KNOWLEDGE AND ATTITUDES ABOUT BREAST CANCER EARLY DETECTION AT AL SADDER TEACHING HOSPITAL IN AL-NAJAF PROVINCE

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Abstract

Introduction The most frequent cancer and the primary reason for cancer-related mortality in women is breast cancer.

Objective: To determine the Knowledge and attitudes of the study sample about breast cancer and early detection and to determine the difference between the Knowledge and attitudes of the study sample about breast cancer and early detection.

Materials and Methods: A total of 516 women were chosen, with 258 cases and 258 controls. The case group included patients with breast cancer, and the control group consisted of women without breast cancer using a structured questionnaire.

Results: The response rate was 100%. The majority of the participants (case and control) knew that regular breast examination helps in the early diagnosis and treatment of breast cancer. Regarding risk factor knowledge, 82.2 % of the cases group and 51.9% of the control group knew that a family history of breast cancer was the most risk factor. 91.5% of the cases group than 20.2% of the control group knew the change in the shape and size of the breast or nipple was one of the signs and symptoms of breast cancer, only 16.3% of the cases group than 8.5% of control group practiced breast self-examination before, 25.2% of the cases group than 14.7% of the control group that undergone a clinical breast examination previously. As an overall assessment, 97.7 % of the cases group had good Knowledge, and 64.3 % of the control group had fair Knowledge of breast cancer early detection.

Conclusion: Although the study showed satisfactory Knowledge about breast cancer early detection among women in Al-Najaf Provenance, the practice of BSE was very low, and health education initiatives were enhanced to encourage the use of breast self-examination, clinical breast examination, and mammograms.

Keywords: Breast cancer, Knowledge, early detection

INTRODUCTION

The most common cause of illness and death for women worldwide, as well as the most common life-threatening cancer, is breast cancer[1,2]. After cardiovascular disease, breast cancer is the main cause of death for women in Iraq and the country's most common cancer overall[3]. In 2020, an estimated 685,000 women lost their lives to breast cancer, making up 16% of all female cancer deaths. Following a period of insufficient public health response to this development, the World Health Organization (WHO) recently launched the Global Breast Cancer Initiative[4]. In Egypt, it accounts for 32.4% of cases of cancer in females, and about 22,000 new cases are detected annually[4]. According to the Globocan Cancer Observatory, there were 1964 new cancer-related fatalities and 4388 new cases (or 20.9% of all cancer cases) in Syria in 2020[5]. Breast cancer accounts for over 20% of all cancer cases in the United Arab Emirates (UAE), and it is regarded as the second most common cause of death for women after cardiovascular disorders[6]. Between 2000 and 2019, the incidence rate of new cases of cancer in Iraq increased (from 52.00 to 91.66 events per 100,000 persons); breast cancer accounted for approximately one-third of all cancer cases recorded in Iraq in 2019, making it the main cause of death for women in that nation[7]. The Iraqi Cancer Registry published its annual report in 2020, and it revealed that the top 10 cases overall were 6,255, or 19.74

percent, while the number of deaths was 1,367, or 12.87 percent[8]. According to the 2021 annual report of the Iraqi Cancer Registry, breast cancer ranked among the top ten cancers in Iraq, with a total of 7246 cases (30.63%) and 1416 fatalities (17.34%)[9]. Despite the fact that breast cancer death rates are higher in low- and middle-income nations, there is a lack of early detection techniques, and most patients with late illnesses require palliative treatment with poor survival rates[10]. BSE, clinical breast examination by a caregiver, and mammography together assist in the early detection of breast cancer[11]. Developing efficient screening programs and yearly mammograms in the targeted Group, raising public Knowledge of the symptoms and signs of BC, and motivating women to act quickly are some ways to accomplish early diagnosis of the disease[12]. As a result, the goal of this project is to assess present Knowledge and attitudes on breast cancer early detection and to find variations among research groups.

MATERIALS AND METHODS
Study settings

A case-control study was conducted in Iraq's Al-Najaf Al-Ashraf province at Al Sadder Medical City and Middle Euphrates Oncology Center to achieve the study objective. This study was conducted from 10 October 2023 to 10 January 2024.

Study sample

Five hundred sixteen respondents divided into two groups (case & control) were chosen by using simple random sampling; the age range is (25-86) years. The study sample was women with breast cancer as cases who attended Middle Euphrates Oncology Center and women without breast cancer as control who attended Al Sadder Medical City in Al Najaf AL Ashraf province.

Data Collection

To gather data, a structured questionnaire form was utilized to obtain data from the study respondents. The questionnaire includes the following information.

1. Sociodemographic data: These include the age of the woman, her residence, her marital status, her occupation, her husband's occupation, the income of the family, her educational level, her husband's educational level, the type of habitation, and her family history of breast cancer.

2. General Knowledge about breast cancer: include information about breast cancer in general, including 5 Items.

3. Knowledge about breast cancer risk factors, including 14 Items.

4. Knowledge about the signs and symptoms of breast cancer, including 12 items.

5. Knowledge about early detection of breast cancer of breast cancer, including 19 items.

Scoring

Concerning Knowledge, it includes 50 questions and has a score range of 0 to 3. According to the results range of (0-150), the maximum score response was 150, and the minimum score response was zero, categorized and subdivided into three groups (Poor ≥ 50, Fair 51-100, and Good ≤ 101). In respect to Attitude comprised of 13 questions, has a score range of 0 to 5; the maximum score response was 65, and the minimum score response was zero according to the results range, which was (0-57), categorized and subdivided into three groups (Negative ≥ 12, Neutral 22-43, Positive ≤44).

Statistical Analysis

The data was analyzed using version 28 of the Statistical Package for the Social Sciences (SPSS). Descriptive statistics were computed for specific numerical and categorical variables in the descriptive data.

Ethical Consideration:

❖ The Al-Najaf Health Directorate was permitted to carry out this task.

❖ We obtained written consent from every participant.

Results and Discussion

The study comprised 516 respondents in total and was divided into two groups: the case group (women with breast cancer) and the control group (women without breast cancer). The mean ±

standard deviation was 49.127 ± 9.823 for cases and 41.965 ± 8.567 for the control group, with an age range of 25 to 86 years. The response rate was 100%, which was revealed in Table 1 that the highest percentage (53.4%) of the case group belonged to ages 45–54 years, and this can be taken as evidence that age is defined as the beginning of menopause and women might be susceptible to breast cancer due to hormonal imbalance. This result was consistent with the research, which found that women between the ages of 41 and 60 had the highest incidence of breast cancer[13,14]. A further study was conducted, which concluded that middle-aged females between the ages of 45 and 49 usually display the highest incidence rate[15]. The largest percentage of the control group was 44.2%, which was between the ages of 35 and 44. It is similar to the data abstracted from the selective village areas of Udupi district, Karnataka, where it was witnessed that 42.1% of the females were from the affected age group of 35–44 years[16].As it related to marital status, 78.3% of the case group and 76.3% of the control group were married. It is comparable to the findings from the Udupi district in Karnataka, which revealed that 85.9% of the women there were married[16].Regarding the women's occupation, a greater proportion of the case group (83.7%) than the control group (95.7%) were housewives in this study. In terms of residency area, urban areas accounted for 82.6% of cases compared to 83.7% of controls. These results were consistent with those of a previous study conducted at Holy Family Hospital in Rawalpindi, which found that the majority of the female participants were housewives (88.8%) and lived in urban (75.6%)[17].Moreover, comparable findings from research conducted in Delhi, India, showed that 95.3% of women were housewives[18].Regarding the level of education, 14.3% of the case group and 24.8% of the control group were in primary school. These results were consistent with earlier Indian research that found 21% of people had only completed primary school[19].Compared to 20.5% of the control group, 22.9% of the case group had illiteracy. This is similar to the findings from Nigerian research, which revealed that 23.1% of people lacked formal education[20].About the family history of breast cancer, 15.5% of the control group and 22.1% of the case group had a family history of the disease. It is comparable to findings from Morocco, where 20.4% of respondents reported having a family history of breast cancer[21].In terms of socioeconomic position (income), the study's findings show that 51.6% of the case group and 58.5% of the control group, respectively, were below the poverty line. This appears not far from a study conducted in Saudi Arabia, where 43.9% of case group participants were low-income[22].Being unemployed raises the risk of developing breast cancer, and low income is one of the biggest obstacles to early detection.

Table 1: Sociodemographic Characteristics of respondents for both groups(case-control)

Sociodemographic characteristics		Cases (258)		Control (358)		**T.test	P.value
		Freq.	Perc.	Freq.	Perc.		
Age Group	25-34Y	12	4.7	45	17.4	8.82	0.001
	35-44Y	71	27.5	114	44.2		
	45-54Y	112	43.4	77	29.8		
	55-64Y	38	14.7	20	7.8		
	65-74Y	24	9.3	2	.8		

		Freq.	Perc.	Freq.	Perc.		
	75 & more	1	0.4	0	0.0		
Residency	Rural	45	17.4	42	16.3	0.350	***0.725
	Urban	213	82.6	216	83.7		
Marital status	Single	15	5.8	4	10.5	1.996	***0.047
	Married	202	78.3	29	76.3		
	Divorced	3	1.2	2	5.3		
	Widowed	38	14.7	3	7.9		

	Cases				Control			***P.value
*Occupations	Husband		Respondent		Husband		Respondent	H 0.034
	Freq.	Perc.	Freq.	Perc.	Freq.	Perc.	Freq.	Perc.	R 0.001
Housewife	0	0.0	216	83.7	0	0.0	247	95.7
Armed forces	17	6.6	0	0.0	18	7.0	0	0.0
Sales worker	10	3.9	0	0.0	8	3.1	0	0.0
Agricultural	12	4.7	0	0.0	6	2.3	0	0.0
Not classified	61	23.6	0	0.0	67	25.9	0	0.0
Retired	26	10.1	9	3.5	13	5.0	2	0.8
Driver & Mobile operator	12	4.7	0	0.0	30	11.6	0	0.0
Machine Operators	2	0.8	0	0.0	0	0.0	0	0.0
Budling and related treats	14	5.4	0	0.0	9	3.5	0	0.0
Commission police officer	13	5.0	0	0.0	17	6.6	0	0.0
General clerks	6	2.3	0	0.0	0	0.0	0	0.0
Mechanics repairmen	4	1.6	0	0.0	7	2.7	0	0.0
Shopkeepers	7	2.7	0	0.0	11	4.3	0	0.0
Health professional	5	1.9	7	2.7	9	3.5	2	0.8
Teaching professional	8	3.1	17	6.6	8	3.1	6	2.3
NON	45	17.4	0	0.0	37	14.3	0	0.0
Tailors and dressmakers	2	0.8	0	0.0	0	0.0	0	0.0
Cleaners & Helpers	1	0.4	3	1.2	1	0.4	0	0.0
Food preparation	4	1.6	0	0.0	8	3.1	0	0.0
Engineering Professionals	6	2.3	4	1.6	9	3.5	0	0.0
Administration Associate	2	0.8	2	0.8	0	0.0	1	0.4
Legal Professional	1	0.4	0	0.0	0	0.0	0	0.0

Education level		Cases				Control				***P.value
		Respondents		Husband		Respondents		Husband		
		Freq.	Perc.	Freq.	Perc.	Freq.	Perc.	Freq	Perc.	
	Illiterate	59	22.9	38	14.7	53	20.5	14	5.4	R0.746
	Read and write	82	31.8	87	33.7	64	24.8	74	28.7	H0.001
	Primary school	37	14.3	44	17.1	64	24.8	60	23.3	
	Intermediate school	22	8.5	32	12.4	40	15.5	34	13.2	
	Secondary school	11	4.3	18	7.0	14	5.4	11	4.3	
	Diploma	21	8.1	24	9.3	18	7.0	26	10.1	
	Bachelor	26	10.1	15	5.8	5	1.9	9	3.5	

		Cases		Control		***P.value
		Freq.	Perc.	Freq.	Perc.	
Residency Type	Own	203	78.7	161	62.4	
	Rent	8	3.1	10	3.9	0.001
	Share	27	10.5	48	18.6	
	Free	20	7.8	39	15.1	
Family History		Freq.	Perc.	Freq.	Perc.	
	Yes	57	22.1	40	15.5	0.05
	No	201	77.9	218	84.5	
$Poverty		Freq.	Perc.	Freq.	Perc.	
	Over	116	45.0	101	39.1	**0.004
	Poverty Line	9	3.5	6	2.3	
	Under	133	51.6	151	58.5	

*Classification according to ILO, 2023.
**Independent sample T-test, significant at level 0.05.
*** Independent-Samples Mann-Whitney U Test
$World Bank Estimation (International Poverty Line)

In terms of breast cancer general knowledge, (Table 2) demonstrates that worldwide, breast cancer is the most frequent malignancy in women, as reported by 81.4% of the case group compared to 39.1% of the control group. The control group's percentage is similar to the findings of an Iraqi study, which indicated that 44.1% of participants provided accurate responses[23].Compared to 4.3% of the control group, 87.2% of the cases group was aware that breast cancer is not a communicable disease. The control group's percentage is similar to the findings of a study done among female university students in Baghdad, which indicated that 13.75% of respondents gave the correct response[24].Regular breast exams are helpful in the early detection and treatment of breast cancer, as reported by 96.9% of the case group and 91.9% of the control group. This outcome is better than that of research done on women in Northern and Eastern China, which revealed that 75.7% of the participants were aware of the importance of regular breast exams in early diagnosis and treatment[25].The change in sample size could be the cause of this variance. There were 516 women in our study, compared to 2978 women in the Chinese study, of which 41.9 percent were from rural and 54.1 percent were from urban areas. Meanwhile, 82.6% of the case group and 83.7% of the control group in our study were urban dwellers.

Table 2: Correct answers of respondents for the general Knowledge about breast cancer early detection for both groups

General Knowledge about breast cancer	Case		Control	
	Correct		**Correct**	
	Freq.	Perc.	Freq.	Perc.
Breast cancer is the most common cancer in women worldwide	210	81.4	101	39.1
Is breast cancer a transmissible disease	225	87.2	11	4.3
Can breast cancer be cured	228	88.4	124	55.0
Does regular breast examination help in the early diagnosis and treatment of breast cancer	250	96.9	237	91.9
Are all women at risk of breast cancer	104	10.3	43	16.7

As demonstrated by Table 3 that found that 47.4% of the control group and 67.4% of the cases group were aware that refraining from breastfeeding was a risk factor for breast cancer. This outcome is comparable to research findings from Saudi Arabia and Jordan (67.3% and 67.6%, respectively)[26,27].Compared to 31.0% of the control group, 70.9% of the cases group responded that using hormonal contraceptives increased the risk of breast cancer. The control group's findings agree with those of a study conducted in Riyadh, wherein 30% of participants selected contraceptive tablets as a risk factor for breast cancer[28].Synthetic hormones have the same potential to raise a woman's risk of breast cancer as natural hormonal changes in her body during her reproductive years. Contraceptives are known to have the opposite effect on breast tissue, according to numerous studies[29,30].When asked if having cancer in one breast decreased the chance of getting cancer in the other, 58.9% of the case group and 19.8% of the control group gave correct responses to the question. This outcome is comparable to research conducted in Jordan, where 16.5% of women provided accurate responses[26].2.7% of the control group and 15.5% of the case group were aware that delayed menopause at age 55 or older is a risk factor for breast cancer; 4.3% of the control group and 26.4% of the case group were aware that having a first child at age 30 or older is a risk factor for breast cancer; and 51.9 % of the control group and 82.2% of the cases group said that a family history of breast cancer increases the chance of getting breast cancer. The case group's findings match with those of research conducted in Lebanon, which found that 17.0% had late menopause, 23.0% had children later in life, and 84.0% had a close relative who had breast cancer). These findings were identified as risk factors for breast cancer[31].

Table 3: Correct answers of respondents for the Knowledge about breast cancer risk factors for both groups

No.	Knowledge about breast cancer risk factors and causes	Case		Control	
		Correct		Correct	
		Freq.	Perc.	Freq.	Perc.
1	Is abstaining from breastfeeding a risk factor for breast cancer?	174	67.4	122	47.3
2	Is hormonal contraceptive use not a risk factor for breast cancer?	183	70.9	80	31.0
3	Is smoking a risk factor for breast cancer?	239	92.6	206	79.8
4	Is obesity and lack of exercise a risk factor for breast cancer?	182	70.5	118	45.7
5	Is delayed menopause at age 55 or older a risk factor for breast cancer?	40	15.5	7	2.7
6	Is menstruation at an early age of 12 years or younger a risk factor for breast cancer?	18	7.0	5	1.9
7	Is exposure to X-rays a lot a risk factor for breast cancer?	187	72.5	95	36.8
8	Is having a first child at age 30 or older a risk factor for breast cancer?	68	26.4	11	4.3
9	Is infertility a risk factor for breast cancer?	92	35.7	26	10.1
10	Do women who have a larger breast size have a greater risk of developing breast cancer?	70	27.1	40	15.5

11	Does having breast cancer in one breast make you less likely to develop cancer in the other breast?	152	58.9	51	19.8
12	Is family history of breast cancer a risk factor for breast cancer?	212	82.2	134	51.9
13	Is having benign breast disease a risk factor for breast cancer?	146	56.6	23	8.9
14	Does being female make you more likely to get breast cancer?	241	93.4	197	76.4

Regarding Knowledge about the signs and symptoms of breast cancer (Table 4) demonstrated that 91.5% of the cases group and 20.2% of the control group were aware that one of the warning signs and symptoms of breast cancer is a change in the size and shape of the breast or nipple, A painful lump under the armpit or one of the breasts is not a sign or symptom of breast cancer, as reported by 64.0% of the cases group and 24.4% of the control group, Bloody discharge from the nipple is one of the symptoms and indicators of breast cancer, as reported by 91.1% of the case group and 46.9% of the control group. The results of the control group are similar to those shown by a study in Saudi Arabia, which revealed that 23.4% answered that a change in the breast shape or volume was one of the signs and symptoms of breast cancer; 59.9% responded that a painless lump in the breast or axilla was one of the signs and symptoms of breast cancer; and 42.9% answered that bloody or any discharge from the nipple was one of the signs and symptoms of breast cancer[32].Nipple inversion or withdrawal was recognized by 87.6% of the case group and by 8.5% of the control group as a sign and symptom of breast cancer. The control group's findings matched those from Saudi Arabia, where 8.9% of respondents said that pulling in or inverting the nipple was one of the symptoms of breast cancer[33].6.6% of the control group and 82.6% of the case group were aware that enlarged lymph nodes beneath the arm were a sign and symptom of breast cancer. The result of the case group agrees with the study carried out in Nepal, where 80.51% of respondents knew that enlarged lymph nodes are one of the signs and symptoms of BC[34].The thickening of the breast skin and the texture of the orange peel were recognized by 81.4% of the case group and 8.5% of the control group as signs and symptoms of breast cancer. The outcomes were at variance with an Iraqi study wherein 31.7% of participants were aware that thickening of the breast skin, or orange peel, was a sign of breast cancer[35].

Table 4: Correct answers of respondents for the Knowledge about the signs and symptoms of breast cancer for both groups

No.	Knowledge about the signs and symptoms of breast cancer	Case		Control	
		Correct		Correct	
		Freq.	Perc.	Freq.	Perc.
1	Is a change in the shape, size, or color of the breast or nipple one of a sign and symptoms of breast cancer?	236	91.5	52	20.2
2	Is the appearance of a painful lump in one of the breasts or under the armpit one of a sign and symptoms of breast cancer?	165	64.0	63.	24.4
3	Is the appearance of bloody secretions from the nipple one of the signs and symptoms of breast cancer?	235	91.1	121	46.9
4	Is feeling pain in the breast, nipple, or under the armpit one of a sign and symptoms of breast cancer?	131	50.8	20	7.8
5	Is redness, soreness, swelling, or dimpling of breast skin one of a sign and symptoms of breast cancer?	211	81.8	44	17.1
6	Is a prominent vein on the surface of the breast one of a sign and symptoms of breast cancer?	88	34.1	54	20.9
7	Is nipple inversion or nipple withdrawal a sign and symptom of breast cancer?	226	87.6	22	8.5
8	Is scaling and dry nipple skin a sign and symptom of breast cancer?	177	68.6	15	5.8
9	Are swollen glands under the arm (lymph glands) a sign and symptom of breast cancer?	213	82.6	17	6.6
10	Is the thickness of the skin of the breast and the texture of the orange peel signs and symptoms of breast cancer?	210	81.4	22	8.5
11	Is feeling with breast warmth and itching one of the signs and symptoms of breast cancer?	197	76.4	9	3.5
12	Are milky secretions from the nipple one of the signs and symptoms of breast cancer?	239	92.6	237	91.9

Regarding Knowledge about early detection of breast cancer, (Table 5) revealed that 33.3% of the case group and 28.3% of the control group, or one-third of the respondents, had heard of BSE. The case group's findings matched those of the Iraqi study, which found that 34.58% of participants had heard of breast self-examination[24].This outcome also matched the results of an earlier study on 300 Saudi Arabian women in the Qassim region, which showed that 69% of them had never heard of BSE[36].Breast self-examination was practiced by only 16.3% of the case group and 28.3% of the control group. This is similar to findings from an Iranian study that revealed that just 13.4% of female respondents performed BSE; the most frequent explanation for non-performing in BSE was the absence of awareness[37].Most of the case group said that BSE is essential to finding malignancies under the armpit or in the breast. This outcome is in accordance with a survey conducted in Mosul,

Iraq, which revealed that the majority of respondents were aware that BSE is an effective method for early BC identification[38].The main reason given by 19.0% of the control group and 26.4% of the case group for not getting tested was their concern about discovering a lump beneath their arm or in their breast. The case group's findings were consistent with those from Iraq, where 25.8% of respondents said that they had not performed breast self-examination because they were afraid of discovering a lump[23].99.2% of the case group and 93.8% of the control group responded that improved treatment outcomes can be achieved with early identification of breast cancer. This outcome is comparable to that of Saudi Arabia, where 96.9% of respondents indicated that early detection of breast cancer aids in treatment to achieve better outcomes[27].49.6% of the control group and 52.7% of the case group were informed about clinical breast exams. The findings match the findings of the Iraqi study, which indicated that 43.9% of participants had heard of a clinical breast examination[39].Only 25.2% of the case group and 14.7% of the control group had previously had a clinical breast examination. The outcome is consistent with the Turkish study, in which 25.0% of the women had previously received a clinical breast examination[40].Another study carried out in Saudi Arabia similarly shows that 26.4% of patients have undergone clinical breast exams[41].In addition, earlier studies from Iran's Mazandaran Province revealed that 20.7% of women had previously undergone clinical breast exams[42].A lack of female doctors, infrequent availability of ultrasound exams, unfavorable staff attitudes, or lengthy wait periods could all be contributing factors. A clinical examination of the breast is conducted utilizing ultrasound, according to 39.9% of the case group and 29.5% of the control group. On the other hand, 14.3% of the control group and 24.8% of the case group indicated that an experienced nurse should do a clinical breast examination.

These findings are in contrast with those of a survey carried out in the Kingdom of Saudi Arabia, which revealed that 6.1% of respondents indicated that CBE is carried out using ultrasound, and 7.9% indicated that a professional nurse should perform CBE[33].Mammography is the gold standard screening technique for the early diagnosis of breast cancer. Regular mammography screening has been linked to a 20% to 25% decrease in the death rate from breast cancer[43,44].12.8% of the control group and 19.0% of the case group had heard about mammography; 1.2% of the control group and 4.7% of the case group had previously had a mammography. The control group's findings were in accordance with what was found in southwest Nigeria. 2.3% of women had previously had a mammogram, and 11.6% had heard of them[45].Additionally, it is consistent with earlier data from Jordan that revealed incredibly low mammography screening rates (not exceeding 10%)[46]; in Turkey, a study revealed that 5.1% of women received mammograms[40].One of the most efficient diagnostics for early breast cancer detection is mammography, according to 17.4% of the case group and 3.5% of the control group; Mammography is safe, according to 10.9% of the case group and 0.8% of the control group. The current study's conclusions are less than those of a study conducted in Jordan, where 78.7% of respondents indicated that mammography is the most useful screening technology, and 60.3% indicated that it is safe[26].The sample size and demographics could be the cause of these variations. There were 1353 Jordanian women in the Jordan study who were part of the general population; approximately half of the study sample was 35 years of age or younger, and 46.2% were university-educated. While in our study, the sample size was 516 women: 44.2% of the control group were (35–44 years old) 43.4% of the case group were (45–54 years old), only 18.2% of the case group, and 8.9% of the control group were university educated.

Table 5: Correct answers of respondents for the Knowledge about early detection of breast cancer of breast cancer for both groups

No.	Knowledge about early detection of breast cancer	Case		Control	
		Correct		Correct	
		Freq.	Perc.	Freq.	Perc.
1	Have you ever heard of breast self-examination?	86	33.3	73	28.3
2	Have you practiced breast self-examination before?	42	16.3	22	8.5
3	Is it necessary to detect tumors that appear in the breast or under the armpit?	201	77.9	117	45.3
4	Have you received education or training on how to perform a breast self-examination?	72	27.9	40	15.5
5	Can you teach others how to breast self-examination?	72	27.9	38	14.7
6	Did your fear that you might find a lump in the breast or under the arm prevent you from getting tested?	68	26.4	49	19.0
7	Does early detection of breast cancer help in treatment to get better results?	256	99.2	242	93.8
8	Have you ever heard of clinical breast examination?	136	52.7	128	49.6
9	Have you undergone a clinical breast examination previously?	65	25.2	38	14.7
10	Is the reason for not performing a clinical breast examination because you do not know who you are consulting?	93	36.0	58	22.5
11	Does a trained nurse perform the clinical breast examination?	64	24.8	37	14.3
12	Is the clinical examination of the breast monthly?	65	25.2	34	13.2
13	Is a clinical examination of the breast ultrasound (sonar) performed?	103	39.9	76	29.5
14	Have you ever heard of a mammogram?	49	19.0	33	12.8
15	Have you had a mammogram before?	12	4.7	3	1.2

16	Is mammography one of the most effective tests for early detection of breast cancer?	45	17.4	9	3.5
17	Is mammography considered safe?	28	10.9	2	0.8
18	Is a mammogram painful?	23	8.9	1	0.4
19	Does the mammographic examination detect the mass (tumor) and whether it is clear and palpable or not?	38	14.7	3	1.2

The mean ± standard deviation of the overall knowledge domain comparison for both groups is shown in Table 6. The results indicate that there is a statistically significant variation in the research groups' overall knowledge domain scores.

Table 6: Overall comparison of knowledge domains for both groups

Domains	Cases (Overall score)	Control (Overall score)	*P. Value
	Mean ± Std	Mean ± Std	
General Knowledge about BCAD	13.639 ± 1.380	11.655 ± 2.214	0.001
Knowledge about risk factors & causes	33.814 ± 3.655	28.639 ± 4.349	0.001
Knowledge about signs & symptoms	31.899 ± 3.143	21.767 ± 4.504	0.001
Knowledge about early detection	38.798 ± 6.358	35.507 ± 4.339	0.001

*Independent sample T-test, significant at level 0.05.

The knowledge classification of the domains for both groups is shown in Table 7. Regarding Knowledge of the general domain of breast cancer, it was noted that most of the participants in the case group and two-thirds of the respondents in the control group had good Knowledge. In terms of risk factors and cause Knowledge, over half of the control group had fair Knowledge, while the majority of the case group had good Knowledge. This matches the finding in Nakhon Si Thammarat, Thailand, where the majority of respondents had fair or good Knowledge of the risk factors of breast cancer[47].Regarding signs and symptoms knowledge, a greater percentage of the case group had good Knowledge, and more than two-thirds of the control group had fair Knowledge. As a point of agreement with the other study that was carried out in Iraq, the study also noticed good Knowledge of the symptoms and signs of breast cancer[48]; additionally, accept the Iranian study, which revealed that roughly two-thirds of the participants had great awareness of the warning signs and symptoms of breast cancer[49].Regarding early detection knowledge, over half of the case group and over two-thirds of the control group were in the fair knowledge category. Even though the subjects in our study were well aware of the methods of detecting breast cancer early, their self-breast examination still remains poor. The results of this study mirrored what had been observed in a study conducted in Basrah province. It was established that even though the women in Basrah had moderate Knowledge, only 38.3% and 11.3% of them had done examinations and radiography screening, respectively[35].

Table 7: knowledge classification of domains for both groups

Domains	Cases						Control					
	Poor		Fair		Good		Poor		Fair		Good	
	Freq.	Per.	Freq.	Per.	Freq.	Per.	Freq.	Per.	Freq.	Per.	Freq.	Per.
General Knowledge about BC	0	0.0	13	5.0	245	95.0	1	0.4	80	31.0	177	68.6
Knowledge about risk factors & causes	0	0.0	19	7.4	239	92.6	0	0.0	131	50.8	127	49.2
Knowledge about signs & symptoms	0	0.0	8	3.1	250	96.9	1	0.4	192	74.4	65	25.2
Knowledge about early detection	0	0.0	141	54.7	117	45.3	0	0.0	218	84.5	40	15.5

The total knowledge estimation for both groups is displayed in Table 8. As demonstrated, there is a statistically significant difference between the two groups' total Knowledge. The case group had good overall Knowledge (97.7%), whereas the control group had fair Knowledge (64.3%). The outcome is consistent with a prior study carried out in the Makkah Region, which found that medical students had good overall Knowledge and non-medical students had a fair knowledge of the study sample's overall Knowledge[50].Our results are much greater than those of an earlier study carried out in Iraq, which demonstrated Significant differences in the respondents' knowledge ratings between the two groups are displayed at a p-value < 0.01. Over 50% of participants in Group I have excellent

knowledge scores, and over 90% have at least a good score[51].Despite having adequate Knowledge of breast cancer, women did not practice breast self-examination to a great extent. This could be because they don't know how to do BSE correctly, they don't trust their abilities to do BSE, or they're hesitant, bashful, or afraid of finding cancer. In the same vein, mammography and clinical breast exams received poor ratings. Arab women tend to put off visiting a doctor unless they are really concerned about a sign or symptom, and they are ignorant of the fact that some diseases, like cancer, can be fatal even in the absence of obvious signs.

Table 8: Overall knowledge estimation for both groups

Overall knowledge assessment	Cases		Control		T. test	
	Freq.	Perc.	Freq.	Perc.	Value	Sig.
Fair	6	2.3	166	64.3	21.972	0.001
Good	252	97.7	92	35.7		
Poor	0	0.0	0	0.0		
Total	38	100.0	38	100.0		
Mean ± Std.	118.151 ± 9.020		97.569 ± 12.041			

Table 9 revealed that 43.8% of the case group and 36.8% of the control group did not receive information about breast cancer early detection from any source. The findings contradict the findings from the Iraq research, which said that 20.3% of respondents answered Never heard[52].Family and friends were cited by 40.7% of the control group and 24.8% of the case group as their primary source of Knowledge on early diagnosis of breast cancer. The outcome is comparable to that of the Saudi Arabian research, in which 28.6% of respondents indicated that their friends or family were their primary information sources[53].

Table 9: Source of information about breast cancer early detection for respondents from study groups

No.	Source of information about breast cancer early detection	Case		Control	
		Freq.	Perc.	Freq.	Perc.
1	Family and friends	64	24.8	105	40.7
2	Awareness campaign	1	0.4	1	0.4
3	Internet	50	19.4	45	17.4
4	PHC Center	14	5.4	9	3.5
5	Poster or folder	2	0.8	1	0.4
6	TV	14	5.4	2	0.8
7	Radio	0	0.0	0	0.0
8	I didn't get information from any source	113	43.8	95	36.8

The overall attitude estimate for each group is displayed in Table 10. 70.2% of the case group had a positive attitude, compared to 77.5% of the control group, who were neutral; this result was consistent with a study carried out in Nigeria, in which 67.9% of respondents had a positive attitude [54].Additionally, a study conducted in India found that 71.10% of participants had a favorable attitude toward breast cancer screening[55].This outcome was in line with a study done in Libya, where most participants had positive attitudes toward breast cancer[56].

Table10: Overall attitudes estimation for both groups

Overall knowledge assessment	Cases		Control		T. test	
	Freq.	Perc.	Freq.	Perc.	Value	Sig.
Positive	181	70.2	58	22.5	14.059	0.001
Neutral	77	29.8	200	77.5		
Negative	0	0.0	0	0.0		

Total	258	100.0	258	100.0		
Mean ± Std.	46.112 ± 5.192		40.050 ± 4.583			

Conclusions

Despite the study showing a good level of Knowledge among the case group and fair Knowledge among the control group, practicing breast self-examination was relatively low. The main causes of this are either fear of discovering tumors, women's lack of confidence in their ability to obtain any medical benefit from practice, or a lack of Knowledge of the precise technique to use. Also, the rate of clinical breast examinations and mammograms is very low. This may be attributed to the fact that, in our society, women would rather not visit a doctor if they are not in distress. Regarding Attitude about breast cancer early detection, the case group had a positive attitude, while the control group had a neutral attitude. Less than half of the people who learned about the early detection of breast cancer did not obtain information from any source, with the majority learning about it via friends, family, and the Internet.

RECOMMENDATIONS

Programs providing information about breast cancer must be implemented. It is essential to encourage positive change in women from every culture on appropriate screening, early detection, and treatment of breast cancer. More educational videos regarding breast cancer and early detection techniques need to be posted on social media to increase awareness throughout Iraqi culture.

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