



Knowledge, Attitude and Practice Regarding Breast Cancer and Breast Self-Examination Among A Sample Of Women In Al-Diwaniyah City

Sarah Abdul Kareem Abdul Jabar^{1*}, Hassan Raji Jallab²

¹ M.B.Ch.B, Al-Diwaniyah Health Directorate, Al-Diwaniyah, Iraq

² H.D.S.M(Ph.D) Family Physician, College Of Medicine / University Of Al-Qadisiyah, Al-Diwaniyah, Iraq.

sara.leen@gmail.com^{1*}, hassan.jallab@qu.edu.iq²

Author Correspondence: sara.leen@gmail.com*

Abstract.Background: breast cancer is the most common cancer among women, also it is the leading cause of cancer-related deaths in low-resource countries. So, every woman should know what it looks like, be aware of any changes, and know what to do if they are discovered. Meanwhile, early diagnosis and management are fundamental steps toward increasing survival and improving the quality of life Aims: The purpose of this study is to determine the knowledge, attitudes and practices of women in Al-Diwaniyah city regarding breast self-examination, and to explore their level of knowledge about breast cancer focusing on some risk factors. Method: Cross-sectional study was conducted among 350 women aged more than 18 years who attended breast screening department in Al-Diwaniyah teaching hospital during the period of study using face-to-face interviews questionnaire. Results: The total sample included in this study was 350 females, regarding the score of knowledge, the results showed near half of participants having moderate knowledge (49.1%), On the other hand, the attitude of study people was more interesting by enrolling questions. Concerning the attitude score, the findings indicated that 64% of the subjects had a moderate attitude. In terms of practice score, the findings revealed that 57% of participants had poor practice and only 6% had good practice. The study discovered that the age groups under 40 had better knowledge, attitudes, and practices than the age groups over 40, with a positive correlation also ($p < 0.001$) in high education group. Conclusions: The results showed most of participants having moderate to good knowledge (78%) moderate attitude but poor practice of breast self-examination. the gap in knowledge in fields of breast self-examination emphasizes on the need to raise awareness among women about the correct method and timing of it.

Keywords: Knowledge about Breast Cancer, Attitude towards Breast Cancer, Breast Self-Examination

Abstrak. Latar belakang: kanker payudara adalah kanker yang paling umum terjadi pada wanita, juga merupakan penyebab utama kematian terkait kanker di negara-negara dengan sumber daya rendah. Jadi, setiap wanita harus tahu seperti apa perubahannya, waspada terhadap perubahan apa pun, dan tahu apa yang harus dilakukan jika ditemukan. Sementara itu, diagnosis dan penatalaksanaan dini merupakan langkah mendasar untuk meningkatkan kelangsungan hidup dan meningkatkan kualitas hidup Tujuan: Tujuan dari penelitian ini adalah untuk mengetahui pengetahuan, sikap dan praktik wanita di kota Al-Diwaniyah mengenai pemeriksaan payudara sendiri, dan untuk mengetahui tingkat pengetahuan mereka tentang kanker payudara dengan fokus pada beberapa faktor risiko. Metode: Studi Cross-sectional dilakukan pada 350 wanita berusia lebih dari 18 tahun yang menghadiri bagian skrining payudara di rumah sakit pendidikan Al-Diwaniyah selama masa penelitian dengan menggunakan kuesioner wawancara tatap muka. Hasil: Total sampel yang dilibatkan dalam penelitian ini adalah 350 orang perempuan, dilihat dari skor pengetahuannya, hasil menunjukkan hampir separuh peserta memiliki pengetahuan sedang (49,1%), sebaliknya sikap orang belajar lebih menarik dengan mengajukan pertanyaan. . Terkait skor sikap, temuan menunjukkan bahwa 64% subjek memiliki sikap sedang. Dari segi skor praktik, temuan menunjukkan bahwa 57% peserta memiliki praktik yang buruk dan hanya 6% yang memiliki praktik baik. Studi ini menemukan bahwa kelompok usia di bawah 40 tahun memiliki pengetahuan, sikap, dan praktik yang lebih baik dibandingkan kelompok usia di atas 40 tahun, dengan korelasi positif juga ($p < 0,001$) pada kelompok pendidikan tinggi. Kesimpulan: Hasil penelitian menunjukkan sebagian besar peserta memiliki tingkat pendidikan sedang hingga pengetahuan baik (78%) sikap sedang tetapi praktek pemeriksaan payudara sendiri buruk. Kesenjangan pengetahuan di bidang pemeriksaan payudara sendiri menekankan pada perlunya meningkatkan kesadaran di kalangan perempuan tentang metode dan waktu pemeriksaan payudara yang benar.

Kata Kunci: Pengetahuan tentang Kanker Payudara, Sikap terhadap Kanker Payudara, Pemeriksaan Payudara Sendiri

1. INTRODUCTION

Globally, breast cancer is the most common cancer among women, including 23% of the female cancers, also it is the leading cause of cancer-related deaths in low-resource countries [Lung Cancer, 2012.], [B. O. Anderson et al].

In Iraq, breast cancer ranks the first among the commonest malignancies among all the population and accounts for about one-third of the registered female cancers according to the latest Iraqi Cancer Registry which shows a trend for the disease to affect younger women [3].

Breast cancer is characterized from other types of cancer by the fact that it occurs in a visible organ and be detected and treated at an early stage [4]. The 5-year survival rate reached to 85% with early detection in contrast later detection decreased the survival rate to 56% [5]. The low survival rates in low developed countries can cause by the lack of early detection and inadequate diagnosis and treatment facilities.

Recommended preventive techniques to reduce breast cancer mortality and morbidity include breast self-examination (BSE), clinical breast examination (CBE), and mammography [6].

CBE and mammography require hospital and special equipment and expertise whereas BSE is an expensive tool that can be carried out by women its selves [7]. BSE benefits women in two ways: women become familiar with both the appearance and the feel of their breast and detect any changes in their breasts as early as possible [8]. In the literature, it is stated that 90% of the times breast cancer is first noticed by the person herself [9]. Also, several studies have shown that barriers to diagnosis and treatment due to increasing women's awareness of breast cancer [10], [11].

Breast cancer in the early stages typically do not produce symptoms but as the tumor become larger, symptoms include; painless lump , lump in armpit, breast pain, swelling or thickness of the breasts skin, spontaneous discharge of the nipple (bloody) and nipple erosion or inversion [12].

a. Risk factors of Breast cancer

The etiology of BC is complex. Numerous common risk factors for the disease have been established, including female gender, increasing age, ethnicity, and increased use of hormone replacement therapy, together with later age at child birth, lower parity, early menarche, and late menopause. In addition to other factors such as family history, genetic factors, and exposure to ionizing radiation [13].

b. Screening for Breast Cancer

In order to improve BC outcomes and survival, early detection is critical. Early detection of BC plays a vital role in declining both its morbidity and mortality. The WHO has identified two discrete but related strategies to promote the early detection of cancer; early diagnosis, which is the discovery of symptomatic cancer at an early stage, and screening [14].

Screening for early detection and diagnosis of diseases and health conditions is an important public health principle. The three screening methods recommended for breast cancer include breast self-examination (BSE), clinical breast examination, and mammography [15].

Mammography is the method of choice for the early detection of breast cancer. However, its limited use in developing countries due to the high cost and limited availability make BSE a convenient and cost-effective method, though less reliable [16].

The World Health Organization has concluded that BSE still has the potential to provide an early diagnosis of breast cancer in many parts of the world. BSE is recommended to be performed routinely on a monthly basis in all the women aged above 17 years and the importance of raising knowledge on breast cancer via BSE is noted. BSE is an easy-to-apply, economical, safe, non-invasive procedure with no special material/tool requirements, and it is an effective diagnostic method for breast cancer, which only takes 5 minutes to play [17].

On BSE, the women lie down on her back and place her right arm behind the head. The exam is done while lying down, not standing up. This is because when lying down, the breast tissue spread evenly over the chest wall and is as thin as possible, making it much easier to feel all breast tissues. The women can use the finger pads of the three middle fingers of her left hand to feel for lumps in the right breast.

Use overlapping dime-sized circular motions of the finger pads to feel the breast tissue. While standing in front of a mirror with her hands pressing firmly down on her hips, look at the breasts for any change of size, shape, contour, or any dimpling, redness, or scariness of the nipple or breast skin. The pressing down on the hips position contract the chest wall muscle and enhances any breast changes by examining each underarm while sitting up with her arm only slightly raised so you can easily feel in the area. Raising the arm straight up tightens the tissue in this area and makes it harder to examine. Several studies have shown that barriers to diagnosis and treatment can be addressed by increasing women's awareness of breast cancer [16], [18].

c. Rationale of the study

One of the probable hindrances to early diagnosis of breast cancer in Iraq and other countries comprise the lack of public awareness programs. To enhance BC knowledge among

women and create education programs to avert delays in diagnosis and treatment, healthcare professionals must know the existing level of understanding and awareness of women about BC and performing BSE.

Therefore, it's needed to conduct a study that aimed for assessment the level of knowledge of breast cancer and practicing BSE in the population.

d. Aim of the study

The purpose of this study is to determine the knowledge, attitudes and practices of women in Al_Diwaniaya city regarding breast self-examination, and to explore their level of knowledge about breast cancer focusing on some risk factors.

2. SUBJECTS AND METHOD

a. Study Design

Cross- sectional study with an analytic element

Study group:

350 women aged more than 18 years who attended breast screening department in Al-Diwaniyah teaching hospital during the period of study and agree to join in the study and did not have any type of breast cancer.

Study time :

from 1st of march 2023 to the end of august 2023

b. Study Tool

Interviewer questionnaire-based method is used for data collection and will include 4 parts :

Part 1: Socio-demographic characteristics of study participants

Variables:-

- Age group (years)
- Marital status
- Educational status
- Occupation

Part 2 : knowledge of breast cancer.

1. Family History play role in breast cancer
2. Parity after 30 years increase the risk
3. Early puberty increase the risk
4. Use of HRT* for long period increase the risk
5. Lack of physical exercise increase the risk

6. Lactation reduce probability of breast cancer

Part 3: Knowledge toward BSE.

1. Doing BSE is wasting time
2. If there is lump, I prefer to get treatment from a traditional healer
3. feared to think about breast cancer
4. Interested in doing BSE
5. If there is lump, I will go to specialist doctor
6. If there is no abnormal changes, I will stop BSE
7. Breast cancer can't be treated

Part 4: practice toward BSE.

1. Do BSE once a month.
2. Do BSE between day 7 until day 10 after menses
3. Undress until the waist when doing the BSE.
4. Palpate axillary area when doing the BSE.
5. Hands should be raised up alternately above the head when doing the BSE.
6. Doing the BSE in front of the mirror.
7. Doing the BSE by tips of fingers.
8. DO BSE in supine position.

Each part consisted of questions that considered for assessing the knowledge, attitude and practice. A score of two awarded to each correct answer, one for do not know answer while zero was assigned in the case of a wrong answer. The total score for each participant was computed by adding up. Each score was categorized into poor score for those who had a score of less than 50% of the maximum score, moderate if score was 50% to 75%, and good if score was above 75% of the maximum.

c. Data collection

The researcher filled the questionnaire forms by obtaining the data directly from the women. The women were approached and invited to join in the study. At the initiation of the interview, the researcher introduced herself to the women briefly explained the purpose of the study. It was point out clearly to the women that the participation was voluntary and their non-contribution would have no adverse effect on the quality of care given to them. Each interview lasted about 15-20 minutes to be completed.

d. Pilot study

Before starting to collect the information, a pilot study will carry out for 2weeks to test validity and reliability of the questionnaire to detect any modification needed for the collection

of data and to find any other difficulties the pilot study sample will be taken and to be excluded from the study sample.

e. Ethical consideration

1. The ethical approval from the Iraqi counsel of medical espcialization.
2. Verbal consent will be obtained prior to including in the study.

F.Statistical issue

Analysis of data was carried out using the available statistical package of SPSS-27 (Statistical Packages for Social Sciences- version 27). Data was presented in simple measures of frequency, percentage, mean, standard deviation, and range. Chi –square test was used to test the association . A p-value of less than to 0.05 was considered statistically significant.

3. Results

The total sample included in this study was 350 females, of whom 65.7%% were married and 18% were single, and the most prevalent age group was 30-39 years, at 47.4%. Regarding the educational status of the sample, the results showed that the primary and secondary levels were the highest in prevalence among the participants (27.1% for each one), while the occupation of the participants showed that 70.6% were housewife, while 23% of the study sample were employee. As shown in Table1.

Table 1: distribution of study sample according to socio-demographic characteristic.

N=350

Age	Frequency	Percent
20-29	76	21.7
30-39	166	47.4
40-49	47	13.4
50-59	37	10.6
>60	24	6.9
Total	350	100
marital	Frequency	Percent
married	230	65.7
single	64	18.3
divorced	30	8.6
widow	26	7.4
Total	350	100
education	Frequency	Percent
illiterate	20	5.7
read and write	47	13.4
primary	95	27.1
secondary	95	27.1
collage	93	26.6
Total	350	100
occupation	Frequency	Percent
house wife	247	70.6
employee	81	23.1
student	22	6.3
Total	350	100

The knowledge test consists of six questions, and the answers to the questions were different based on the type of question. The results confirmed that 70% of the participants believe that family history plays a role in breast cancer. While 30.4% believe that giving birth after 30 years increases the risk of breast cancer, only 9% of the sample believes that early puberty increases the risk. But the result found that 74.9% of people who use HRT for a long time increase the risk of injury, and 66% of people who lack physical exercise increase the risk of injury. While the most common thing in the study sample is that breastfeeding reduces the probability of developing breast cancer (89%). As seen in table 2

Regarding the score of knowledge, the results showed near half of participants having moderate knowledge (49.1%), while the others divided between good and poor knowledge as 28.9% and 22% respectively. As shown in table 3 and figure1

On the other hand, the attitude of study people was more interesting by enrolling questions. The results revealed that more than half of the participants (54%) did not agree that doing BSE was wasting time, and 88.6% also not agree, if there is a lump, I prefer to get treatment from a traditional healer. While 74.9% agreed that they feared thinking about breast cancer, and 34.1% were interested in doing BSE, In addition to that, the most prevalent study sample agreed to go to a specialist doctor if there was a lump. but 52% were not afraid to stop BSE if there were no abnormal changes. As shown in Table 4

Concerning the attitude score, the findings indicated that 29% of the study sample had a poor attitude, whereas 64% of the subjects had a moderate attitude. However, just 7% of them had a good attitude. As demonstrated in Figure 2 and Table 5

Table 2: Participants' Responses to Questions Related to Knowledge of Breast Cancer.

Family History play role in breast cancer	Frequency	Percent
No	54	15.4
not sure	50	14.3
Yes	246	70.3
Total	350	100
Parity after 30 years increase the risk	Frequency	Percent
No	246	70.3
not sure	22	6.3
Yes	82	23.4
Total	350	100
Early puberty increase the risk	Frequency	Percent
No	233	66.6
not sure	85	24.3
Yes	32	9.1
Total	350	100
Use of HRT for long period increase the risk	Frequency	Percent
No	32	9.1
not sure	56	16

Yes	262	74.9
Total	350	100
Lack of physical exercise increase the risk	Frequency	Percent
No	66	18.9
not sure	53	15.1
Yes	231	66
Total	350	100
Lactation reduce probability of breast cancer	Frequency	Percent
No	15	4.3
not sure	23	6.6
Yes	312	89.1
Total	350	100

Table 3: distribution of study sample according to Knowledge score . N=350

Score of knowledge	Frequency	Percent
Poor	77	22
moderate	172	49
Good	101	29
Total	350	100

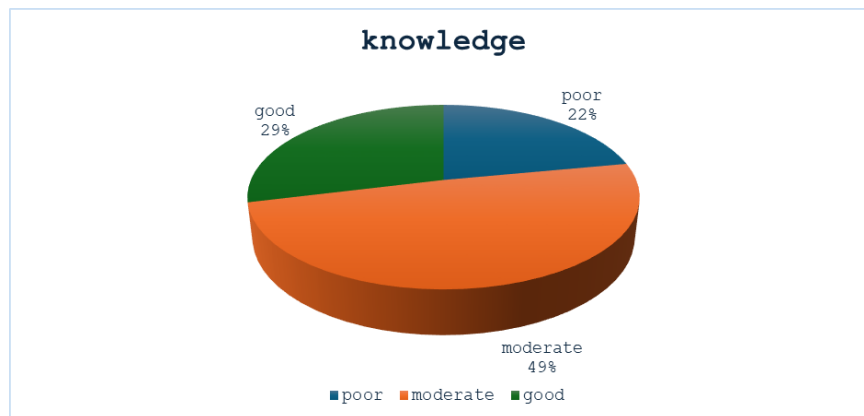


Figure 1: pie chart of Knowledge score .

Table 4: Participants' Responses to Questions Related to attitude of Breast Cancer

Doing BSE is wasting time	Frequency	Percent
not agree	190	54.3
not sure	98	28
agree	62	17.7
Total	350	100
If there is lump, I prefer to get treatment from a traditional healer	Frequency	Percent
not agree	310	88.6
not sure	17	4.9
agree	23	6.6
Total	350	100
feared to think about breast cancer	Frequency	Percent
not agree	83	23.7
not sure	5	1.4
agree	262	74.9
Total	350	100
Interested in doing BSE	Frequency	Percent
not agree	151	43.1
not sure	94	26.9
agree	105	30
Total	350	100

If there is lump, I will go to specialist doctor	Frequency	Percent
not agree	1	0.3
not sure	24	6.9
agree	325	92.9
Total	350	100
If there is no abnormal changes I will stop BSE	Frequency	Percent
not agree	83	23.7
not sure	185	52.9
agree	82	23.4
Total	350	100
Breast cancer can't be treated	Frequency	Percent
not agree	132	37.7
not sure	81	23.1
agree	137	39.1
Total	350	100

Table 5: distribution of study sample according to attitude score . N=350

Score of attitude	Frequency	Percent
poor attitude	101	29
moderate attitude	226	64
good attitude	23	7
Total	350	100

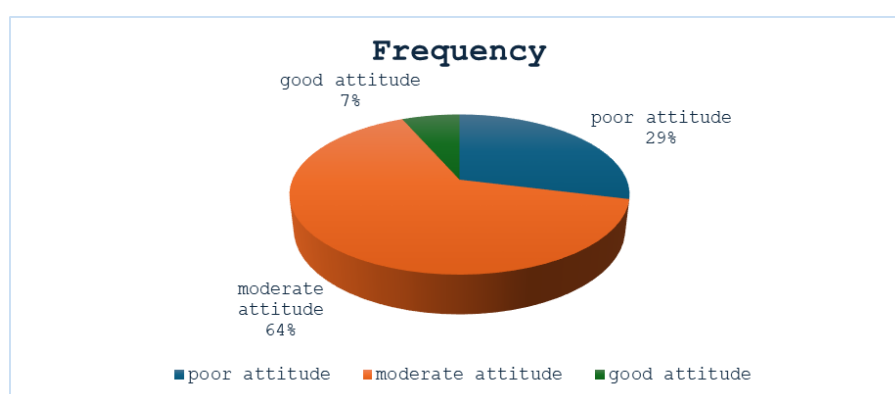


Figure 2: pie chart of attitude score .

There are seven questions on the practice exam as well. The findings verified that half of the participants thought they never performed BSE once a month, and 74.9% said they never performed BSE between day 7 and day 10 following menstruation. Only 7.4% of the sample consistently undressed up to their waists while performing BSE. However, the results showed that 66% of participants never raised their hands alternatively above their heads during the BSE, and 54% of participants never palpated the axillary region. In contrast, just 11% of the study population performed the BSE in front of a mirror. 30%, however, always perform the BSE with their fingertips. Table 6 illustrates this.

Table 6: Participants' Responses to Questions Related to practice of Breast Cancer

Do BSE once a month	Frequency	Percent
always	37	10.6
usually	137	39.1

never	176	50.3
Total	350	100
Do BSE between day 7 until day 10 after menses	Frequency	Percent
always	26	7.4
usually	62	17.7
never	262	74.9
Total	350	100
Undress until the waist when doing the BSE	Frequency	Percent
always	26	7.4
usually	64	18.3
never	260	74.3
Total	350	100
Palpate axillary area when doing the BSE	Frequency	Percent
always	78	22.3
usually	85	24.3
never	187	53.4
Total	350	100
Hands should be raised up alternately above the head when doing the BSE	Frequency	Percent
always	52	14.9
usually	84	24
never	214	61.1
Total	350	100
Doing the BSE in front of the mirror	Frequency	Percent
always	39	11.1
usually	39	11.1
never	272	77.7
Total	350	100
Doing the BSE by tips of fingers.	Frequency	Percent
always	105	30
usually	60	17.1
never	185	52.9
Total	350	100

In terms of practice score, the findings revealed that 57% of participants had poor practice, 37% had moderate practice, and only 6% had good practice. As displayed in Figure 3 and Table 7

Table 7: distribution of study sample according to practice score

Score of practice	Frequency	Percent
poor practice	199	57
moderate practice	129	37
good practice	22	6
Total	350	100

In regard to the participants' knowledge, attitude, and practice scores and their educational attainment, it was discovered that the high education group had better knowledge, attitude, and practice than the low education group, with a positive correlation ($p < 0.001$).

Table 9: Relationship between knowledge, attitudes and practice about breast cancer and participants' education levels. n = 350

Knowledge	illiterate	read and write	primary	secondary	collage	Total
poor	15	15	34	13	0	77
	19.50%	19.50%	44.20%	16.90%	0.00%	100.00%
moderate	5	32	52	45	38	172
	2.90%	18.60%	30.20%	26.20%	22.10%	100.00%
good	0	0	9	37	55	101
	0.00%	0.00%	8.90%	36.60%	54.50%	100.00%
	20	47	95	95	93	350
	5.70%	13.40%	27.10%	27.10%	26.60%	100.00%
Pearson Chi-Square =131.760 df=8 p value = 0.001 * statically significant						
Attitude	illiterate	read and write	primary	secondary	collage	Total
poor attitude	17	29	29	15	11	101
	16.80%	28.70%	28.70%	14.90%	10.90%	100.00%
moderate attitude	3	18	50	76	79	226
	1.30%	8.00%	22.10%	33.60%	35.00%	100.00%
good attitude	0	0	16	4	3	23
	0.00%	0.00%	69.60%	17.40%	13.00%	100.00%
total	20	47	95	95	93	350
	5.70%	13.40%	27.10%	27.10%	26.60%	100.00%
Pearson Chi-Square =100.730 df=8 p value = 0.001 * statically significant						
Practice	illiterate	read and write	primary	secondary	collage	Total
poor practice	20	36	70	51	22	199
	10.10%	18.10%	35.20%	25.60%	11.10%	100.00%
moderate practice	0	11	25	44	49	129
	0.00%	8.50%	19.40%	34.10%	38.00%	100.00%
good practice	0	0	0	0	22	22
	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
total	20	47	95	95	93	350
	5.70%	13.40%	27.10%	27.10%	26.60%	100.00%
Pearson Chi-Square =114.660 df=8 p value =< 0.001 * statically significant						

3. DISCUSSION

Breast cancer is believed to be the most common type worldwide, representing nearly a third of tumors among Iraqi women. Cancer deaths amounted to 10.64 percent of all deaths in Iraq in 2017. However, in 2014, female patients in Mosul with breast cancer were among the top ten cases of cancer, with an incidence rate of 20% and a mortality rate of 4.29. So, every woman should know what it looks like, be aware of any changes, and know what to do if they are discovered. Meanwhile, early diagnosis and management are fundamental steps toward increasing survival and improving the quality of life [19].

Breast Self-Examination (BSE) consider as one approach of secondary level of prevention of breast tumor, which not improve mortality rates but lower the morbidity rates [20]. Therefore, this study aims to evaluate the knowledge, attitudes, and practices of BC among women.

a. Knowledge

When the level of knowledge was tested, the results showed most of participants having moderate to good knowledge (78%) with majority of them were moderate knowledge (49.1%). This result similar to study conducted by Al-Mousa DS, et al. [21] revealed that the majority of the participants (53.7%) were with an intermediate level of knowledge. Similar findings to ours were seen in another study conducted among private school teachers [22], where in 55.2% of them reported knowing anything about breast cancer. Another study indicated that 62.99% of study participants had intermediate knowledge concerning breast cancer [23].

Our findings were found to be conflicting with a study conducted in Central India by Siddharth et al. [24], which revealed that 81.11% of females were ignorant of breast cancer. And another study from Iraq carried out among an educated population, which reported that about half of the sample had poor knowledge regarding breast cancer (a score <50%) [25]. The possible explanation of these differences might be related to variations in study setting and increase in overall public knowledge and awareness of breast cancer. In our results found, 23% and 9.1% of participant believed the Parity after 30 years and Early puberty increase the risk of BC. This agreement with Al-Mousa DS, et al. [21]. It was discovered that 21.8% of the participants acknowledged that having a parity before reaching the age of thirty increases one's risk of developing breast cancer. As well, only 15.6% of the participants knew that early menarche could increase the risk of breast cancer. Also, Similar results were found in a study conducted in Saudi Arabia among female [26]. However, this finding may be explained by the fact that Arabic women think that menstruation is an important sign of feminism. the current study found that the most known risk factor of breast cancer is "family history of breast cancer" (70%). This result similar to study conducted in Iraq which showed that 71%. [25] and Cross-sectional study by Dahiya et al. [27] Knowledge of family history as a risk factor was 60%. But this result disagrees with Kavitha et al. [28] that showed the Knowledge of family history as a risk factor was 17.07%. in Prusty RK. Et al. [29] report most women believed no breastfeeding (39%), lower physical exercise increase the risk (34%) and family history (31%). These variations might be attributed to the difference in study environment and community culture. Therefore, understanding the risk factors of BC may help women in taking preventive measures. Many characteristics were related with higher knowledge in this study. Over-40s

have poorer knowledge. Knowledge ratings decreased with ageing in another research by Abd Alaziz HA et al. [30] and Suarez L et al. [31]. The study also found that educational status considerably ($p=0.001$) affects knowledge level, which is consistent with a study of educated Iraqis ⁽²⁶⁾ and the National American survey on cancer risk [32].

b. Attitude

The attitude of women towards breast disease is essential and effective in the detection of breast cancer in addition to starting treatment as early as possible. In our study 64% of respondents have moderate attitude. These results agreement with two Previous study conducted in Baghdad city [25], [33]. while another study in Babylon [34] reported The attitude towards breast cancer screening was mostly average (94%), differing from more varied attitudes in other studies [35], [36]. Additionally, the previously mentioned study in Saudi Arabia by [37] concluded that, Saudi women reported a negative attitude towards BC and BSE.

The attitude towards breast-cancer screening may be different in this study, compared to others, due to low sample size and setting of population and level of education.

Many studies have linked late breast cancer diagnosis to inadequate breast self-examination, either because women have never heard of it or don't know how to conduct it. More than half of participants knew about BSE, and 30% interested to doing, which is comparable with prior Iraqi studies [34]. It is lower than Pakistan (83%) [38] and Iran (64%) [39] but similar to Saudi Arabia (30.3%) [40].

In Al-Fathy et al. [19] study showed More than half of the study sample believed that BSE neither difficult and time consuming nor embarrassment, while 47.4% of the study samples believed that if they do not have any problem in their breasts, so there is no reason to examine their breasts. Nearly two third of study sample had positive attitude to consult doctor. Another study showed that 93.9% of the females knew that BSE is useful for the early detection of breast cancer.

In Jordan, nearly half of the female students interviewed (45.5%) agreed that they would examine their breasts if it was beneficial for them [41].

A study conducted in Western Massachusetts also showed a positive attitude among all ethnicities [42], whereas 75.88% of the participants in Shahrekord had a moderate attitude toward BSE. [43], it was also observed that more than half of the women (60.2%) avoided BSE because they were afraid of having breast cancer, even though the same percentage of women (61.5%) in Buea, Cameroon, believed the opposite. In addition to that, the most prevalent study sample agreed to go to a specialist doctor if there was a lump, but 52% were not afraid to stop BSE if there were no abnormal changes [44]. On the other hand, in our study 74% were afraid

of having breast cancer and only 23% were not afraid to stop BSE if there were no abnormal changes.

The socio-demographic characteristics of individuals can directly influence their attitude and indirectly affect health-related behavior [37]. Previous research revealed that the health motivation of the participants who were well educated is quite high than who were not [45], [46]. In Saudi study, education level was not a significant predictor of BSE attitude [37]. This agreed with previous studies [47], however it was not in agreement with the results of other studies that the relationship between the women's educational status and BSE [48], [49]. Like In our study, the majority of women were educated, with only a few of them who were non-educated and the high education group had better attitude, with a positive correlation ($p < 0.001$).

Regarding to age correlation to attitude, in our study it was shown that with increasing age over 40 does not contribute to an improvement in the attitude. this result agreement with study conducted by Kalliguiddi S.et al. [50]. Women's College age and above was also one of the significant factors for the attitudes of breast self-examination, women's College and above was about 4 times. it was supported by the study done in Libya [51], and Turkey [52]. This may be due to the educational attainment of graduation and above, as well as the use of social and other media, which can increase women ' s attitudes towards breast self-examination. Regarding misperceptions of breast and breast cancer among older women. It's an important reason to reduce their attitude towards breast cancer tests.

c. Practice

Early detection of breast cancer can reduce its morbidity and mortality. breast self-examination (BSE) are considered to be effective strategies for the early detection of breast cancer. It's a process whereby women examine their breasts frequently to detect any abnormal swelling or lumps to seek prompt medical attention. BSE is usually recommended for each woman higher than the age of 20 years to be done for 20 minutes once monthly, between the seventh and tenth days of the menstrual cycle. Early diagnosis has a positive impact on the prognosis and limits the development of complications and disability. It will increase life quality and survival [53].

In present stud, the findings revealed that 57% of participants had poor practice, 37% had moderate practice, and only 6% had good practice. This results agreement with the study found that 55% of participants had poor practice, 36% average, and 9% good. [34] similar to other Middle-Eastern studies but worse than some Western data [38], [54], [55].

The results of the current study showed that 10.6% of participants had conducted a monthly BSE like the Saudi report, 13.3% of whom had done it on a regular basis. (every month) [36]. This conclusion was consistent with [56], [57] but different from a study conducted in Brazil where more than 79 % of the participants reported performing BSE regularly and this is due to that the awareness about breast cancer has been supported in Brazil with highly knowledge [58].

A study conducted in Iraq (47.3 %) showed that the time of BSE was one week after period, while 50% preferred BSE per month, and only 5.5% was the best way to practice BSE, in front the mirror. [59] which is in accordance with the study in Iran [60], but this is inconsistent with our findings. The possible explanation of these differences might be related to variations in study setting and large sample size. Significant associations were found between practice and age. This has been corroborated by studies from Iraq [34] and Nigeria [61] which found that age (more 30 years) was associated with better breast-cancer practices. The role of age in the frequency of BSE practice is controversial, while some study showed a negative association between age and BSE; others reported a positive association [46].

In our result discovered that the high education group had better practice than the low education group like Thailand study [62] found that education level was linked to better knowledge and practices regarding breast-cancer screening. Also, in Ethiopia report [63] Female health professionals who had educational status of degree and above were more likely to perform breast self-examination practice than diploma holders. This finding is consistent with the study findings [64]. The possible explanation is that those with educational level of degree and above might have better knowledge and skill to perform BSE. However, the gap in knowledge in other fields of BSE emphasizes on the need to raise awareness among women about the correct method and timing of BSE.

4. CONCLUSION

1. Although adequate knowledge about BSE and breast cancer and a moderate attitude toward BSE were encouraging; most of the female in our sample did not perform BSE. This might be an obstacle to screening programs and early diagnosis of breast cancer. Therefore, more intensified awareness programs among female are necessary to keep in view their status of breast cancer and BSE knowledge.
2. Age under 40 years and high education group had better practice than others.

5. RECOMMENDATIONS

1. Promotion and health education related to BC awareness and screening methods by using social media and health education could be conducted in shopping malls, colleges, universities and primary health care centers to disseminated breast health related information to public.
2. Design a strategy to improve women's screening participation and to encourage screening behaviors particularly in PHCCs
3. Training of health care workers to educate women about BC and performing BSE.
4. Further studies are needed to identify the causes of the low practice of BSE

6. REFERENCES

- Abd Alaziz, H. A. (2022). Knowledge, attitude, and practices towards breast cancer and breast self-examination among women in Yemen. *Journal of Cancer Education*, 37(1), 172–180. <https://doi.org/10.1007/s13187-020-01730-x>
- Al-Fathy, M. Y. A. (2020). Assessment the knowledge and attitude of breast self examination among secondary school female students in Mosul City. *Kirkuk Journal of Medical Sciences*, 8(1), 98–104. <https://doi.org/10.32894/kjms.2020.169366>
- Al-Mousa, D. S., et al. (2020). Knowledge, attitude and practice around breast cancer and mammography screening among Jordanian women. *Breast Cancer: Dove Medical Press*, 12, 231–242. <https://doi.org/10.2147/BCTT.S275445>
- Alwan, N. A. S., Al-Attar, W. M., Eliessa, R. A., Madfaie, Z. A., & Tawfeeq, F. N. (2012). Knowledge, attitude and practice regarding breast cancer and breast self-examination among a sample of the educated population in Iraq. *Eastern Mediterranean Health Journal*, 18(4), 337–345. <https://doi.org/10.26719/2012.18.4.337>
- Anderson, B. O., et al. (2008). Guideline implementation for breast healthcare in low-income and middle-income countries: Overview of the Breast Health Global Initiative Global Summit 2007. *Cancer*, 113(S8), 2221–2243.
- Coleman, C. (2017). Early detection and screening for breast cancer. *Seminars in Oncology Nursing*, 33(2), 141–155. <https://doi.org/10.1016/j.soncn.2017.02.009>
- Dahiya, N., Basu, S., Singh, M. C., Garg, S., Kumar, R., & Kohli, C. (2018). Knowledge and practices related to screening for breast cancer among women in Delhi, India. *Asian Pacific Journal of Cancer Prevention*, 19(1), 155.
- DeSantis, C., Siegel, R., & Jemal, A. (2013). Breast cancer facts and figures 2013-2014. American Cancer Society, 2013, 1–38.
- Ginsburg, O., et al. (2020). Breast cancer early detection: A phased approach to implementation. *Cancer*, 126(Suppl 10), 2379–2393. <https://doi.org/10.1002/cncr.32887>

- Hallal, J. C. (1982). The relationship of health beliefs, health locus of control, and self concept to the practice of breast self-examination in adult women. *Nursing Research*, 31(3), 137–142.
- Hofvind, S., Holen, Å., Román, S., Sebuødegård, S., Puig-Vives, M., & Akslen, L. A. (2015). Mode of detection: An independent prognostic factor for women with breast cancer. *Journal of Medical Screening*, 23(2), 89–97. <https://doi.org/10.1177/0969141315604006>
- Humphrey, L. L., Helfand, M., Chan, B. K. S., & Woolf, S. H. (2002). Breast cancer screening: A summary of the evidence for the US Preventive Services Task Force. *Annals of Internal Medicine*, 137(5 Part 1), 347–360.
- Hussain, A. M. A., & Lafta, R. K. (2021). Cancer trends in Iraq 2000–2016. *Oman Medical Journal*, 36(1), e219.
- International Agency for Research on Cancer. (2018). World cancer report. World Health Organization. IARC Press.
- Jadhav, K. M., et al. (2016). Assessment of knowledge, attitude and practice towards breast self-examination among female healthcare workers in Nelamangala Taluk. *RGUHS National Journal of Public Health*, 1(4). https://doi.org/10.26463/rnjph.1_4_4
- Karayurt, Ö., Özmen, D., & Çetinkaya, A. Ç. (2008). Awareness of breast cancer risk factors and practice of breast self examination among high school students in Turkey. *BMC Public Health*, 8, 1–8.
- Lagerlund, M., Hedin, A., Sparén, P., Thurfjell, E., & Lambe, M. (2000). Attitudes, beliefs, and knowledge as predictors of nonattendance in a Swedish population-based mammography screening program. *Preventive Medicine*, 31(4), 417–428. <https://doi.org/10.1006/pmed.2000.0723>
- Madhukumar, S., Thambiran, U. R., Basavaraju, B., & Bedadala, M. R. (2017). A study on awareness about breast carcinoma and practice of breast self-examination among basic sciences' college students, Bengaluru. *Journal of Family Medicine and Primary Care*, 6(3), 487–490. <https://doi.org/10.4103/2249-4863.222026>
- McMichael, C., Kirk, M., Manderson, L., Hoban, E., & Potts, H. (2000). Indigenous women's perceptions of breast cancer diagnosis and treatment in Queensland. *Australian and New Zealand Journal of Public Health*, 24(5), 515–519. <https://doi.org/10.1111/j.1467-842x.2000.tb00502.x>
- Okobia, M. N., Bunker, C. H., Okonofua, F. E., & Osime, U. (2006). Knowledge, attitude and practice of Nigerian women towards breast cancer: A cross-sectional study. *World Journal of Surgical Oncology*, 4, 1–9.
- Prusty, R. K., Begum, S., Patil, A., Naik, D. D., Pimple, S., & Mishra, G. (2020). Knowledge of symptoms and risk factors of breast cancer among women: A community-based study in a low socio-economic area of Mumbai, India. *BMC Women's Health*, 20(1), 106. <https://doi.org/10.1186/s12905-020-00967-x>

- Shah, T. A., & Guraya, S. S. (2017). Breast cancer screening programs: Review of merits, demerits, and recent recommendations practiced across the world. *Journal of Microscopy and Ultrastructure*, 5(2), 59–69. <https://doi.org/10.1016/j.jmau.2016.10.002>
- Siddharth, R., Gupta, D., Narang, R., & Singh, P. (2016). Knowledge, attitude and practice about breast cancer and breast self-examination among women seeking out-patient care in a teaching hospital in central India. *Indian Journal of Cancer*, 53(2), 226. <https://doi.org/10.4103/0019-509x.197710>
- Simsek, S., & Tug, T. (2002). Benign tumors of the breast: Fibroadenoms. *Sted*, 11, 102–105.
- Taher, T. M. J., et al. (2021). The relationship between knowledge and practice in clinical breast examination among women in Baghdad, Iraq. *Kufa Medical Journal*, 18(2), 72–79. <https://doi.org/10.36330/kmj.v18i2.10295>
- Taneja, N., et al. (2021). Knowledge, attitude, and practice towards breast cancer and its screening among women in India: A systematic review. *Journal of Cancer Research and Therapeutics*, 17(6), 1314. https://doi.org/10.4103/jcrt.jcrt_922_20
- Taşçı, A., & Usta, Y. Y. (2010). Comparison of knowledge and practices of breast self examination (BSE): A pilot study in Turkey. *Asian Pacific Journal of Cancer Prevention*.
- Uchida, K., et al. (2013). Breast cancer screening and the changing population pyramid of Japan. *Breast Cancer*, 22(2), 172–176. <https://doi.org/10.1007/s12282-013-0470-6>
- World Health Organization. (2012). International Agency for Research on Cancer GLOBOCAN 2012: Estimated cancer incidence, mortality and prevalence worldwide in 2012. Lung Cancer.
- Yousuf, S. A., Al Amoudi, S. M., Nicolas, W., Banjar, H. E., & Salem, S. M. (2012). Do Saudi nurses in primary health care centres have breast cancer knowledge to promote breast cancer awareness? *Asian Pacific Journal of Cancer Prevention*, 13(9), 4459–4464. <https://doi.org/10.7314/apjcp.2012.13.9.4459>