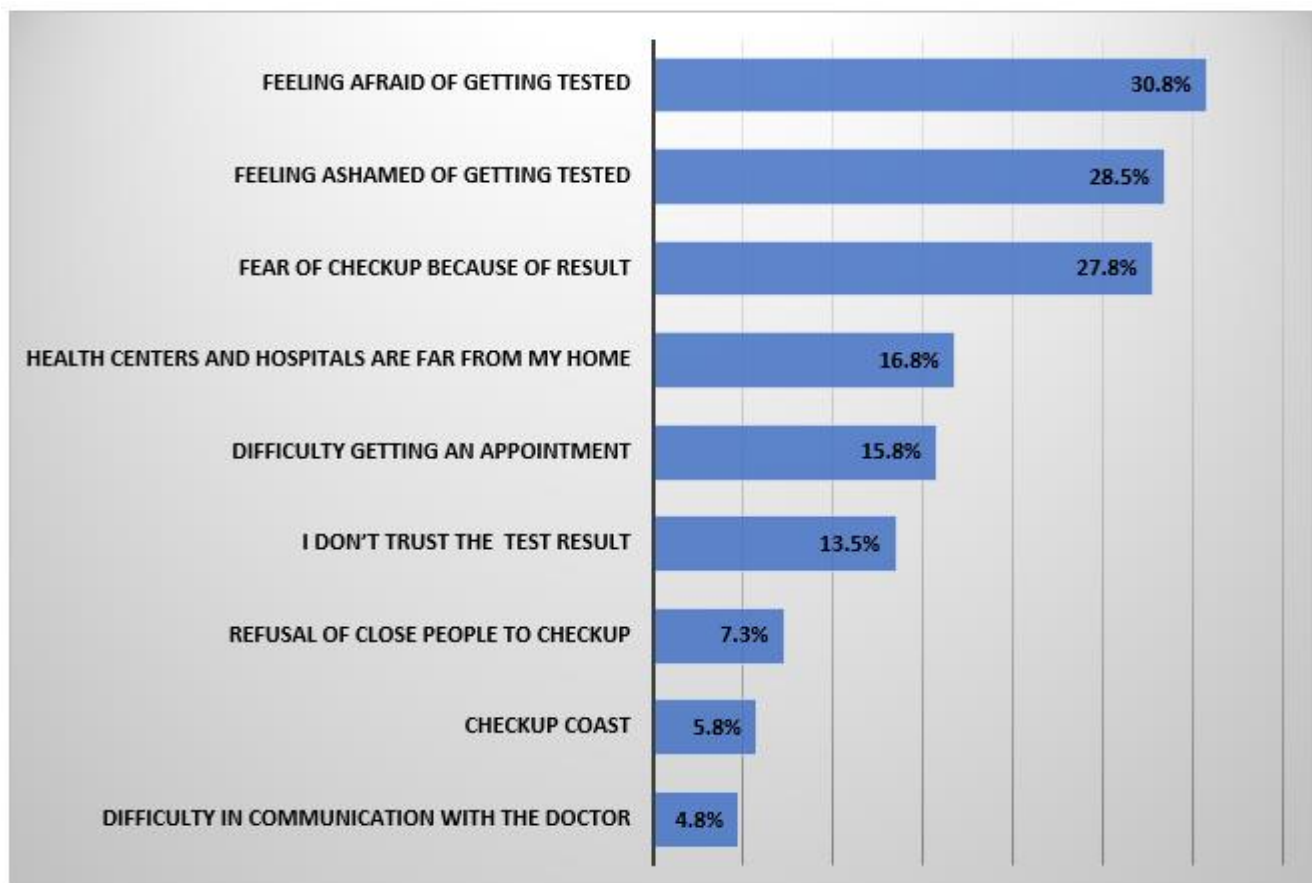


Figure (1): Barriers that prevent women from attending a consultation for early detection of breast cancer

Didn't have breast cancer check-up before was associated significantly with poor knowledge about risk factors of breast cancer; (P=0.002). (Table 2).

Table (2): Association between the level of knowledge about risk factors of breast cancer and Breast Cancer check-Up

Level of knowledge about risk factors of breast cancer	Breast Cancer check-Up before				P value
	Yes		No		
	No.	%	No.	%	
Poor	48	18.7%	209	81.3%	0.002
Acceptable	47	32.9%	96	67.1%	

Poor knowledge about risk factors of breast cancer was associated significantly with housewife and negative family history of breast cancer; (P=0.001 and P=0.002) respectively. (Table 3)

Table (3): Distribution of sociodemographic data of participants according to the knowledge about risk factors of breast cancer

Variables		Knowledge about risk factors of breast cancer				P value
		Poor		Acceptable		
		No.	%	No.	%	
Age	less 30	50	58.1%	36	41.9%	0.52
	30 – 39	87	66.9%	43	33.1%	
	40-49	67	68.4%	31	31.6%	
	50-59	37	63.8%	21	36.2%	
	≥60	16	57.1%	12	42.9%	
Educational level	Illiterate	11	55.0%	9	45.0%	0.17
	Primary	24	75.0%	8	25.0%	
	Secondary	61	70.9%	25	29.1%	
	College and above	161	61.5%	101	38.5%	
Marital Status	Single	102	67.1%	50	32.9%	0.77
	Married	142	62.8%	84	37.2%	
	Divorced	8	57.1%	6	42.9%	
	Widowed	5	62.5%	3	37.5%	
Number of children	No child	130	63.7%	74	36.3%	0.23
	One child	22	53.7%	19	46.3%	
	2 or more	105	67.7%	50	32.3%	
Occupation	Government employee	113	59.5%	77	40.5%	0.001
	Private employee	41	71.9%	16	28.1%	
	Retired	5	29.4%	12	70.6%	
	House wife	98	72.1%	38	27.9%	
Family history of Breast Cancer	Yes	66	55.5%	53	44.5%	0.022
	No	191	68.0%	90	32.0%	
Degree of breast cancer consanguinity	First degree	28	59.6%	19	40.4%	0.57
	Second degree	38	52.8%	34	47.2%	

Discussion:

Globally, breast cancer is a public health concern and has a poor early detection rate ⁽³³⁾. So, this study was conducted to identify factors facilitating early detection, to identify the barriers that prevent women from attending a consultation for early detection of breast cancer and to identify the association between sociodemographic variables of participants and their knowledge about risk factors. A total of 400 participants were included in this study. The dominant age group was (30 – 39) years which represented 32.5% of the sample. That result agreed with Habeeb et al., Basrah/Iraq 2020 ⁽³⁴⁾, and Hamed et al., Qatar 2022⁽³⁵⁾.

Regarding knowledge of women in the recruited sample toward risk factors of breast cancer, it was shown that the most commonly known risk factors of breast cancer were family history of breast cancer (88% were aware of it) followed by radiation exposure (73.8% knew it) while the least commonly known risk factors were the early menarche and late menopause. That agreed with the results of Abbas and Baig UAE 2023 ⁽³⁶⁾, where the most well-known risk factor for breast cancer was a family history of the disease, whereas late menopause was the least well-known.

As barriers that prevent women from attending a consultation for early detection of breast cancer, in this study, 30.8% were afraid of getting tested, 28.5% felt ashamed of getting tested, and 27.8% were afraid of checkups because of the result. Those findings disagreed with other studies where the most common barrier was (the appropriateness of the place of examination in a study by AL-Ameri et al., Baghdad 2023⁽³⁷⁾), and (worries about squandering medical professionals' time in a study by Hamed et al., Qatar 2022⁽³⁵⁾).

Concerning the knowledge about risk factors of breast cancer, 64.3% of the recruited females had poor knowledge, and 143 (35.7%) had acceptable knowledge. That was in accordance with other studies in Iraq, and Saudi Arabia ⁽³⁸⁾. This might be because of the social culture of Arabian women, where talking about some aspects of the female body, such as the breasts, still carries a stigma ⁽³⁹⁾.

Since many of these risk factors are avoidable or adjustable, knowledge of them is essential to the prevention of breast cancer. Harvie et al. revealed

that by making changes to associated risk factors, breast cancer could be prevented ⁽⁴⁰⁾.

A significant association was noticed between occupation and knowledge about risk factors since poor knowledge was correlated with housewives, the results were supported by studies in AUE, Saudia Arabia, and Iran ⁽⁴¹⁾ where the participants who were not employed had average level of knowledge, suggesting that the educational program did not effectively reach this group of people.

The current study revealed that poor knowledge was significantly associated with those who didn't have breast cancer check-ups before and with a negative family history of breast cancer. Those findings agreed with other studies ⁽⁴²⁾.

Finally, the present study reported no significant difference between knowledge about risk factors and (age, marital status, number of children, and degree of breast cancer consanguinity), which agreed with Younis et al., in 2016 ⁽⁴³⁾ who revealed that there was no discernible variation in knowledge between the age groups, nor between participants who are married and those who are single, In addition, there was no significant difference in the level of knowledge between nulliparous, uniparous, and multiparous women.

Conclusions and recommendations:

Conclusions:

1. The level of knowledge about risk factors of breast cancer was significantly associated with seeking regular checkups, suggesting that these risk factors and the family history of the disease play a pivotal role in facilitating early detection of breast cancer.
2. Poor knowledge about risk factors of breast cancer was found among 64.3% of participants.
3. Risk factors for poor knowledge were being a housewife, having a negative family history of breast cancer, and not having breast cancer check-ups before.
4. The most common barriers preventing women from attending a consultation for early detection of breast cancer include feeling afraid of getting tested (30.8%), ashamed of getting tested

(28.5%), and fear of checkups because of the result (27.8%).

Recommendations:

1. **Mass Media Campaigns:** Mass media outlets should intensify efforts to disseminate health information regarding the risk factors of breast cancer and the practice of early detection methods. By leveraging the reach and influence of mass media platforms, greater awareness and understanding of breast cancer can be promoted among the population.
2. **Health Education Programs:** Health education programs targeting female students in college or women attending PHCCs for ANC or for any reason need to be established. These programs need to focus on delivering comprehensive information on breast cancer prevention, risk factors, early detection methods, and the importance of regular screenings.
3. **Encourage Further Research:** There is a need for further large-scale studies in the field of women's cancer screening, particularly focusing on identifying effective strategies to address barriers and enhance facilitators related to healthcare provision. Continued research efforts will contribute to advancing knowledge, improving practices, and ultimately reducing the burden of breast cancer.

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