




Assessing breast self-examination knowledge and practices among women in Iraq: A cross-sectional study

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Abstract

Background and Aims: The present study aims to shed light on the knowledge, attitude, and practice of breast self-examination with breast cancer (BC) among female patients in the oncology department of Baghdad Medical City.

Methods: This cross-sectional study involved 100 female participants at the Oncology Teaching Hospital in Baghdad Medical City between June 15 and October 15, 2022. Using convenient sampling, the study targeted females aged 30–75, recently or previously diagnosed with BC, admitted for treatment and follow-ups.

Results: Regarding the assessment of knowledge, among the surveyed patients, 71 are aware of breast self-examination (BSE), primarily through social media (42 patients). The study also explores the link between BSE and education levels. While Pearson's chi-square shows no significance (0.107), the likelihood ratio suggests a significant association (0.041). Regarding the analysis of attitudes, the study assessment for the reasons for compliance showed that 19 patients cite medical reasons, and 48 patients attribute noncompliance to a lack of knowledge of how to perform BSE. Regarding the examination of practice, high statistical significance is evident in both Pearson's chi-square (0.000) and likelihood ratio (0.000) tests, emphasizing the substantial relationship between the post-diagnosis initiation timing of BSE and its correct execution. Additionally, a statistically significant association exists between performing BSE correctly and discovering BC ($p = 0.000$).

Conclusion: Regarding the assessment of knowledge, our study found high awareness of BSE within the population, primarily through social media and health organizations. Regarding the analysis of attitudes, a notable proportion refrained from practicing BSE, primarily due to a perceived lack of knowledge about the methods. Regarding the examination of practice, the observed significant associations between performing BSE correctly, discovering BC, and the frequency of examinations underscore the pivotal role of consistent and accurate BSE in early detection.

KEYWORDS

breast cancer; breast self-examination; BSE, BC; cross-sectional study; knowledge

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1 | INTRODUCTION

Breast cancer (BC) is the most commonly diagnosed cancer among women globally.¹ In 2020, there were an estimated 2.3 million cases of BC and 685,000 deaths. In terms of cancer-related deaths, this would surpass lung cancer and make it the most commonly diagnosed disease globally.²

In Iraq, BC has been the leading type of cancer for the last 30 years, with 7515 cases reported in 2020, accounting for about 37.9% of newly confirmed female cancer cases in the country.³ There were 102.5 new cases of BC per 100,000 women in Iraq during the past 5 years, with a mortality rate of 23.3 per 100,000 women, according to data from the World Health Organization's Eastern Mediterranean Region.^{4,5} Therefore, in terms of total mortality in the Iraqi health system, BC is second only to cardiovascular illnesses.⁶

Established in 2001, the Iraqi National Cancer Research Program has as one of its primary goals the education of the general public regarding BC risk factors, symptoms, warning signs, and screening options to facilitate early detection and down-staging of the disease in Iraq.⁷ Since then, the major hospitals in all Iraqi provinces have established specialized centers and clinics for the early detection of breast tumors.⁸

Determining what causes BC is a crucial first step in developing effective preventative plans. Certain factors must be considered which include being older, having a high body mass index (BMI) or obesity, smoking, not being physically active, eating a high-fat diet, having menstruation at a younger age, breastfeeding for shorter periods of time, using oral contraceptives or hormonal menopause, and having a family history of BC.⁹⁻¹¹

The four primary techniques for detecting BC early on include mammography, clinical breast examination (CBE), breast self-examination (BSE), and physical examinations by trained medical professionals. Women use BSE as a cancer screening since it is easy, pain-free, harmless, and does not cost anything. It involves carrying out a thorough checkup of the breasts and surrounding regions once a month, looking for changes in shape or tumors. Owing to its comprehensive sensing and checking of the breast, this approach is an essential tool for early detection, especially in younger females with no risk factors.¹²⁻¹⁵ Previous studies from Iraq revealed a considerable lack of knowledge, attitude, and practice towards BC and risk factors have been illustrated even among the educated sample of the Iraqi population.^{16,17}

The present study aims to shed light on the knowledge, attitude, and practice of BSE among female patients in the oncology department of Baghdad Medical City.

2 | SUBJECTS AND METHODS

2.1 | Study designs and population

The study was a cross-sectional study that was conducted on 100 female participants attending the oncology teaching hospital in Baghdad Medical City during the period from June 15 to October 15, 2022. The sampling

procedure is convenient sampling. The study population consisted of female patients aged 30–75 who had been recently or previously diagnosed with BC and were admitted during the study period to the oncology department for treatment and follow-up regularly.

The oncology teaching hospital is located within Baghdad Medical City, which serves as the main medical center for Baghdad. Although the majority of patients are from Baghdad, individuals from all regions of Iraq, irrespective of their socioeconomic condition or educational level, occasionally come to this facility for medical care. Additionally, healthcare facilities across Iraq sometimes refer patients to Baghdad Medical City for specialized care.

2.1.1 | Inclusion criteria

Females diagnosed with BC.

Aged between 30 and 75 years.

Currently or previously admitted to the oncology department for treatment and regular follow-up.

2.1.2 | Exclusion criteria

Individuals who were unconscious.

Those with psychotic disorders.

Patients with mental challenges.

2.2 | Data collection

The data collection process was conducted by three researchers through direct interviews with participants. Special attention was given to ensuring optimal conditions for patients, considering factors such as pain, drowsiness, mood, room environment, and time availability. The average time spent collecting data from each patient was 8 min.

Participants' responses were meticulously documented on paper by the researchers themselves. The questionnaire employed in the interview was structured into three parts to systematically gather relevant information:

2.2.1 | General information

Participants' demographic details, including name, age, occupation, residence, marital status, and educational level, were collected to establish a comprehensive baseline.

2.2.2 | BSE knowledge and practices

The first part focused on evaluating participants' awareness of BSE and their sources of information. This section aims to understand the depth of knowledge regarding BSE.

The second part focused on participants' BSE practices, exploring whether they performed the examination, their motivations for doing so, the age at which they initiated the practice, and the frequency of BSE per year. Additionally, participants were asked about the correctness of their BSE technique.

2.3 | Ethical approval

The hospital administrator provided informed consent. This observational study requires no intervention and only collects clinical data in questionnaire items that have been translated into Arabic to fit the nature of the study. Before asking for verbal consent, participants were given a thorough explanation of the study's goals, methods, and value. Human subject names and identification codes will be saved on a separate spreadsheet that will be password-protected and accessible only to investigators. During the data analysis process, identification codes will be used instead of names and personal information.

2.4 | Statistical analysis

The data were analyzed using the computer software Statistical Package for Social Science (SPSS) version 25. A p value of <0.05 is considered to be statistically significant. Continuous variables are presented as mean \pm standard deviation (SD), while nominal and ordinal variables are presented as categories. We used the Pearson's chi-square test to analyze the relationships between variables.

3 | RESULTS

The study group is predominantly composed of individuals aged 48–53, with 26 members, suggesting a focus on this age range. Housewives constitute the largest occupational group (73 individuals), and the majority of participants are married (90 individuals), providing key insights into demographic characteristics.

In terms of education, a majority have at least completed high school, with the "middle school" and "high school" categories having the highest numbers. Notably, a substantial portion of the group resides in Baghdad (82%).

BMI analysis reveals that overweight (28 individuals) and obese class 1 (29 individuals) are the most prevalent categories, indicating potential health considerations in the study (Table 1).

Out of the surveyed patients, 71 are aware of BSE, while 29 lack awareness. Knowledge about BSE is predominantly acquired through social media (42 patients), highlighting the influence of digital platforms. Regarding BSE practices, 20 patients perform it regularly, 11 do it irregularly, and 69 do not engage in BSE.

Among the reasons for compliance, 19 patients cite medical reasons, and 48 patients attribute noncompliance to a lack of knowledge of how to perform BSE. Additionally, 23 patients begin practicing BSE after the age of 40.

TABLE 1 Socio-demographic data of the sample.

Variable	N (total = 100)
Age groups	
30–35	6
36–41	6
42–47	18
48–53	26
54–59	13
60–65	19
66–71	10
72–77	2
Occupation	
Doctor	1
Employed	12
Housewife	73
Nurse	2
Retired	2
Teacher	10
Marital status	
Single	8
Married	90
Other	2
Education level	
Illiterate	15
Primary school	23
Middle school	24
High school	28
College	8
Postgraduate	2
Residence	
Baghdad	82
Other Provinces	18
BMI of study group	
Normal weight	17
Overweight	28
Obese class 1	29
Obese class 2	17
Obese class 3	9

Abbreviation: BMI, body mass index.

In terms of the frequency of correct BSE performances, 22 patients adhered to the correct procedure. The time intervals for BSE are variable (Table 2).

The presented statistical analysis assesses the relationship between the practice of self-examination for breast health and the

TABLE 2 Survey questions: investigating breast self-examination (BSE) knowledge and practices.

Questions	N (total = 100)	% of total 100
How many patients are aware of BSE?		
Yes	71	71
No	29	29
How do BC patients acquire knowledge about BSE?		
Health organizations	21	21
Relatives	8	8
Social media	42	42
Do patients perform breast BSE?		
Yes	20	20
Yes, but not regularly	11	11
No	69	69
The causes of compliance with BSE?		
Medical reasons	19	19
Part of routine medical examination	7	7
Motivated by family history	4	4
Advice from friends or family	1	1
The causes of noncompliance with BSE?		
Lack of knowledge of how to do it	48	48
Belief that it is not important	1	1
Absence of noticeable symptoms	11	11
Busy schedules	3	3
Fear of finding lumps	6	6
At what age interval do patients begin BSE?		
15–20	1	1
21–30	2	2
31–40	5	5
>40	23	23
When do individuals start practicing BSE?		
Before discovering BC	9	9
After discovering BC	18	18
Both before and after	4	4
How often do patients correctly perform BSE?		
Doing it the correct way	22	22
Not doing it correctly	9	9
At what time interval do individuals perform BSE?		
Every week	9	9
Every month	8	8

TABLE 2 (Continued)

Questions	N (total = 100)	% of total 100
Every 3 months	8	8
Every 6 months	3	3
I do not know	3	3
Did patients discover BC through BSE?		
Yes	21	21
No	10	10

Abbreviation: BC, breast cancer.

education level of the participants. The Pearson's chi-square test (0.107) suggests no significant relationship (Table 3).

The statistical significance is remarkably high, as indicated by the Pearson's chi-square test (0.000). This underscores a substantial and meaningful relationship between the timing of initiating BSE after BC and the correct execution of the examination (Table 4).

There is a statistically significant association between performing BSE in the correct way and discovering BC, with a highly significant p value of 0.000 as indicated by the Pearson's chi-square test ($p = 0.000$) (Table 5).

There is a statistically significant association between the discovery of BC through self-examination and the frequency of conducting the exam throughout the year, with a p value of 0.003 (Table 6).

The relation between discovering BC and the age of starting self-examination is statistically significant, as indicated by the Pearson's chi-square (0.000) test (Table 7).

4 | DISCUSSION

Since BC is difficult to prevent, it becomes increasingly important to find ways to detect it at an early stage, as that has been shown to improve patient mortality.¹⁸ One of the easiest and safest methods to identify any breast abnormality is BSE making it essential for all females to be aware of it and to practice it regularly.^{19,20}

Numerous studies highlight that, despite women's awareness of BSE, factors such as low health consciousness, forgetfulness, fear of a cancer diagnosis, and insufficient information contribute to irregular or non-existent implementation. In line with existing literature, a quarter of the participants acknowledged practicing BSE, yet only 31% reported doing so consistently. Lack of knowledge of the proper technique emerged as a significant barrier to regular practice. The observed rate of BSE falls below the optimal level, indicating underutilization of this accessible, cost-free, and noninvasive method, which could complement other early BC screening approaches.^{21–23}

Although early screening and diagnosis is not a reliable prevention method and the early detection cure rate is relatively

TABLE 3 Exploring the association between BSE and education levels.

Education level doing the self-examination	Do you perform it in a correct way?			Total
	Yes	No	Yes, but not regularly	
Illiterate	1	14	0	15
Primary school	4	17	2	23
Middle school	7	13	4	24
High school	8	16	4	28
Collage	0	8	0	8
Postgraduate	0	1	1	2
	Value	df	Asymptomatic significance (two-sided)	
Pearson's chi-square	15.753 ^a	10	0.107	
Likelihood ratio	18.939	10	0.041	
No. of valid cases	100			

Note: Superscript letter "a" indicate the statistical tests used.
Abbreviation: BSE, breast self-examination.

TABLE 4 Examining the correlation between initiation timing of BSE and correct execution.

When do you start doing BSE?	Do you perform it in a correct way?			
	Yes	No	Total	
Before discover BC	8	1	9	
After discover BC	11	7	18	
Before and after BC	3	1	4	
Total	22	9	31	
	Value	df	Asymptomatic significance (two-sided)	
Pearson's chi-square	107.365	6	0.000	
Likelihood ratio	126.337	6	0.000	
No. of valid cases	100			

Abbreviations: BC, breast cancer; BSE, breast self-examination.

high, it is important for the population to know that early detection is possible and how to do it.²⁴⁻²⁶

The high awareness rate of BSE observed in nearly three-quarters of our subjects signifies a good level of knowledge within the studied population. However, it is notable that despite this awareness, a substantial proportion—69 patients—did not engage in the practice. Moreover, only 31% of those aware of BSE were actively incorporating it into their routine. However, this finding is higher than what has been reported in Saudi Arabia.²⁷ This might be due to the difference in the timing of the two studies, given that the study in Saudi Arabia was conducted in 2006.

In our study, primary sources for BSE information were identified as social media and general health organizations, with relatives being the least reported sources. This differs from the findings of Jolae

TABLE 5 Investigating the association between accurate BSE and BC discovery.

Do you perform it in a correct way?	Do you discover BC by self-examination?			
	Yes	No	Total	
Yes	9	2	11	
No	0	2	2	
Total	9	4	13	
	Value	df	Asymptomatic significance (two-sided)	
Pearson's chi-square	48.456 ^a	4	0.000	
Likelihood ratio	42.861	4	0.000	
No. of valid cases	100			

Note: Superscript letter "a" indicate the statistical tests used.
Abbreviations: BC, breast cancer; BSE, breast self-examination.

TABLE 6 Examining the association between the frequency of BSE and BC discovery.

How many times do you do BSE?	Did you discover BC by BSE?			
	Yes	No	Total	
Every week	1	1	2	
Every month	4	0	4	
Every 3 months	3	2	5	
Every 6 months	0	0	0	
I do not know	1	1	2	
Total	9	4	13	
	Value	df	Asymptomatic significance (two-sided)	
Pearson's chi-square	9.113 ^a	8	0.003	
Likelihood ratio	10.909	8	0.207	
No. of valid cases	31			

Note: Superscript letter "a" indicate the statistical tests used.
Abbreviations: BC, breast cancer; BSE, breast self-examination.

et al.,²⁸ where physicians were the predominant information sources and the media ranked lowest. In another study by Fallah et al.,²⁹ information was mainly sourced from radio, television, books, newspapers, and friends. The variations in information resources across studies may stem from the diverse communities where participants reside, underscoring the potential impact of regional cultures on information-seeking behaviors.

Among the 69 patients who refrained from performing BSE, 48 stated a lack of knowledge about the methods as the primary reason. Another 11 patients reported not engaging in BSE due to the absence of symptoms, while 3 mentioned busy schedules and 6 mentioned fears of discovering a lump as their reason. This pattern aligns with previous reports, revealing that 42.6% of females familiar with BSE

TABLE 7 Examining the link between initiation age of self-examination and BC discovery.

At which age started to do BSE?	Did you discover BS by BSE?		
	Yes	No	Total
15–20	1	0	1
21–30	2	0	2
31–40	1	0	1
>40	5	4	9
Total	9	4	13

	Value	df	Asymptomatic significance (two-sided)
Pearson's chi-square	57.808 ^a	8	0.000
Likelihood ratio	45.167	8	0.000
No. of valid cases	100		

Note: Superscript letter "a" indicate the statistical tests used.

Abbreviations: BC, breast cancer; BSE, breast self-examination.

had never practiced the technique. The reasons behind non-practice included a lack of confidence in their own examination (27%), fear of detecting a lump in the breast (25%), or not having received proper instruction on BSE (20%). These findings underscore common barriers to BSE adherence, emphasizing the need for targeted education and support.^{30,31}

The motivation behind performing BSE varied among participants in our study, with 19 patients citing medical reasons, 7 integrating it into their routine medical examinations, and 4 expressing motivation from family history. This differs from a study in Amman, which highlighted the significant influence of family history on BC awareness.³²

In our study, a notable two thirds of females engaged in regular BSE, while one third practiced it irregularly. This contrasts with another study reporting that one third of women never practiced BSE, 50.3% did so rarely, and only 18.0% performed it regularly. Our findings indicate a higher rate of regular BSE compared to the study in Iraq but a lower rate compared to findings from the United Arab Emirates. It underscores the significance of consistent and conscientious BSE practices, emphasizing that early detection through regular examination plays a crucial role in the potential cure of BC.^{33–35}

Thirteen percent of patients with BC in our study were practicing BSE before the diagnosis, and notably, 11 of them discovered BC through this method, executing it correctly. This contrasts with a study in the United States where the majority (56%) of BCs were discovered through screening CBEs or evaluations of patient-noted abnormalities. Our findings highlight the importance of self-examination as a proactive approach to early detection, contributing significantly to the diagnosis of BC in our study population.^{36,37}

The observed statistically significant association between performing BSE correctly and the discovery of BC underscores the crucial role of this practice in early detection. Individuals who adhere

to proper BSE techniques are more likely to identify abnormalities or symptoms indicative of BC. This association reinforces the importance of promoting and educating individuals on the correct methods of BSE as an accessible and proactive approach to early detection.

The observed statistically significant association between discovering BC through self-examination and the frequency of examinations throughout the year underscores the importance of regularity in BSE practices. This suggests that individuals who engage in more frequent self-exams are more likely to detect potential abnormalities or signs of BC. The finding emphasizes the vital role of consistent and routine self-examination in early detection, contributing to improved outcomes and timely medical intervention for individuals at risk of or affected by BC.

The observed statistical significance of the relationship between discovering BC and the age at which individuals initiate self-examination indicates that the timing of initiating self-examination is a relevant factor in the context of BC detection. This finding suggests that individuals who commence self-examination at a specific age may be more likely to identify BC at an early stage.^{37–40}

The findings of the present study indicated no significant difference between the education level and knowledge of BSE.

BSE must be performed correctly and effectively to help with the early detection of BC. In many findings, the practice of BSE was determined by the awareness of women or their knowledge of the diagnostic methods of BC.^{25,26,41,42}

5 | LIMITATIONS OF THE STUDY

The present study has several limitations that deserve to be mentioned. First, the relatively small number of included participants. Second, our results are based on self-reports from patients and do not assess the accuracy of this report. Third, while the study's reliance on convenient sampling and its focus on female BC patients in a single hospital may introduce selection bias, potentially constraining the applicability of its findings to the wider population of Iraqi women, the hospital's status as a referral center provides a more diverse sample compared to a non-referral center. Additionally, individuals from all regions of Iraq, irrespective of their socio-economic condition or educational level, occasionally come to this facility for medical care. However, it is essential to acknowledge that, despite this advantage, the study's findings should still be interpreted cautiously, recognizing the potential limitations imposed by the sampling approach.

6 | CONCLUSION

Regarding the assessment of knowledge, our study found high awareness of BSE within the population, primarily through social media and health organizations. Regarding the analysis of attitudes, despite this awareness, a notable proportion refrained from practicing BSE, primarily due to a perceived lack of knowledge about the

methods. Regarding the examination of practice, the observed significant associations between performing BSE correctly, discovering BC, and the frequency of examinations underscore the pivotal role of consistent and accurate BSE in early detection.

7 | RECOMMENDATIONS

We propose community engagement strategies involving healthcare professionals, community leaders, and influencers to disseminate accurate information about BSE, thereby dispelling misconceptions and fostering a culture of proactive breast health. Encouraging routine medical check-ups, including CBEs, is also recommended to complement self-examination and ensure comprehensive breast health monitoring.

By implementing these recommendations, we aim to bridge the gap between awareness and practice, fostering a proactive approach to breast health and contributing to the early detection and prevention of BC within the studied population.

AUTHOR CONTRIBUTIONS

Mustafa Najah Al-Obaidi: Conceptualization; visualization; resources. **Ahmed Dheyaa Al-Obaidi:** Resources; supervision; formal analysis; funding acquisition. **Hashim Talib Hashim:** Investigation; visualization; project administration. **Ahmed Sermed Al Sakini:** Software; validation; funding acquisition. **Abdulqader Majed Abd:** Data curation; resources; project administration; visualization; funding acquisition; writing—original draft; methodology. **Rusul Husham Rashed:** Investigation; writing—original draft; writing—review and editing; supervision. **Rania Omar Saeed:** Writing—original draft; writing—review and editing; visualization; validation; methodology; software; formal analysis. **Mina Al Saeedi:** writing—review and editing; writing—original draft; supervision. **Ammar Al-Obaidi:** Writing—original draft; methodology; formal analysis. **Ali Talib Hashim:** Conceptualization; supervision; formal analysis; writing—review and editing.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

Data will be available on reasonable request to the corresponding author.

ETHICS STATEMENT

Informed consent was obtained from the patients to share their data for scientific purposes.

TRANSPARENCY STATEMENT

The lead author Ali Talib Hashim affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted;

and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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