

Research Paper



# Assessment of breast cancer knowledge among iraqi female university students

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## ABSTRACT

The most common type of cancer is breast cancer, which is characterized by the unchecked proliferation of breast cells. Breast cancer can take many different forms, depending on which breast cells become malignant. It is believed to be the leading cause of cancer-related mortality for women in Iraq, regardless of their age or ethnicity. Objective: to determine how well-informed female university students are about the signs, causes, and screening methods of breast cancer in relation to their sociodemographic characteristics and attitude toward the disease. Methods: A cross-sectional descriptive study was carried out on female students attending various universities in Iraq between December 2, 2021, and February 17, 2022. It was accomplished by distributing a validated pretested Arabic questionnaire. For the sake of secrecy and to encourage their candid responses, participants were asked to respond to 11 questions about their understanding of breast cancer and their opinions of its management and treatment results. No other personal information was asked. Results: female students 684 from a range of age groups (18–40) from various universities in Iraq responded to the questionnaire; nonetheless, the mean age of the respondents was 21 (about 22.6%). A 68.7% of participants understood lump or thickness in the breast may be a sign of breast cancer, according to 60.2% of respondents, though that breast bleeding or discharge may be breast cancer sign. Most of the participants are well-informed on the risk factors associated with breast cancer. 74.9% of respondents said they understood the basics of breast cancer screening procedures, Incorporating the clinical breast examination (CBE) and breast self-examination (BSE) as early detection techniques. The effectiveness of breast cancer treatments was likewise viewed favorably by the students. Conclusion: Each participant showed a sufficient level of understanding on the symptoms, risk factors and techniques for breast cancer screening. Nevertheless, it is critical to encourage self-screening public education and advise health authorities on how to set up efficient breast healthcare programs that cater to Iraq's whole female population.

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## 1. INTRODUCTION

A malignant tumor that arises from breast cells is called breast cancer. A malignant tumor can invade adjacent tissues, spread to other areas of the body, or do both [1]. Because of its hallmark the unregulated proliferation of abnormal cells in the breast glands that generate milk or in the tubes (ducts) that feed milk to the nipples it is the most prevalent malignancy and the primary cause of cancer-related mortality in women [2].

### Epidemiology of Breast Cancer

Age and gender are the two factors that have the most correlation with the development of breast cancer. Endocrine factors, genetic factors, environmental and lifestyle factors, such as radiation exposure, weight, height, and alcohol use, Endocrine risk factors include early menarche, delayed age at first birth, nulliparity, and hormone replacement treatment. Genetic risk factors include things like personal and family history and mutations in the tumor suppressor genes [BRCA1 and BRCA2] [3]. Cancer of breast begins as normal breast cells that typically line the ducts and lobules begin to multiply abnormally. These cells have the ability to multiply unrestrained and invade the tissue nearby. When this happens, the phrase "invasive breast cancer" is used. If the cancer cells keep growing, they might eventually travel outside of the breast to other parts of the body, which might be lethal [4]. The World Health Organization (WHO) divides breast cancer into two histological categories: invasive and non-invasive (in situ), which are named for the regions of the breast where they first appear [4], [5].

### Breast Cancer Subtypes

Based on the condition of three distinct cell surface receptors, there are three primary subgroups of breast cancer. Among these are the progesterone receptor (PR), the estrogen receptor (ER), and the human epidermal growth factor receptor 2 (HER2) [2]. Each contributes differently to the development of cancers and may be the focus of tumor-specific treatment [6].

### Symptoms of Breast Cancer

Early breast cancer symptoms sometimes go unnoticed. Here are a list of the top breast cancer warning signals: A firm mass that appears in the breast or armpit, usually on one side only, without any pain [2]. A change in the breast's size or contour, such as an indentation, 'growing' veins that are especially noticeable, or skin eroding [2]. Changes to the skin's texture, appearance, or appearance of pimples, redness, or orange peel [2]. Nipple changes such retraction, the release of odd fluid, or a rash in the vicinity of the nipple [2].

### Diagnosis & Screening Tests

Clinical, radiological, and histological evidence must be correlated in order to make the diagnosis of breast cancer [5].

- The initial workup should include a thorough history taking, a breast exam, three- dimensional mammography, as well as potentially extra methods of ultrasound and magnetic resonance imaging (MRI) are two types of breast imaging [3].
- Breast biopsy is recommended if there is a palpable tumor on physical examination or if there is a mammographic anomaly that implies cancer [3].

## Other Screening Tests

### 1- Breast Exam

A clinical breast exam involves a doctor or other healthcare professional using their hands to examine the breasts and the area under the arms for lumps or anything else that feels weird. The likelihood of dying from breast cancer may be reduced, but this is unknown [7]. Breast self-examination in order to check for lumps or other changes in their breasts, both men and women perform this examination. The likelihood of dying from breast cancer cannot be reduced by routine breast self-examination, according to research [7].

### 2- Thermography

Thermography is a technique that uses a special heat-detecting camera to assess the skin's temperature around the breasts. Thermo-grams may display temperature variations brought on malignant malignancies [7].

### 3- Tissue Sampling

Breast tissue sample, or biopsy, is the term used to describe the procedure of extracting breast cells for microscopic examination. There is no proof that using breast tissue sampling as a screening test reduces the chance of dying from breast cancer [8]. A breast biopsy can be performed using one of three methods: open (surgical), core needle biopsy, or fine needle aspiration (FNA) [8].

**Treatment:** Treatment options for breast cancer differ depending on the stage of the disease, the physical state of the patient, the size, location, and whether the cancer has spread to other areas of the body [2].

**The Basic Goals of Treatment are to:** [1] increase lifespan; [2] lessen symptoms; [3] maintain/improve quality of life (QOL); and [4] slow the course of the disease [9]. Surgery, radiation, chemotherapy, hormonal therapies, and targeted medicines are currently used to treat breast cancer. Depending on the disease's stage, these treatments may be combined or used alone [10], [11].

**Research Design and Participants:** A cross-sectional descriptive study using a distributed pretested and verified Arabic questionnaire it was distributed from 2 December 2021 until 17 February 2022. The poll was completed by female university students between the ages of 18 and 40, undergraduate degrees (BS), master's degrees (MPhil/MS), and doctoral degrees (Ph.D.), or post-graduate degrees.

**Research Instrument:** On the basis of prior reports, a self-administered questionnaire was created. The survey consisted of 13 questions split into two sections. Age and educational level were two sociodemographic factors covered in the first section. In contrast, the second section's questions focused on understanding of breast cancer symptoms, risk factors, and examination techniques.

**Data Collection:** 684 respondents, who were enrolled at various Iraqi universities, completed the questionnaire in total (Universities of Tikrit, Baghdad, Mosul, Anbar, Kirkuk, Diyala and many other universities in the south of Iraq). The pre-tested questionnaire was created using Google Forms, and participants were provided with a link via social media (Facebook, WhatsApp, Telegram, Instagram, and email). Participant's personal information will not be disclosed for concerns of privacy and to motivate people to freely respond to the survey.

## 2. RESULTS AND DISCUSSION

### 1- Demographic Characteristics of the Participants

The survey included 684 female Iraqi students from different universities, ages ranging from 18 to 40 with a mean age of 21 (about 22.6%). percent 94.3 of the participants had completed their

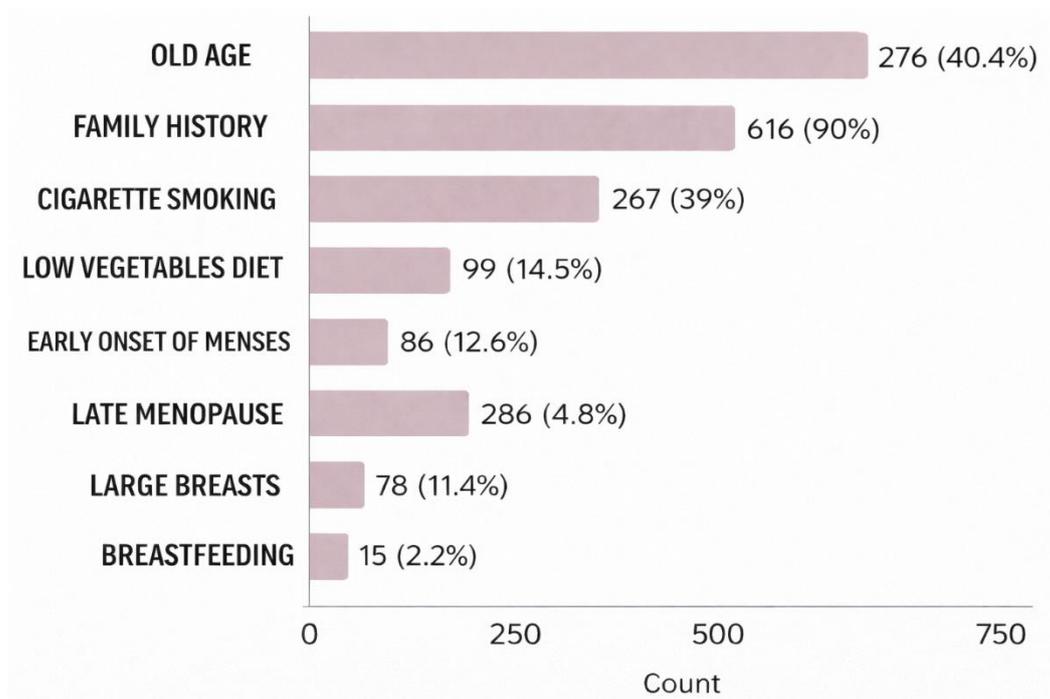
undergraduate degrees, while just 5.7 percent were enrolled in doctorate programs (Ph.D.) or master's programs (MPhil/MS). The [Table 1](#) below displays the specific demographic characteristics in detail:

**Table 1.** % of Age and Education Levels of Participants

Age	%
Less than 20 years	15 %
20 – 30	69%
30 – 40	16%
Education levels	
Undergraduate	93.3%
Post - graduate	5.7%

## 2- Understanding of the Risk Factors for Breast Cancer

Understanding of Symptoms, Risk Factors, and Screening Tests for Breast Cancer: Among the risk factors for breast cancer, more than two thirds of the participants named family history (90.1%), advanced age (40.4%), oral contraceptive use (41.8%), and smoking (39%) as potential contributors. Only a small percentage of participants (2.2%) and low vegetable and fruit consumption (14.5%) believed that breastfeeding and breast cancer were risk factors. Most individuals were unaware of the complicated risk factors for breast cancer, including menopause beyond age 55 (15.8%), first child after age 30 (14.5%), and early menstruation onset before age 12 (12.6%), as shown below [Figure 1](#).



**Figure 1.** % of the Participants' Awareness of the Risk Factors for Breast Cancer

Regarding breast cancer signs and symptoms, the majority of participants were well-versed in them. 68.7%, 59.5%, and 64.9% of participants, respectively, reported signs and symptoms such as a mass under the armpit, a painless breast lump, and nipple bleeding or discharge. Additionally, 50.3%, 49.4%, and 60.2% of the participants, respectively, thought that the participants' breasts' changing shapes, their breasts' soreness, and their skin's dimpling were symptoms and signs of the disease. As shown [Figure 2](#).

### 3- Understanding the Signs and Symptoms of Breast Cancer

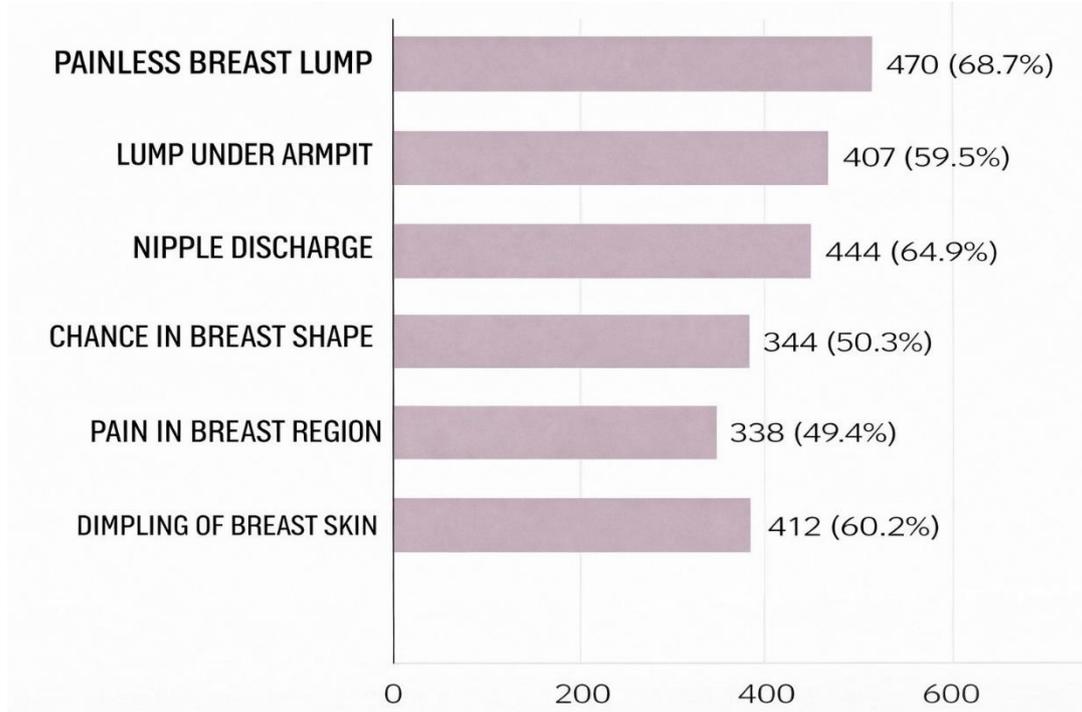


Figure 2. % the Participants' Level of Awareness on the Signs and Symptoms of Breast Cancer

Participants (74.9%) were aware of the recommendations for completing In relation to the breast cancer screening tests, clinical breast exams (CBE) should be performed once a year and breast self-examinations (BSE) once a month just 19.7% of respondents were uncertain about the value of taking these exams.

#### 1- Is it Important to Do BSE (Breast Self-Examination) Once A Month and to do CBE (Clinical Breast Examination) Once A Year -

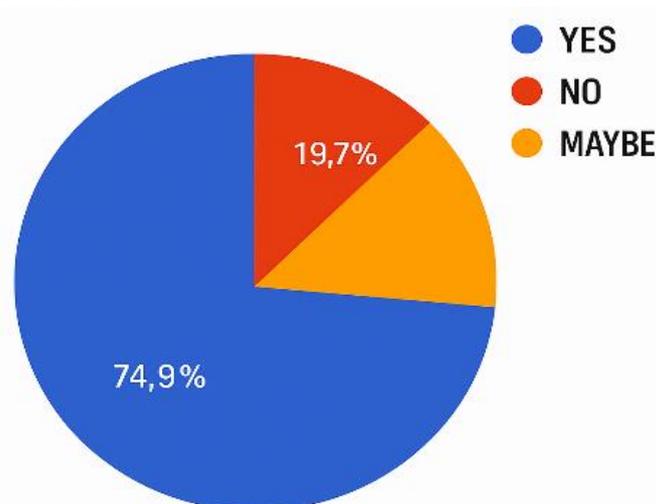


Figure 3. % the Participants' Level of Knowledge Regarding the Examination Methods for Breast

Perception Regarding Breast Cancer Management and Its Results: Most poll respondents had appropriate perceptions of how to treat breast cancer and its outcomes. They did, however, think that breast cancer therapy was a painful and drawn-out procedure, which contributed to their negative perception of it.

## 2- Breast Cancer Treatment is a Drawn-Out and Agonizing Procedure

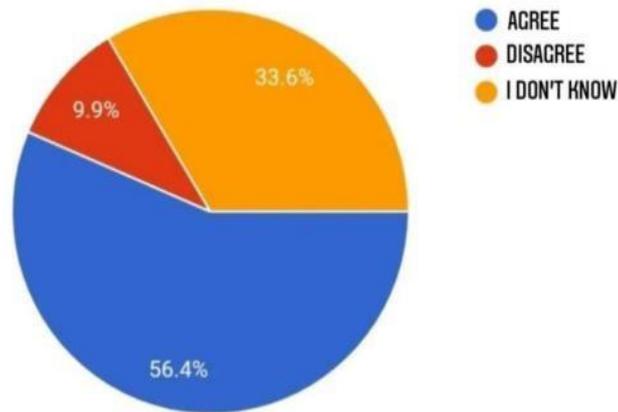


Figure 4. % of those who Think Treating Breast Cancer is a Drawn-Out, Painful Procedure

## 3- Younger People Benefit More from Breast Cancer Treatment than Older

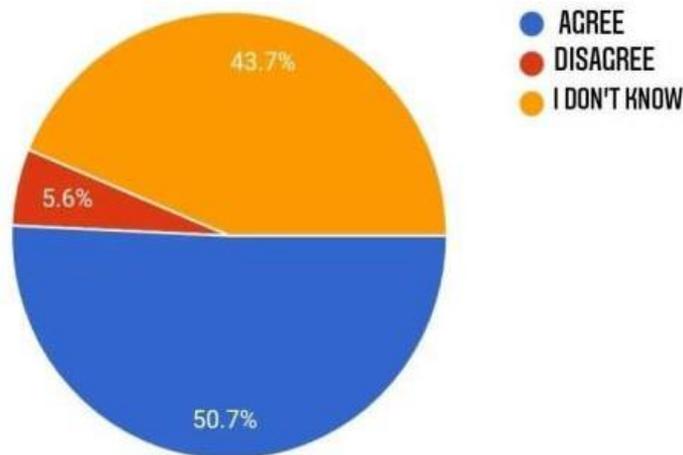


Figure 5. % of Participants who think Younger People Can Benefit from Breast Cancer Treatment More than Older People

## 4- Breast Cancer Treatment is Embarrassing

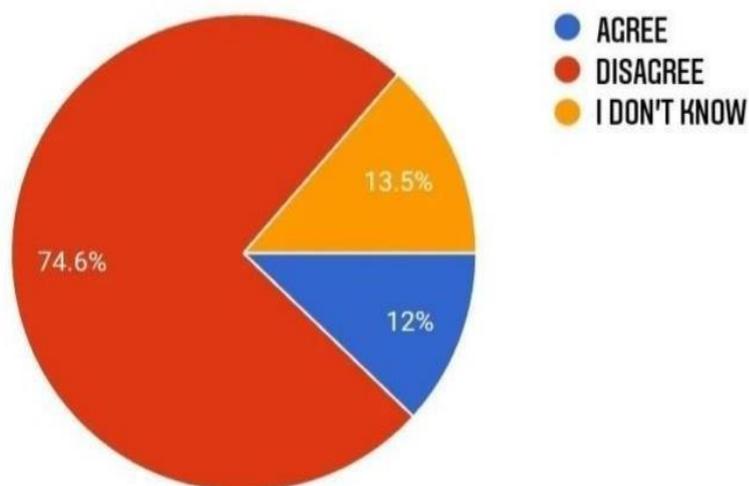


Figure 6. % of Participants who Believe that the Breast Cancer's Treatment is Embarrassing

### 5- Breast Cancer Treatment Causes a Loss of Physical Beauty

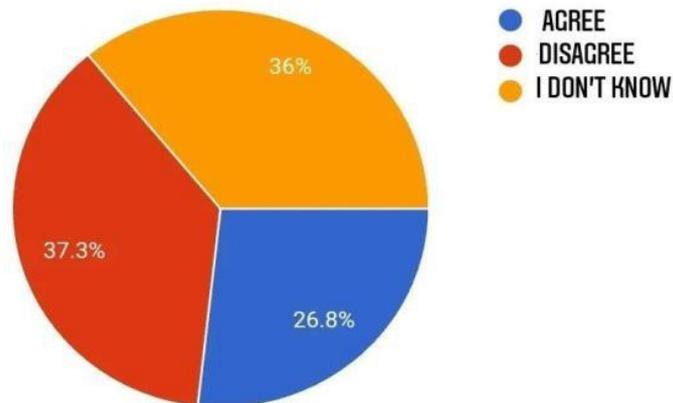


Figure 7. % of Participants who think they Lose their Physical Beauty Due to Breast Cancer Treatment

### 6- Following Breast Cancer Treatment, a Woman Can Lead a Fulfilling Life

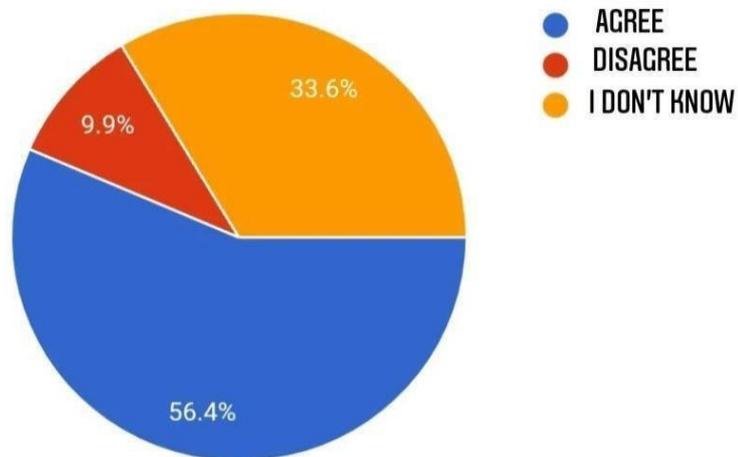


Figure 8. % of Participants who think that a Woman who has Breast Cancer Treatment Can Still Lead a Fulfilling Life

Additionally, there are questions in the questionnaire to gauge the participants' overall level of awareness of breast cancer, and the results indicate that they do, as indicated below

### 7- It is Possible for Breast Cancer to Spread from One Person to Another

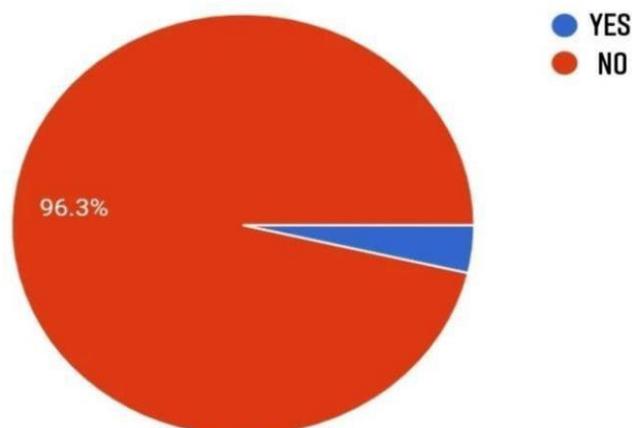


Figure 9. % of Participants who think it is Possible for Breast Cancer to Spread from One Person to Another

### 8- Breast Cancer Affects only Females

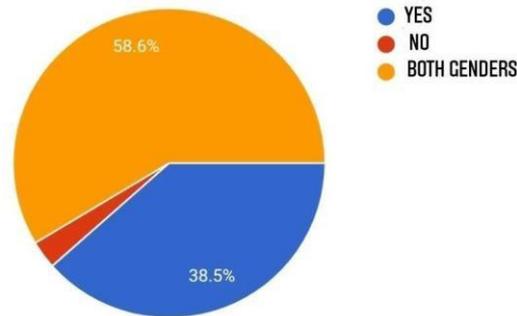


Figure 10. % of Participants who think that Breast Cancer only Affects Women

### 9- The Primary Cause of Death for Iraqi Women is Breast Cancer

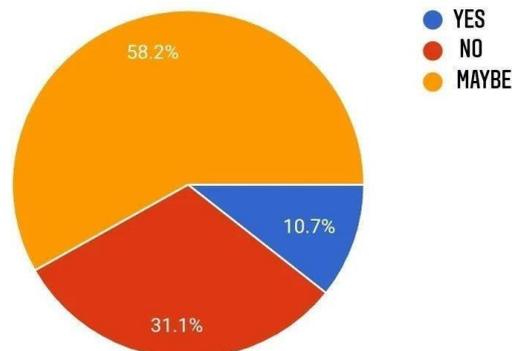


Figure 11. % of those who think that the Primary Cause of Death for Iraqi Women is Breast Cancer

## Discussion

Unquestionably, among Iraqi women, Breast cancer is a prevalent medical condition and the low survival rates of the disease are a result of treatment and detection hurdles. The current study set out to assess the knowledge and understanding of female university students with regard to breast cancer. The participants reported having a solid understanding of the warning signs, symptoms, and risk factors related to breast cancer. These were also the most popular screening methods that have been used in the research on breast cancer. Understanding the risk factors completely can help prevent female breast cancer. The biggest risk factor for breast cancer is having first-degree relatives who have had the illness. Ninety-one percent of those taking part in the study believed that this was a risk factor for developing breast cancer. Nonetheless, low awareness was observed by female university students from Uganda (48.5%) and Nigeria (46.4%). Additionally, studies conducted in China (63.6%) [12] and Turkey (54.8%) [13] Disclosed some information on how breast cancer developed in women with a family history of the condition. Oral contraceptive use for longer than five years has been associated with an increased risk of breast cancer. The results of the study showed that 41.8% of participants believed that regularly taking oral contraceptives increased the risk of breast cancer. This finding showed that the risk factor had only moderate awareness (35.7%), which was similar to that of a study from Nepal [14].

Moreover, only 12.6% of participants in the current study agreed that having an early menstrual cycle increased the risk of breast cancer. This result was somewhat consistent with a study conducted in Nepal [14], where 19.2% of female students thought that having an early menstrual cycle increased the risk of breast cancer. It is well recognized that older adults have a higher risk of developing breast cancer compared to younger adults. In the current study, 40.4% of participants knew about this risk factor. Figure 2 shows the participants' level of awareness in relation to the previously published survey of female university students in Uganda (25%). [11] To identify breast cancer early, women need to be aware of their symptoms and indicators. The survey participants possessed comprehensive knowledge regarding breast cancer's symptoms and indicators, such as painless breast lumps (68.7%) and lumps under the armpits (59.5%). These outcomes (53.7% and 57%, respectively) were consistent with those that Ethiopia had

previously released [15]. In contrast to university female students from Ethiopia (74.3%) and Sharjah (74.7%), the study's participants had a moderate awareness of alterations in the breast's morphology, such as sudden in breast shape (50.3%) and dimpling of the breast skin (60.2%). (15,16). The participants also knew quite a bit about the symptoms, including pain in the breast area (49.4%) and nipple hemorrhage or discharge (59.5%) [16]. these were higher than the findings (37.2% and 29.4%, respectively) from China [17]. It is essential to comprehend breast cancer screening protocols in order to facilitate early cancer diagnosis. The majority of female respondents to the current survey (74.9%) even though a Malaysian study's findings revealed that only 24.4% of women used BSE once a month and 18.4% had had a Pap smear in the three years prior, people were aware of BSE and CBE [18]. The literature provides compelling evidence that Mammography and CBE can help detect breast cancer early and treat it to prevent mortality [19]. Clinical study, however, was unable to provide any evidence that BSE practice reduces mortality, casting doubt on this claim [20], [21]. Rather, BSE-trained women had higher anxiety levels, more frequent medical visits, and benign biopsies, all of which increased the need for health services [20]. Some researchers argue that BSE increases women's "breast awareness" and, hence, increases their likelihood of finding tumors, despite the fact that many breast cancers are detected by the women themselves [22].

BSE is thought to be a simple, risk-free, low-cost, non-invasive intervention that encourages women to actively participate in preventive healthcare. It is also thought to be appropriate, appropriate, and cost-effective [23]. The participant's knowledge is significantly influenced by the social norms of the Iraqi population. For example, it's been reported that Iraqi women, especially those who live in rural areas, feel ashamed, bashful, and personally modest when their breasts are checked. In society, it is frowned upon for women, mothers, daughters, spouses, and other family members to openly discuss anything pertaining to the breasts. This implies that breast cancer is a socially stigmatized condition. Through spiritual healing, the ladies in Iraq were led to seek medical assistance only after their breast cancer had progressed to a more severe level. Furthermore, a number of social and cultural factors, including age, employment position, ignorance, fear of surgery, and faith in conventional treatments, are seen to be significant obstacles to breast cancer screening. They are therefore only discovered at the very end, when surgery is the only course of action [24], [25], [26], [27]. As in other nations, the primary barriers to breast cancer screening for Iranian women were recognized as embarrassment, fear of receiving a diagnosis, and confidence in fate [28]. Furthermore, the Canadian study discovered that one obstacle to breast Iraq is a middle-income country with about 50% of the population living in poverty. Furthermore, there are no government initiatives for breast cancer screening or education [29]. This raises the possibility of a delayed diagnosis by making it more challenging for the community to conduct self-service breast cancer screening.

### 3. CONCLUSION

The study found that while the young Iraqi participant women, who ranged in age from 18 to 40, were well-informed about breast cancer risk factors and symptoms, they were less knowledgeable about screening techniques. Furthermore, more than half of the participating women were unaware of the length of therapy, the effectiveness of the process depending on the patient's age, and how the disease's treatment would affect their appearance and quality of life.

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#### Author Contributions Statement

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Zainab Mustafa Mahdi	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	

C: Conceptualization	I: Investigation	Vi: Visualization
M: Methodology	R: Resources	Su: Supervision
So: Software	D: Data Curation	P: Project administration
Va: Validation	O: Writing- Original Draft	Fu: Funding acquisition
Fo: Formal analysis	E: Writing- Review & Editing	

### Conflict of Interest Statement

The authors declare that there are no conflicts of interest regarding the publication of this paper.

### Informed Consent

All participants were informed about the purpose of the study, and their voluntary consent was obtained prior to data collection.

### Ethical Approval

The study was conducted in compliance with the ethical principles outlined in the Declaration of Helsinki and approved by the relevant institutional authorities.

### Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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