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KNOWLEDGE, ATTITUDE AND PRACTICES ABOUT BREAST CANCER AND BREAST SELF-EXAMINATION AMONG SECONDARY SCHOOL FEMALE STUDENTS IN BAGHDAD CITY

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ABSTRACT

Background: Breast cancer (BC) is the leading cause of cancer-related deaths in women globally, affecting both developing and developed countries. This study aimed to assess the knowledge of female secondary school students in Al-Resafa, Baghdad, regarding BC risk factors, clinical manifestations, and detection methods, along with their knowledge, attitude, and practice of Breast Self-Examination (BSE). Method: A cross-sectional study was conducted from March to December 2022, involving 400 female students from four secondary schools. Data were collected using a structured questionnaire covering sociodemographic characteristics, BC risk factors, symptoms, BSE knowledge and practice, and detection methods. Chi-square and Fisher's Exact Test were used to analyze associations. Results: showed that 44.5% of participants had borderline knowledge of BC risk factors and symptoms, while 97.8% were aware of the possibility of recovery. However, BSE practice was poor, with only 1.5% performing it monthly. Of those who did not perform BSE, 36.8% cited lack of time. Mammography was considered the most appropriate detection method by 59.8%, while 16.5% preferred breast ultrasound. Despite a positive attitude towards BSE, knowledge and practice levels were low. Conclusion: BC awareness among students was borderline, and BSE practices were inadequate, indicating the need for educational interventions to improve early detection efforts.

KEYWORDS: Knowledge, Attitude, Practices, Breast Cancer, Breast Self-examination, Secondary School, Female Students.

INTRODUCTION

Breast cancer (BC) is the leading cause of cancer-related deaths in women globally, and it is recognized as a major health concern in both developing and developed nations. Various risk factors contribute to its occurrence. In the early stages, breast cancer often presents no symptoms; however, as the tumor grows, it may manifest through one or more of the following signs: a painless lump in the breast, a lump in the armpit, breast pain, skin thickening or swelling, spontaneous nipple discharge (especially if bloody), or nipple inversion or erosion.[1] BC is among the top three most common cancers and one of the top five leading causes of cancer deaths among women. Recent global data indicate that BC accounts for approximately 25% of all new cancer cases and 15% of cancer deaths in women. In 2018 alone, an estimated 627,000 women worldwide died from BC.[2-4] While the incidence of BC remains highest in more developed regions, mortality rates are significantly higher in less developed countries. Early detection is key to improving outcomes, as BC is treatable and often preventable when caught early. Two primary strategies for early detection are early diagnosis and screening.[4] Breast cancer screening methods include breast self-examination (BSE), clinical breast examination, and mammography, typically performed in combination. Of these, mammography is the only method proven to be effective, though it is costly and more feasible in countries with advanced health infrastructure.[5]

BSE is considered a fundamental method for breast cancer screening and early detection. Although organizations like the American Cancer Society do not endorse BSE as an effective screening tool, it remains useful in raising breast cancer awareness and prompting further screening, particularly in women with a family history of the disease.[6,7]

Sociocultural factors often delay early detection practices and consultation with healthcare services. Cultural

beliefs and stigmas surrounding breast cancer treatments can impede timely health-seeking behaviors. In many cultures, the concept of beauty is tied to a woman's physical completeness, leading to fear of mastectomy and deterring some women from seeking early diagnosis.[8] The aim of study is to evaluate the level of awareness among females in secondary institutions regarding breast cancer, including risk factors, clinical manifestations, and methods of detection. To evaluate the knowledge, attitude, and practice of females in secondary institutions with respect to breast self-examination. To determine the determinants that are linked to their knowledge and practice.

METHOD

A cross-sectional study was conducted from March to December 2022 in four secondary schools for females in the Al-Resafa district of Baghdad, Iraq, to assess breast cancer (BC) knowledge and Breast Self-Examination (BSE) awareness among female students in grades four and five. All students who agreed to participate were included in the study. A structured questionnaire with eight parts was developed after reviewing relevant literature and discussed with the Scientific and Ethical Committee. The questionnaire covered sociodemographic characteristics, knowledge of BC risk factors, signs and symptoms, the treatability of BC, awareness and practice of BSE, attitudes toward BSE, and knowledge of BC detection methods. Participants' knowledge of BC risk factors was evaluated using 12 specific risk factors, and a scoring system classified their knowledge as poor, moderate, or good. Knowledge of BC symptoms such as nipple discharge, breast pain, and lumps was also assessed. Awareness of BSE was examined based on whether participants had heard of BSE, and those who had were further questioned about the appropriate age, frequency, and technique for conducting BSE. Respondents were categorized into three groups based on their knowledge of BSE: good, little, or lacking. BSE performance and barriers were also explored, with reasons for not practicing BSE including lack of time and fear of discovering disease. Attitudes toward BSE were assessed, dividing participants into positive or negative groups. The study was approved by the Department of Family and Community Medicine, the Iraqi Council for Medical Specialties, and the Ministry of Education. Data were analyzed using SPSS, with Chi-square and Fisher's Exact Tests used to evaluate associations, and a p-value of <0.05 considered statistically significant.

RESULTS

A total of 400 females in the secondary school were included in the current study. More than half of them (219; 54.8%) were in the 4th grade of secondary school, 41(10.2%) of the participants have family history of breast cancer. Among those with positive family history of breast cancer, 53.7% of them have second degree relative with breast cancer and 36.6% have first degree relative with breast cancer (**Table 1**). All respondents were from Baghdad city and they were all not married.

Table (1): Demographic characteristics of the study sample.

Variables		No. N=400	(%)
Year of study	4th year	219	54.8
	5th year	181	45.2
Family history	Positive	41	10.2
	Negative	359	89.8
Degree of relation in case of positive family history (N=41)	First degree	15	36.6
	Second degree	22	53.7
	Third degree	4	9.7

Table (**2**) revealed that the highest correct answer among the participants was about the relation between breast cancer and exposure to radiation 287(71.8%), followed by the relation between breast cancer and positive family history 271 (67.8%) and the least correct answer was about the relation between breast cancer and breast-feeding 90(22.5%). Knowledge of participants regarding signs and symptoms of breast cancer was presented; where 348 (87%) of the participants assumed that breast skin change is a sign of breast cancer; 344 (86%) proposed that breast cancer might be presented by breast lump, and the least correct answer was about Breast enlargement 216 (54%).

Table (2): Knowledge of participants regarding risk factors of breast cancer and signs & symptoms of breast cancer (No.=400).

Variables	Correct answer	
	No.	%
Relation between breast cancer and aging	109	27.3
Relation between breast cancer and age of menarche	119	29.8
Relation between breast cancer and multiparty	138	34.5
Relation between breast cancer and age of first delivery	135	33.7

Relation between breast cancer and positive family history	271	67.8
Relation between breast cancer and age of menopause	141	35.2
Relation between breast cancer and underweight	233	58.3
Relation between breast cancer and the use of OCP	141	35.3
Relation between breast cancer and breast-feeding	90	22.5
Relation between breast cancer and smoking	223	55.7
Relation between breast cancer and radiation exposure	287	71.8
Relation between breast cancer and the use of HRT	115	28.7
Signs and Symptoms	**Correct answer**	
	No.	**%**
Bloody discharge	274	68.5
Breast pain	342	85.5
Nipple retraction	265	66.2
Breast skin changes	348	87
Breast enlargement	216	54
Breast lump	344	86

Table (**3**) showed that presents that 391 (97.8%) of the participants correctly answered about the possibility of recovery from breast cancer. Also 178 (44.5%) of the participants had a borderline knowledge with concern to the risk factors and symptoms of breast cancer, (Total score=19). Regarding Breast Self-Examination (BSE); Figure one showed that only 193 (48.2%) of the participants heard about it, among them 29(15.0%) identify the age for starting BSE, 82 (42.5%) knew the frequency of doing BSE, yet only 12 (6.2%) identify the appropriate time for performing it and 61 (31.6) describe the technique properly. Among those 193 participants only 36 (9%) were actually practicing BSE. Among the 193 students who were aware about the BSE; 165 (85.5%) were with borderline awareness about BSE, 28 (14.5%) were with bad score and none of them was with good score.

Table (3): Knowledge, awareness and practicing of participants. No.=400

Possibility of recovery	**Correct answer**	
	No.	**%**
Correct	391	97.8
Wrong	9	2.3
Total knowledge	**No.**	**(%)**
Bad (score < 9)	110	27.5
Borderline (score 9-12)	178	44.5
Good (score > 12)	112	28.0
Knowledge of practices regarding BSE*	**Correct answer**	
	No.	**%**
Age for starting BSE	29	15.0
Frequency of doing BSE	82	42.5
Appropriate time for performing BSE	12	6.2
Knowledge about the technique	61	31.6
awareness about BSE.	**Correct answer**	
	No.	**%**
Know	193	48.2
Never know	207	51.8
Practice about BSE.	**Correct answer**	
	No.	**%**
Practice	36	9
Never **Practice**	364	91
BSE scoring	**No.**	**(%)**
Good	0	0
Borderline	165	85.5
Poor	28	14.5
Total	193	100

Among the 36 students who used to perform BSE only 6 (1.5%) performed it on monthly bases, and among the 364 students who did not perform BSE; 147(36.8%) claimed that they did not have time for performing the

test, 125 (31.3%) said that the test is not necessary and 92(23.0%) were afraid from performing the test. Also 265 (66.2%) of participants had a positive attitude towards BSE. Mammography was considered the most appropriate method for diagnosing breast cancer by 239 (59.8%) of the participants, whereas breast ultrasound was considered the most appropriate method for diagnosing breast cancer by only 66 (16.5%) of the participants. As in table 4.

Table 4: Frequency, barriers, Attitude, Method of diagnosis of performing Breast Self-Examination (BSE).

Frequency of BSE	**No.**	**(%)**
Monthly	6	1.5
Irregular	25	6.3
Annual	5	1.3
Barriers	**No.**	**(%)**
No available time	147	36.8
Not necessary	125	31.3
Fear	92	23.0
Attitude towards BSE	**No.**	**(%)**
Positive	265	66.2
Negative	135	33.8
Method of diagnosis	**No.**	**(%)**
Mammography	239	59.8
Breast Ultrasound	66	16.5
X-ray	42	10.5
Clinical examination	40	10.0
Fine needle aspiration	13	3.3

On studying the association between knowledge score and family history of breast cancer it was found that the association was statistically not significant (χ^2; df= 2, P=0.9). as in table 5.

Table 5: Cross tabulation between knowledge score and family history of breast cancer.

Score	**Family history of Breast cancer**				**P-value**
	Positive		**Negative**		
	No.	**%**	**No.**	**%**	
Bad	14	34.2	137	38.2	0.9*
Borderline	19	46.3	153	42.6	
Good	8	19.5	69	19.2	

*** The association was statistically not significant (χ^2; df= 2, P=0.9)**

On studying the association between knowledge score and year of study it was found that the association was statistically not significant (χ^2; df= 2, P=0.6) (**Table 6**).

Table (6): Association between scoring and year of study, No.=400

Score	**Year of study**				**P-value**
	4th stage		**5th stage**		
	No.	**(%)**	**No.**	**(%)**	
Bad	78	35.7	73	40.3	0.6
Borderline	98	44.7	74	40.9	
Good	43	19.6	34	18.8	

*** The association was statistically not significant (χ^2; df= 2, P=0.6)**

On studying the association between positive family history and using appropriate procedure for BSE it was found that the associations were statistically not significant for all (χ^2; df= 2, P > 0.05) (**Table 7**).

Table (7): Association between Positive family history and using appropriate procedure for BSE, No.= 193

Knowledge of BSE		**Family history**				**P value**
		Positive (N=41)		**Negative (N=359)**		
		No.	**(%)**	**No.**	**(%)**	
Start age for BSE	Correct	4	16.7	25	14.8	0.811
	Wrong	20	83.3	144	85.2	

Frequency of BSE	Correct	10	41.7	72	42.6	0.931
	Wrong	14	58.3	97	57.4	
Appropriate time	Correct	1	4.3	11	6.5	0.693
	Wrong	22	95.7	159	93.5	
Correct technique	Correct	8	36.4	53	31.0	0.715
	Wrong	14	63.6	118	69.0	

On studying the association between using appropriate procedure for BSE and year of study it was found that the association was statistically not significant (χ^2; df= 2, P>0.05) (**Table 8**).

Table (8): Association between Year of study and using appropriate procedure for BSE, No.= 193

Knowledge of BSE		Year of study				P values
		4th stage		5th stage		
		No.	(%)	No.	(%)	
Start age for BSE	Correct	16	14.3	13	16.0	0.735
	Wrong	96	85.7	68	84.0	
Frequency of BSE	Correct	48	44.0	34	40.5	0.620
	Wrong	61	56.0	50	59.5	
Appropriate time	Correct	5	4.4	7	8.9	0.206
	Wrong	109	95.6	72	91.1	
Correct technique	Correct	34	33.3	27	29.7	0.585
	Wrong	68	66.7	64	70.3	

DISCUSSION

The current study highlights the knowledge, attitude, and practice of secondary school females regarding breast cancer and breast self-examination (BSE). Over half of the students were in the fourth stage of secondary school, similar to findings by Al-Fathy[9] in Iraq. Alipour et al.[10] in Iran emphasized the importance of early education in secondary school to increase awareness not only among students but also within their social circles. In our study, 10.2% of participants had a family history of breast cancer, a lower percentage compared to Salman and Abass[11], who reported 22%. Differences in incidence and risk factors across regions may explain this variation. Bird et al.[12] in Mexico found no significant effect of family history on knowledge about screening and early diagnosis. However, Huq et al.[13] in the USA demonstrated that a first-degree relative's history of breast cancer significantly impacted younger females' knowledge and attitudes towards screening. Students demonstrated the most accurate knowledge concerning the relationship between breast cancer and radiation exposure (71.8%) and family history (67.8%), but had less awareness of breast-feeding as a protective factor (22.5%), consistent with findings from Latif[14] in Saudi Arabia. In contrast, a previous study in Iraq showed better awareness regarding smoking, radiation, and breastfeeding as risk factors.[11] Regarding symptoms, students were most familiar with breast skin changes (87%) and lumps (86%), similar to findings by Ewaid et al.[15] in Iraq. Nearly all participants (97.8%) acknowledged that early detection could improve the prognosis of breast cancer, aligning with findings by Assfa Mossa[16] in Ethiopia, which also indicated that younger females have a better perception of prognosis than older women. Overall, 72.5% of students had either good or borderline knowledge, a higher rate than the 50.7% poor knowledge reported by Alwan et al.[17] in Iraq. Milaat[18] in Saudi Arabia reported lower rates of good knowledge (15.4%), which may be attributed to urbanization and increased internet use.[19] Approximately 48.2% of students were aware of BSE, which is consistent with the 52.2% reported by Dinegde et al.[20] in Ethiopia but lower than the 73% reported by Ewaid et al.[15] in Iraq. Most students had borderline knowledge of BSE (85.5%), consistent with Ebrahim[21] in Basrah. Despite this, 91% of students did not practice BSE, a higher percentage than in Salim et al.[22], where 48.6% did not practice it. Common barriers included lack of time and fear, similar to Al-Naggar et al.[23] in Malaysia. The study found no significant relationship between family history and breast cancer knowledge, a result that contrasts with El Mhamdi et al.[24] in Tunisia. Additionally, no significant association was found between students' grade level and knowledge, unlike findings by Al-Haji and Moawed[25] in Saudi Arabia. Differences in educational systems and socioeconomic factors may explain these inconsistencies.

CONCLUSION

Secondary school females in Al-Resafa, Baghdad, had borderline knowledge of breast cancer risk factors (44.5%), with high awareness related to radiation exposure and family history. While they recognized skin changes and breast lumps as symptoms, their knowledge and practice of breast self-examination were poor despite a positive attitude. Family history and years of study had no impact, with common barriers being lack of time, fear, and perceiving BSE as unnecessary.

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