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Breast Cancer Knowledge and Awareness Among Kurdish Women in Sulaymaniyah, Kurdistan Rejoin Iraq

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ABSTRACT

Background: Breast cancer has become a major public health concern and challenge. It is the most prevalent cancer globally and the leading cause of cancer-related deaths among women. This is particularly true in developing countries where women's breast cancer mortality rates are increasing rapidly. **Materials and Methods:** A cross-sectional study was conducted from February to July 2023, involving 301 female visitors to Ali Kamal Health Center in Sulaimani City. A simple random sampling method was used to select participants among the population. Inclusion criteria included females, willing to participate and visiting the center for other reasons other than breast cancer, while non-Kurdish-speaking females were excluded. **Results:** The mean age of the participants was 39.4 ± 10.7 years. More than half (59.8%) were aged between 30 and 50 years and 18.6% were older than 50 years. The majority 90.4% resided in urban areas and 66.1% were university graduates. In addition, 75.4% had a family history of breast cancer. Regarding breast cancer knowledge and awareness, 31.9% of participants had adequate knowledge, 21.9% had moderate knowledge, and 46.2% had inadequate knowledge. There was a statistically significant association between participant's knowledge and awareness and their age group, area of residence, and marital status. A highly significant association was observed between the participant's knowledge and awareness and the participant's education level and occupation. However, no significant association was found with having a family history of breast cancer ($P > 0.05$). **Conclusion:** The results of the study indicated that knowledge about breast cancer, including its causes, risk factors, and symptoms, was often inadequate. Consequently, it is imperative to support the development of community-based projects and programs that address these knowledge gaps in the general population. These initiatives should emphasize the importance of breast cancer prevention through various screening methods.

Index Terms: Breast Cancer, Knowledge, Awareness, Women

1. INTRODUCTION

Breast cancer is the most prevalent cancer worldwide and the leading cause of cancer-related deaths among women, making it a serious public health concern and challenge. This is particularly true in developing nations where the rate of breast cancer-related deaths among women is rapidly rising [1], [2]. This may be due to specific lifestyle choices and more prevalent reproductive factors in the developed world. Although rates are rising quickly in many developing countries, the difference may be exaggerated due to a lack of awareness, screening, and diagnosis in these countries [3].

According to the World Health Organization (WHO), approximately 627,000 women died from breast cancer in 2018, representing about %15 of all female cancer deaths [4]. In Iraq, breast cancer had the highest percentage

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and incidence rate among the top ten cancers in 2019, at 34.08% and 35.95/100,000, respectively. In Iraq, the highest percentage and incidence rate of the top ten cancers in 2019 was breast cancer (34.08% and 35.95/100,000, respectively). In addition, the highest mortality rate for breast cancer was approximately one-third [5].

Numerous risk factors can increase the likelihood of developing breast cancer, including long-term use of hormone replacement therapy, minimal to no breastfeeding, having fewer children or being nulliparous, family history, early menarche, being overweight or obese, physical inactivity, alcohol use, late menopause and late age at first birth [3].

The most typical symptom that women with breast cancer present is a breast lump. It could be a sign of serious breast cancer or a benign pathology, such as fat necrosis, fibroadenoma, or an acute or persistent breast abscess. Possible signs of breast cancer include skin changes, nipple discharge, and a palpable breast lump. The three modalities of triple assessment include physical examination, imaging (mammography and/or ultrasound), and biopsy (fine needle aspiration [FNA] cytology and core biopsy), as the name suggests. When combined, these modalities will produce more reliable outcomes for breast cancer screening and diagnosis than when used separately. Pathological examination of a biopsy such as (FNA, open excisional and core biopsy, stereotactic biopsy, ultrasound-guided core biopsy, and sentinel node biopsy), from a breast lump helps differentiate the types of cancer and determine the survival rate. Mammography is a valuable diagnostic tool that can identify early signs of the disease. Treatment and prognosis for breast cancer are influenced by comorbidities, tumor-node-metastasis staging, lymph vascular spread, histological grade, hormone receptor status, and menopausal status of the patient. Common treatments include surgical excision of the breast tissue, radiotherapy, hormone therapy, and chemotherapy [6].

To decrease the morbidity and mortality from breast cancer, it is essential to have sufficient knowledge and awareness of the clinical manifestations of the disease and to detect it early using mammography, clinical breast examination, or breast self-examination (BSE) [7], [8]. Unfortunately, just a few women utilize those procedures to evaluate their breasts [9], [10]. The BSE method is a cost-effective, non-invasive, simple, and accessible method for all women to help detect abnormal lumps or masses in their breasts early [9]. However, a significant number of women are not even aware of how to perform BSE [11], [12]. The aim of this study is to assess the level of knowledge and awareness regarding breast cancer among Kurdish women in Sulaymaniyah City.

2. MATERIALS AND METHODS

2.1. Study Design

A cross-sectional study was conducted from February to July 2023, among (301) females visiting Ali Kamal Health Center in Sulaimani City. A simple random sampling method was used. The inclusion criteria were females who were willing to participate and visit the center for reasons other than breast cancer. The exclusion criteria included non-Kurdish-speaking females.

2.2. Ethical Approval

The research was approved by the Ethical Committee at the College of the Medicine University of Sulaimani and informed consent was obtained from all study participants.

2.3. Data Collection

Data collection was performed using a structured questionnaire form through face-to-face interviews. The questionnaire form consisted of two main parts:

- Part I: Socio-demographic characteristics included the participants' age, area of residence, level of education, marital status, and family history of breast cancer.
- Part II: Knowledge and awareness among tested women using ten questions. Knowledge variables were evaluated through closed-ended questions, while awareness variables were assessed using multiple-choice questions. Topics included screening tests, signs and symptoms, risk factors, preventive methods, and sources of information about breast cancer. The frequencies of correct responses relative to the total number of responses for each question were calculated to determine the results. Percentiles were then used to categorize the overall knowledge levels: values below the 25th percentile indicated poor knowledge, values between the 25th and 75th percentiles indicated a fair level of knowledge, and values above the 75th percentile indicated a good level of knowledge.

2.4. Statistical Analysis

Statistical Package for Social Science (SPSS) version 22.0, was used as follows:

2.4.1. Descriptive data analysis

- Tables: (Frequencies and Percentages)
- Summary Statistics Tables: (Observed Frequencies; Percentages; Scoring scales with two categories [Yes and No]; recorded as integer values [1 and 0, respectively]).

2.4.2. Scoring and interpretation

Each question contained multiple correct options. One mark was awarded for each correct answer and zero for incorrect answers. Knowledge percentages were calculated using the formula:

Percentage = Obtained score/Total score×100. Based on the percentage, the samples were graded as follows: <50 below average, 50–75 average, and >75 above average.

2.5. Inferential Data Analysis

The Contingency Coefficients test was employed to estimate the association between variables and identify correlations. His analysis involved the Chi-square (χ^2) and Fisher's Exact Test statistics. In this context, TT represents the overall total of the contingency table, OiOi denotes the observed frequency for group ii, and EiEi indicates the expected frequency for group i.

3. RESULTS

The mean age of participants was 39.4 years with a standard deviation of 10.7 years. More than half (59.8%) of the participants were aged between 30 and 50 years, while 18.6% were older than 50 years. The majority (90.4%) resided in urban areas and (66.1%) were university graduates. Approximately 75.1% of the participants were employed in service occupations and (72.1%) were single. In addition, (75.4%) of the participants have a family history of breast cancer (Table 1).

It was shown that 68.8% of the female participants were aware of breast cancer, while 74.8% were unaware that the mouse mammary virus can cause breast cancer. More than half (56.1%) and nearly two-thirds (64.5%) of the participants knew that breast cancer can be detected at an early stage, and is curable. In addition, 53.2% reported being aware of screening tools. The percentage of participants who were aware about self-breast examination and mammography was (75.1% and 72.4%), respectively. The vast majority (93%) of the targeted population knew that the most common presenting sign is a painless lump, (76.7%) recognized changes in the breast shape and (68.1%) were aware of nipple discharge. Genetics was identified as the most common risk factor for breast cancer (56.5%) followed by obesity (48. 8%). Only (50.2%) of the respondents knew that breast cancer can be prevented through regular exercise and weight control. The most common source of information for the participants' knowledge was a physician (55.8%) with social media being the second most common source (37.9%) (Table 2).

The results presented in Table 3 indicated that 31.9% of participants had adequate knowledge and awareness regarding breast cancer, 21.9% had moderate knowledge, and 46.2% had inadequate knowledge.

The results of the present study revealed a statistically significant association between participant's knowledge and awareness with their age groups, area of residence, and marital

TABLE 1: Distribution of women with respect to breast cancer based on socio-demographic characteristics

Socio-demographic characteristics	Categories	Frequency (F)	Percentage
Age groups	<30 years	65	21.6
	30–50 years	180	59.8
	>50 years	56	18.6
Mean±SD			
39.4±10.7			
Area of residence	Urban	272	90.4
	Rural	29	9.6
Education level	Illiterate	7	2.3
	Primary	43	4.3
	Secondary	33	11
	Institute	49	16.3
	College and above	199	66.1
Occupation	Housewife	46	15.3
	Employee	226	75.1
	Student	29	9.6
Marital status	Married	72	23.9
	Single	217	72.1
	Divorced	12	4
Family history of breast cancer	Yes	74	24.6
	No	227	75.4
Total		301	100

TABLE 2: Distribution of knowledge and awareness of women regarding breast cancer

Women's knowledge and awareness	N=301			
	Yes		No	
	(F)	(%)	(F)	(%)
1. Do you know about breast cancer?	207	68.8	94	31.2
2. Do you know that Mouse mammary tumor virus can cause breast cancer?	76	25.2	225	74.8
3. Do you think early detection of breast cancer is possible?	169	56.1	132	43.9
4. Do you know breast cancer is curable?	194	64.5	107	35.5
5. Do you have any knowledge on screening tests of breast cancer?	160	53.2	141	46.8
6. Do you know the names of screening tests used for breast cancer?				
Mammography	218	72.4	83	27.6
Self-breast examination	226	75.1	75	24.9
Breast ultrasound	159	52.8	142	47.2
Biopsy	69	22.9	232	77.1
Breast MRI	66	21.9	235	78.1
7. Which signs and symptoms of breast cancer are you aware of?				
Painless lump	280	93	21	7
Change in breast shape	231	76.7	70	23.3
Nipple discharge	205	68.1	96	31.9
Lump under armpit	62	20.6	239	79.4
Pulling in/inversion of the nipple	80	26.6	221	73.4
Pain in the breast region	116	38.5	185	61.5
Discoloration of the skin	128	42.5	173	57.5
Other signs and symptoms	12	4	289	96
8. Do you know about the risk factors of breast cancer?				
Menopause	68	22.6	233	77.4
Genetic	170	56.5	131	43.5
Alcohol consumption	21	7	280	93
Not breastfeeding	95	31.6	206	68.4
Obesity	147	48.8	154	51.2
Radiation	73	24.3	228	75.7
Use of pills	50	16.6	251	83.4
Smoking	42	14	259	86
Do not know	25	8.3	276	91.7
9. How breast cancer can be prevented?				
Medicine	64	21.3	23.7	78.8
Limited use of pills and hormones	47	15.6	254	84.4
Vaccination	9	3	292	97
Regular check-ups and screening Practicing breastfeeding	94	31.2	207	68.8
Practicing breastfeeding	147	48.8	154	51.2
Regular exercise and weight control	151	50.2	150	49.8
10. Where did you find out about breast cancer?				
Family members	51	16.9	250	83.1
Relative	100	33.2	201	66.8
Friends	46	15.3	255	84.7
Neighbor	22	7.3	279	92.7
Doctor	168	55.8	133	44.2
Newspaper	18	6	283	94
Television	83	27.6	218	72.4
Social media	114	37.9	187	62.1
Infected person	91	30.2	210	69.8
Books	47	15.6	254	84.4
Others	12	4	289	96

status. In addition, there was a highly significant association between education level and occupation. However, no statistically significant association was found with having a family history of breast cancer ($P > 0.05$).

4. DISCUSSION

The present study was carried out among Kurdish women to assess the level of knowledge and awareness regarding

breast cancer, as breast cancer is the most prevalent cancer among women.

Results of the present study show more than half of the participants were between (30 and 50) years old and (18.6%) were older than 50 years. The majority of the participants in this study (90.4%) were living in urban areas. Regarding educational level (66.1%) of them were university graduates and (2.3%) were illiterate. As expected nearly (75.1%) were employees and (9.6%) were students. Moreover, three-fourths (75.4%) have a family history of breast cancer. These findings are consistent with the study conducted by Halmata *et al.*, [13] which showed that (47.1%) of the participant aged between 35 and 50 years old. On the other hand, a study by Osei-Afriyie *et al.* [14] revealed that more than half of their participants (55.8%) were between 20 and 24 years old, while only a few (1.3%) were 30 years and above; they reported that (16.4%) were currently married and the majority (83.1%) were single. Moreover, a study by Ahmed *et al.* in Bangladesh shows that the majority of the women who participated were unmarried (92.4%). More than half (6 1.2%) of the participants came from an urban area and (96%) had no personal history of a breast problem. This may be due to that Bangladesh has made major progress toward

TABLE 3: Overall knowledge and awareness of women regarding breast cancer

Overall knowledge and awareness	N=301	
	Frequency (F)	Percentage
Adequate knowledge and awareness	96	31.9
Moderately knowledge and awareness	66	21.9
Inadequate KNOWLEDGE AND AWARENESS	139	46.2

TABLE 4: Association between socio-demographic characteristics and overall, knowledge and awareness of women regarding breast cancer

Variables	N=301							
	Adequate knowledge and awareness		Moderately knowledge and awareness		Inadequate knowledge and awareness		Total	
	F	%	F	%	F	%	F	%
Age groups								
<30 years	27	41.5	15	23.1	23	35.4	65	21.6
30–50 years	80	44.4	33	18.3	67	37.2	180	59.8
>50 years	32	57.1	18	32.1	6	10.7	56	18.6
P=0.002 Significant FET=17.223								
Area of residence								
Urban	125	4	54	19.8	93	34.2	272	90.4
Rural	14	48.3	12	41.4	3	10.3	29	9.6
P=0.005 Significant FET=10.318								
Education level								
Illiterate	6	85.7	1	14.3	0	0	7	2.3
Primary	2	15.4	0	0	11	84.6	13	4.3
Secondary	13	39.4	12	36.4	8	24.2	33	11
Institute	30	61.2	16	32.7	3	6.1	49	16.3
College and above	88	44.2	37	18.6	74	37.2	199	66.1
P=0.000 Highly Significant χ^2=43.808								
Occupation								
Housewife	19	41.3	21	45.7	6	13	46	15.3
Employee	112	49.6	36	15.9	78	34.5	226	75.1
Student	8	27.6	9	31	12	41.4	9.6	9.6
P=0.000 Highly Significant FET=24.951								
Marital status								
Married	29	40.3	18	25	25	34.7	72	23.9
Single	110	50.7	45	20.7	62	28.6	217	72.1
Divorced	0	0	3	25	9	75	12	4
P=0.004 Significant FET=16.591								
Family history of breast cancer								
Yes	32	43.2	12	16.2	30	40.5	74	24.6
No	107	47.1	54	23.8	66	29.1	227	75.4
P=0.147 Not Significant FET=3.831								

FET=Fisher-exact-test, χ^2=Chi-square

achieving the Millennium Development Goals regarding health. Since the 1990s, the health systems have increasingly changed their attention equally toward preventative care and health promotion due to advancements in modern science and technology, as well as the increased involvement of non-governmental organizations and United Nations agencies [15].

The findings of this study were consistent with those of a previous study conducted by Al-Mousa *et al.* [16], which also examined women's knowledge and awareness of breast cancer. The study findings were similar to the previous study conducted by Al-Mousa *et al.* [16] in Jordan who confirmed that approximately (76.0%) of participants were aware that breast cancer is the most common cancer among women. In addition, almost all (95.0%) of participants were aware that breast cancer is curable if detected at an early stage and that early detection improves the chance of survival. The rise in public understanding and awareness of breast cancer following the establishment of the Jordan Breast Cancer Program in 2007 and the Stay in My Life, Get Screened, and Do Not Wait for the Signs campaigns may be responsible for this.

Furthermore, a study by Al-Mousa *et al.* [16] reported that the knowledge was generally good regarding the symptoms of breast cancer, including swollen axillary glands, bloody discharge from the nipple painless breast lump, and nipple changes (inversion/retraction). Due to the fact that early-stage of breast cancer is frequently more curable, early detection significantly improves survival rates, considering this crucial.

Moreover, Younis *et al.* [17] reported that 90% of the participants knew that a lump is a sign of breast cancer. About the risk factors (78%) identified genetics as a risk factor while advanced age was (67%). Osei-Afriyie *et al.* [14] noted that the most frequently indexed risk factors for breast cancer were having a family history of breast cancer, genetics, female sex, and individual lifestyle. Meanwhile, the least known risk factors were null parity followed by early menopause and obesity. In addition, more than a third of their participants identified putting money in the brassiere was implicated as a possible risk factor for breast cancer.

Reports from previous studies by (Ahmed *et al.*, Rahman *et al.*, and Halmata *et al.*, Younis *et al.*,) confirmed that the source of information were varied, which includes social media (74.7%), such as Facebook, Twitter, and Instagram, Radio/Television at (64%), family physicians (30%), health professionals (26.1%) family member (23.6%) and friends (18.8%). These findings are quite relevant today. They suggest that campaigns on social media can be effective in increasing awareness about breast cancer. Traditional media still holds a strong influence, followed by healthcare providers, who are reliable sources of information. This highlights the need for healthcare providers to be knowledgeable and proactive in educating their patients about breast cancer. Finally, family and community-based interventions can also play a useful role in raising awareness.

Similarly, Segni *et al.* [18] conducted a study to evaluate knowledge, attitude, and practice of BSE among 368 students on a regular basis among female health science students of Adama Science and Technology University in Ethiopia. They showed that only (8.7%) of them possessed reasonable knowledge while the rest (91%) possessed satisfactory to below-average knowledge of breast cancer. In addition, Ahmed *et al.* [19] conducted a study in Saudi Arabia that attempted to determine breast cancer awareness levels. Their results demonstrated that the knowledge of breast cancer to be (21.6%), (40%), (33.4%) and (5%) were standard, substandard, average, and below average, respectively. In addition, the level of awareness of Breast cancer among Saudi Medical Students was very low. Moreover, a study by Al-Mousa *et al.* [16] among Jordanian women depicts that more than one-half (53.7%) of the study sample have an intermediate level of knowledge and only a few (9.2%) of them were rated as having a good to excellent knowledge level regarding breast cancer risk factors. Furthermore, Younis *et al.* [17] in the United Arab Emirates stated that the percentage of their participants who had knowledge and awareness were poor (13%), moderate (77%), and good (10%). This suggests that adequate information or education about breast cancer may not be reaching particular groups of people. Therefore, it is important to focus on raising the proportion of people with inadequate knowledge and converting moderate awareness into good awareness.

Concerning the association between socio-demographic characteristics and overall knowledge and awareness. These findings were agreed with a previous study done by Al-Mousa *et al.* [16] in Jordan, who reported a significant positive relationship between the levels of education and the three study variables, knowledge about breast cancer risk factors, signs and symptoms, and awareness of breast cancer early detection and curability. Whereas, a study done by Younis *et al.* [17] revealed that there was no significant difference in the level of knowledge between the different age groups, marital status, level of knowledge between nulliparous, uniparous, and multiparous women, while they

noted a weak positive correlation ($P = 0.02$) between the total knowledge and educational level of the participants.

4.1. Limitation of the Study

The main limitation of this study is that it only used a convenience sample from one health center, which restricts how broadly the findings can be applied to all Kurdish women. To get over this restriction, a multicenter investigation is highly recommended. Moreover, since there was no international standardized questionnaire to assess knowledge and awareness of breast cancer, we developed our questionnaire using data from earlier research.

4.2. Recommendation

We believe that extensive educational programs should be established to raise awareness of breast cancer and educate women on how to avoid it, detect it early, and screen for it using mammography and clinical breast exams. In addition, in their own position, health professionals should also make an effort to raise awareness about breast cancer.

5. CONCLUSION

According to the study's findings, there was a generally inadequate level of knowledge of breast cancer, including its causes, risk factors, and symptoms. Thus, it's critical to support the development of community-based initiatives and programs that address awareness gaps in the general public and highlight the importance of breast cancer prevention through various screening techniques. This might be accomplished by putting up stands manned by healthcare professionals who are knowledgeable about the subject and by handing out brochures about breast cancer in public areas. Media advertisements would also be effective means of spreading information to make sure women are equipped with the knowledge they need to choose preventative and risk management measures.

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7. CONFLICTS OF INTERESTS

The author affirms that they have no conflicts of interest.

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