Journal of Health Care Research

Journal homepage: https://jhcr.journals.ekb.eg

P-ISSN 3009-6588

E-ISSN 3009-7541

Awareness about Early Detection of Breast Cancer Services among Women Attending Maternal and Child Health Care Centers in Beni - Suef

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Abstract

Background: Breast cancer starts when breast cells begin to grow out of control due to DNA damage and genetic mutations that can be influenced by exposure to estrogen. **Aim:** This study aimed to assess the awareness about early detection of breast cancer services among women attending maternal and child health care centers at Beni-Suef governorate. **Design:** A cross-sectional analytic design **Sampling:** Adult woman and woman Attending the study setting for services for herself or her child. **Setting:** The study will be conducted at the maternal and child health care (MCH) centers in Elfashn city at Beni-Suef governorate. **Data collection tools: 1st tool**: a structured questionnaire to assess sociodemographic characteristics of the woman woman's present and past medical history, test woman's knowledge about breast cancer, assess woman's attitudes towards BSE, used to identify woman's reported practice of BSE and its determinants. **2nd tool**: **Observation checklist**: A standardized tool will be used to assess actual woman's practice of BSE. **Results:** The study sample consisted of 300 women whose age ranged between 18 and 54 years, median 34.0 years as presented in Table 1. The highest percentage (41.3%) had secondary level of education. The majority were housewives (73.3%) and married (87.3%). There was no statistically significant relation between women' knowledge and their reported practice of BC. **Conclusion:** slightly less than three-fourth (70.7%) of the women in the study sample were aware of the Breast Cancer (BC) screening service provided in PHC centers in Beni-Suef. Also, there was a statistically significant relation was found between women' of attitude and practice (p=0.04). It shows more positive attitude related to more adequate practice. **Recommendation:** Educational workshops should be provided by the nurses in various healthcare centers to train women in the process of breast self-examination among women attending maternal and child health care centers at Beni-Suef governorate.

Keywords: Assessment, Breast cancer

INTRODUCTION

Breast cancer is a malignant tumor that originates in the cells of the breast tissue. It is the most common cancer in women worldwide, accounting for 24.2% of all cancer cases among women. According to the latest World Health Organization statistics, there were an estimated 2.3 million new cases of breast cancer in 2020; it is the second leading cause of cancer death in women after lung cancer. The risk of developing breast cancer increases with age, and most cases occur in women over the age of 50**. (WHO.2024)**

Despite these advances, breast cancer remains a significant public health concern. According to the WHO, there were an estimated 685, 000 deaths from breast cancer worldwide in 2020. Continued research and investment in prevention, early detection, and treatment are essential to reducing the burden of this disease **(Sung H et al., 2019)**.

Breast cancer annual incidence is rising globally accounting for 12% of anew cancer cases and 25% of all cancers in women. New breast cancer cases among Egyptian females in 2020 were 22,038, representing 32.4% among other cancer types, with 10.3% death rate **(Ferlay et al., 2020; National Cancer Institute, 2020).**

In terms of patients' awareness of BC symptoms, a breast lump is the most commonly recognized symptom, followed by nipple discharge and an armpit lump. Conversely, the least recognized symptoms include changes in breast size and nipple rash with alterations in breast shape **(Abdulkareem et al., 2023)**. Cancer stage at diagnosis is a prognostic factor in BC survival, with an early staging of cancer correlating with improved survival rates **(Ng et al., 2020)**. Survival varies by stage, and the 5-year relative survival rates for BC in the United States are 99 percent with localized, 84 percent with regional, and 23 percent with metastatic disease **(Velentzis et al., 2023)**.

The management of BC in the developing world faces several challenges, including younger age at presentation, aggressive behavior, lack of national breast screening programs, and lack of reliable data registries as well as socioeconomic factors; thus, these factors make it very challenging to apply the international guidelines for BC management in this region **(Global Burden of Disease [GBD] 2019 Iran Collaborators, 2022)**.

Significance of the Study

Breast cancer is the most common cancer in women and the most common cancer worldwide. The incidence of breast cancer is higher in industrialized countries,

whereas the proportional fatality rate is highest in developing countries. According to the World Health Organization (WHO), approximately 2.3 million women will be diagnosed with breast cancer, with 685,000 deaths worldwide. In the previous five years, 7.8 million women had been diagnosed with breast cancer, which making it the most frequent in the world. It claimed the lives of more than 74,072 people in Africa, with 168,690 new cases reported. **(Shang C., et al., 2023).**

Breast cancer incidence is rising in both developed and developing world, with higher related mortality in developing countries. The lack of women's awareness about the disease and its symptoms and signs, and about screening is a contributing factor in its increasing rates. This study is an attempt to fill a knowledge gap regarding women's awareness of early detection of BC in Beni-Suef.

AIM OF THE STUDY

The aim of this study was to assess the knowledge of BC and screening and related attitudes among women attending maternal and child health care centers in Beni-Suef city.

Research questions:

1. Are women attending maternal and child health care centers in Beni_Suef knowledgeable of breast cancer and breast self-examination (BSE)?
2. What are these women's attitudes towards breast self-examination (BSE)?
3. Do these women's practice breast self-examination (BSE) and what are its determinants?

SUBJECTS AND METHODS

Research design and settings: A cross-sectional analytic design was used in carrying out the study at Maternal and Child Health Care (MCH) centers in Beni-Suef governorate located in Alfashn city. These centers provide services for the early detection of BC for attending women.

Subjects: All women attending the study settings during the study period were eligible to be selected in the sample if aged 18+ years, and attending the study setting for services. Those with a history of BC were excluded. The sample size was calculated to determine the rate of satisfactory knowledge and positive attitude (31.9%) to **Ali et al. (2020)**. Accordingly, the sample size was calculated at a 95% level of confidence and 5.5% absolute precision using the Open-Epi software package for prevalence sample size with finite population correction.

Data collection tools: Data were collected using an interview questionnaire developed by the researcher to assess women's

knowledge and attitudes. It consisted of the following parts.

Part I: to collect data about the socio-demographic characteristics of the women such as age, marital status, educational level, occupation, place of residence.

Part II: this will assess woman's present and past medical history, including surgical and gynecological histories and obstetric histories such as age at menarche, gravidity, parity, abortions, living children, age at first pregnancy and pregnancy follow-up care, and use of contraception. It also involved the history of chronic diseases.

Part III: assessed women's knowledge of BC and its screening. It consisted of 25 True/False questions, in addition to three open-ended questions. The 28 questions covered knowledge areas of BC prevalence, etiology, risk factors, symptoms and signs, screening, prevention, treatment, and prognosis. For scoring, each item with a correct response was scored 1 and an incorrect zero. For the knowledge areas and the total questionnaire, the scores of the items were summed up and the totals were divided by the number of corresponding items, giving mean scores. These were converted into percentage scores. A woman's knowledge was considered satisfactory if the percentage score was 60% or more and unsatisfactory if less than 60%.

Part IV: this is intended to assess woman's attitudes towards BSE. and related screening. It consisted of 12 positive and negative statements such as: "I believe that BSE is important for every woman," and "I believe that BC has no cure." The items are measured on a 3-point Likert scale: "Agree, Uncertain, and Disagree." For scoring, he responses "agree," "uncertain," and "disagree" were respectively scored 2, 1, and 0. The scoring was reversed for negative statements so that a higher score indicates a more positive attitude. The scores of the items were summed up and the total was divided by the number of the items, giving a mean score. This was converted into a percentage score. The attitude was considered positive if the percentage score was 60% or more, and negative if less than 60%.

Part V: This part was intended to evaluate women's awareness of the PHC centers' breast cancer screening services, their sources of information, the utilization of these services, and the reasons for non-utilization if any. They were also asked about having previous BC screening, and the method used. This part also measured women's reported practice of BSE, duration

of practice, timing, and relation to menses, as well as the positions, visual inspection, and checking of lymph nodes.

- **Observation checklist**: This tool was used to assess women's actual observed practice of BSE. It consisted of standardized checklists to assess the practice of BSE in standing and lying down positions **(Abo Al-Shiekh et al., 2021)**. The standing in front of mirror position checklist included 9 items and sub-items. The lying position checklist consisted of 8 items and sub-items. Each item and sub-item of these checklists were to be checked as either "done" or "not done."

  Scoring: The items "not done" and "done" were scored "0" and "1", respectively. The scores of the items of each checklist were summed up and the totals were divided by the numbers of its items, giving mean scores, which were converted into percentage scores. The practice for each checklist separately and for both together was considered adequate if the percentage score was 60% or more and inadequate if less than 60%.

Tools validity and reliability: Upon preparing the data collection tools, the researcher presented them to three experts in Community Health Nursing, from faculties of nursing, for face and content validation. They examined them for relevance, comprehensiveness, applicability, and clarity. Needed modifications were made according to their comments and suggestions. The reliability of the attitude scale was assessed through testing their internal consistency. It demonstrated an acceptable level of reliability with Cronbach's alpha coefficient 0.50.

Pilot study: A pilot study was conducted on 30 women representing 10% of the study sample. The purpose was to examine the clarity of the questions and the feasibility of the study. It also helped in the estimation of the time needed to complete the data collection forms. Based on the pilot results, necessary modifications were made, mostly in the form of re-wording or re-phrasing. Since no major changes in the data collection forms were made, the women of the pilot study were included in the main study sample.

Fieldwork: The required approvals were obtained through official letters issued from the Faculty of Nursing, Beni-Suef University to the medical and nursing directors of the five selected centers, explaining the aim of the study and its procedures. The researcher met with the nursing director in each of the five selected centers to gain her cooperation, and to determine a suitable time to arrange for interviews with the attending women.

Recruitment of the women in the study sample was carried out according to the set eligibility criteria. The researcher met with eligible women to explain the study's aim and procedures and invited them to participate. Those who provided their informed consent were interviewed individually by the researcher. The data collection was completed in four months.

Ethical considerations: Prior study's conduction, ethical approval was obtained from the Scientific Research and Ethics Committee at the Faculty of Nursing, Beni-Suef University. The researcher clarified the aim of the study to each woman before inviting her to participate in the study. They were reassured that participation is voluntary, and about their right to refuse or withdraw from the study at any time. The anonymity and confidentiality of any obtained information were guaranteed.

Statistical analysis: Data entry and statistical analysis were done using SPSS 20.0 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables and means and standard deviations and medians for quantitative variables. Spearman rank correlation was used to assess the inter-relationships among quantitative variables and ranked ones. To identify the independent predictors of the knowledge and attitude scores, multiple linear regression analysis was used and analysis of variance for the full regression models was done. Statistical significance was considered at p-value <0.05.

RESULTS

The study sample consisted of 300 women whose ages ranged between 18 and 54 years, median of 34.0 years as presented in Table 1. The highest percentage (41.3%) had a secondary level of education. The majority were housewives (73.3%) and married (87.3%). The highest percentage of their husbands had a basic level of education (41.8%) and were manual workers (60.8%). Slightly more than one-half of them were residing in rural areas (53.0%). The majority of the women reported having a sufficient income (91.0%).

Table 2 shows women's age at menarche ranged between 11 and 17 years, with a median of 14.0 years. The majority were multigravidas, multiparous, with one or more living children, had pregnancy follow-up, and used contraception. Approximately one-fourth (23.3%) had previous abortions. Their age at first pregnancy ranged between 15 and 30 years, with a median of 20.0 years. Meanwhile, 14.7% of them had chronic diseases.

Table 3 points to a wide variation in women's knowledge of BC. Thus, on

the one hand, almost all of them (99.0%) had satisfactory knowledge about its symptoms and signs. On the other hand, only a few of them had satisfactory knowledge of its prevalence (7.3%), prognosis (13.7%), and etiology (26.7%). Overall, 71.3% of the women had satisfactory knowledge of BC, and 83.7% had positive attitudes towards BC and related screening.

Table 4 indicates a statistically significant weak positive correlation between women's scores of knowledge and attitude (r=0.115). Their knowledge scores had a statistically significant weak positive correlation with their age at first pregnancy (0.159). Their attitude scores had statistically significant weak positive correlations with their husbands' education, income, and age at first pregnancy, and negative weak correlations with their age, age at menarche, gravidity, parity, and the number of living children. The data presented in Table 4 indicating that women with a higher level of education tend to have a higher percentage of satisfactory knowledge compared to those with basic or secondary education. Similarly, there is a slight indication that women residing in rural areas and those with sufficient income may have a slightly higher proportion of satisfactory knowledge.

In multivariate analysis (Table 5), the statistically significant independent positive predictor of women's knowledge scores was their having chronic diseases. The number of living children was a negative predictor. The model explains only 8% of the variation in the knowledge score. Table 5 presented relations between women's knowledge and their reported practice of screening, there is no significant association between women's knowledge about breast cancer and their reported practice of screening (p->0.05) indicating not statistically significant. Also there is no significant association between women's knowledge about breast cancer and their awareness of screening services ($p > 0.05$).

As for women's attitude score, Table 6 shows that its statistically significant independent positive predictors were their income and age at first pregnancy. Conversely, its negative predictors were women's age, age at menarche, and previous pregnancy follow-up. The model explains 23% of the variation in the attitude score.

Table 1: Demographic characteristics of women in the study sample (n=300)

	Frequency	Percent
Age:		
<30	107	35.7
30-	104	34.7
40+	89	29.7
Range	18-54	
Mean±SD	34.1±8.7	
Median	34.0	
Education:		
Basic	119	39.7
Secondary	124	41.3
University	57	19.0
Job:		
Housewife	220	73.3
Employed	80	26.7
Marital status:		
Single	34	11.3
Married	262	87.3
Divorced/widow	4	1.3
Husband education (n=263):		
Basic	110	41.8
Secondary	77	29.3
University	76	28.9
Husband job (n=263):		
Retired	2	0.8
Employee	101	38.4
Manual worker	160	60.8
Residence:		
Rural	159	53.0
Urban	141	47.0
Income:		
Insufficient	27	9.0
Sufficient	273	91.0

Table 2: Menstrual and obstetric history of women in the study sample (n=300)

	Frequency	Percent
Age at menarche:		
<=12	34	11.3
>12	266	88.7
Range	11-17	
Mean±SD	13.9±1.1	
Median	14.0	
Gravidity (n=266):		
1-2	70	26.3
3+	196	73.7
Parity (n=266):		
0	3	1.1
1-2	83	31.2
3+	180	67.7
Living children (n=266):		
0	3	1.1
1-2	85	32.0
3+	178	66.9
Had previous abortions (n=266)	62	23.3
Had pregnancy FU (n=266)	262	98.5
Age at first pregnancy (n=263):		
<20	89	33.8
20-	150	57.0
25+	24	9.1
Range	15-30	
Mean±SD	20.8±2.5	
Median	20.0	
Used contraception (n=266)	256	96.2
Have chronic diseases	44	14.7

Table 3: Awareness and utilization of BC screening services as reported by women in the study sample (n=300)

	Frequency	Percent
Aware of BC screening services in PHC in Beni-Suef:		
Yes	212	70.7
No	88	29.3
Source of awareness (n=212): @		
Nurses	183	86.3
Media	17	8.0
Doctors	14	6.6
Internet	8	3.8
Family/friends	2	0.9
Used service (n=212)	134	63.2
Reasons for non-use (n=78):@		
Embarrassment	52	66.7
No time	10	12.8
Not convinced about benefit	5	6.4
Difficult to reach	2	2.6
Never heard about	1	1.3
Do not know where	1	1.3
Fear of BC	1	1.3
No family support	1	1.3

Table 4: Knowledge of breast cancer and screening and related attitudes among women in the study sample (n=300)

	Frequency	Percent
Satisfactory (60%+) knowledge of BC:		
Prevalence	22	7.3
Etiology	80	26.7
Risk factors	159	53.0
Symptoms/signs	297	99.0
Screening	216	72.0
Prevention	210	70.0
Treatment	184	61.3
Prognosis	41	13.7
Total knowledge:		
Satisfactory	214	71.3
Unsatisfactory	86	28.7
Attitude:		
Positive	251	83.7
Negative	49	16.3

Table 5: Relations between women's knowledge and their demographic characteristics

	Knowledge				X^2 test	p-value
	Satisfactory		Unsatisfactory			
	No.	%	No.	%		
Unit:						
Alfashn childcare	49	72.1	19	29.9		
Delmans	48	82.8	10	17.2		
Aqfahs	44	75.9	14	24.1	9.12	0.06
Alfant	33	67.3	16	32.7		
Alfashn primary care	40	59.7	27	40.3		
Age:						
<30	74	69.2	33	30.8		
30-	75	72.1	29	27.9	0.40	0.82
40+	65	73.0	24	27.0		
Education:						
Basic	87	73.1	32	26.9		
Secondary	81	65.3	43	34.7	4.82	0.09
University	46	80.7	11	19.3		
Job:						
Housewife	158	71.8	62	28.2		
Employed	56	70.0	24	30.0	0.10	0.76
Marital status:						
Unmarried	24	63.2	14	36.8		
Married	190	72.5	72	27.5	1.42	0.23
Husband education level (n=263):						
Basic	82	74.5	28	25.5		
Secondary	52	67.5	25	32.5	1.42	0.49
University	57	75.0	19	25.0		
Husband job (n=263):						
Retired	1	50.0	1	50.0		
Employee	75	74.3	26	25.7	0.70	0.71
Manual worker	115	71.9	45	28.1		
Residence:						
Rural	118	74.2	41	25.8		

Urban	96	68.1	45	31.9	1.37	0.24
Income:						
Insufficient	16	59.3	11	40.7		
Sufficient	198	72.5	75	27.5	2.12	0.15
Crowding index:						
<2	118	73.8	42	26.3		
2+	96	68.6	44	31.4	0.98	0.32

6: Relations between women's knowledge and their reported practice of screening

	Knowledge				X^2 test	p-value
	Satisfactory		Unsatisfactory			
	No.	%	No.	%		
Had previous BC screening:						
No	118	71.5	47	28.5		
Yes	96	71.1	39	28.9	0.01	0.94
Aware of screening services:						
No	66	75.0	22	25.0		
Yes	148	69.8	64	30.2	0.82	0.37
Had mammography:						
No	209	70.8	86	29.2		
Yes	5	100.0	0	0.0	2.04	0.15
Had US screening:						
No	212	71.1	86	28.9		
Yes	2	100.0	0	0.0	0.81	0.37
Practice BSE:						
No	124	68.9	56	31.1		
Yes	90	75.0	30	25.0	1.32	0.25
Total reported screening services awareness/practice:						
None	60	75.9	19	24.1		
One +	154	69.7	67	30.3	1.12	0.29

DISCUSSION

Breast cancer is the most common cancer among women, with a risk of occurrence in one among every ten women **(Braza and Sisti, 2024)**. The problem is even present in developed countries such as in the underserved areas in the United States **(Ozcan et al., 2024)**. The aim of this study was to assess women's knowledge and attitudes concerning BC and its screening. The results revealed that their knowledge and attitudes are optimal, and are positively correlated, and influenced by certain of their characteristics.

The study sample consisted of women in reproductive age, with mid-level

education, and mostly housewives and married, residing in rural areas, and having sufficient family income. Their husbands mostly had a basic level of education and were manual workers. They thus represent a middle-class level with characteristics that may influence their awareness and health behaviors. The age at menarche among the women ranged between 11 and 17 years, with more than one-tenth of them having had their menarche at an age younger than 12 years. This would increase their risk of developing BC. In line with this, a study in South Korea showed a significantly higher risk of BC among those who had their menarche at a younger age **(Kim et al., 2024)**. Meanwhile, a study in Japan **(Iwase et al., 2024)** demonstrated that the age at menarche has a decreasing secular trend, which might relate to the increasing rates of BC.

On the other hand, the women in the current study had high gravidity, parity, and numbers of living children with at least one-half of them having had three pregnancies, labors, and living children. These factors contrary to the early age at menarche are considered protective rather than risk factors for BC development. In agreement with this, a large recent study on Chinese, Japanese, and Korean women showed that higher parity was associated with a lower risk of BC **(Nabila et al., 2024)**. Another possible factor potentially related to BC is the age at first pregnancy. The majority of the women in the present study had their first pregnancy at an age of less than 25 years, which would decrease their risk of developing the disease. In congruence with this, studies in Italy **(Vercellini et al., 2024)** and the United States **(Gard et al., 2024)** proposed younger age at first birth was a risk factor for BC.

According to the current study's results, almost all of the women were knowledgeable about BC symptoms and signs. This is quite important in early detection and diagnosis, which would certainly improve the prognosis. The finding is in congruence with the results of a study in Jordan, where the majority of women had satisfactory knowledge of BC symptoms and signs **(Al-Mousa et al., 2024)**. Nonetheless, lower rates of satisfactory knowledge were reported among Palestinian women about the symptoms and signs of BC **(Elshami et al., 2024)**. The difference could be attributed to the differences in the socio-demographic characteristics in the two studies. Conversely, very few women in the present study had satisfactory knowledge of the prevalence of BC and its etiology and prognosis. This is an alarming

finding given the importance of such knowledge in enhancing women's health-seeking behavior and intention to undergo screening for BC. A similarly low level of knowledge was also detected among Syrian refugees in Canada **(Racine et al., 2022)**.

According to the results of the present study, more than two-thirds of women had total satisfactory knowledge of BC. Although this might seem an acceptable finding, still around one-third of them have no satisfactory knowledge, which could increase their risk of late diagnosis and less optimal prognosis. A similar rate of satisfactory knowledge (71.4%) was reported among Saudi women **(Alnaqrani et al., 2024)**. Our finding is also in concordance with the results of the study carried out in the United States, where the knowledge of BC was generally moderate among women of Asian origin **(Tung and Chen, 2024)**.

Regarding the factors influencing women's knowledge, their scores were positively correlated to their age at first pregnancy. However, only the number of living children was identified as an independent negative predictor of the knowledge score in the multivariate analysis. This could be explained by the fact that a woman with high health behavior is more likely to have a small number of children and to be more knowledgeable about BC. A similar effect of a larger number of children on women's awareness of BC screening was reported in a study in India **(Gupta et al., 2024)**.

The present study has also investigated women's attitudes towards BC and related screening. The results demonstrated that the majority of them had positive attitudes. This was particularly noticed among those at younger age, which is expected given the higher tendency to have proper health behavior among the newer generation girls/women. The finding is in line with those of a study of Iranian and Australian women, where the perception and attitudes towards BC and related screening were influenced by women's social and cultural factors **(Parsamand et al., 2024)**.

As for the factors influencing women's attitude towards BC and related screening in the current study, their attitude scores had positive correlations with their husbands' education, income, and age at first pregnancy, and negative correlations with their age, age at menarche, gravidity, parity, and number of living children. The findings are quite worrying as some of these characteristics increase their risk of getting BC. Such

women need community education programs to modulate their negative attitudes. The effectiveness of such programs has been reported in a study in Iran **(Mahboobighazaani et al., 2024)**, and in the United States **(Zafar et al., 2024)**.

CONCLUSION

The present study concluded that the majority of studied women are aware of the breast cancer screening services provided in PHC centers in Beni-Suef, and had related satisfactory knowledge and positive attitudes, their utilization of these services is low, and their practice of breast self-examination is mostly inadequate. Their knowledge, attitude, and practice are influenced by their age, educational level, as well as their age at menarche and obstetric characteristics.

RECOMMENDATIONS:

In the light of the findings of this study, the following recommendations are suggested:

- The breast screening services administration in Beni-Suef health centers needs to deploy more efforts in the promulgation of these services.
- The nurses in these centers as well as the community health nurses should actively implement their roles in the health education of women regarding breast cancer and its screening.
- Every woman attending various health care centers should receive education and clear messages regarding the risk factors of breast cancer, its signs and symptoms, and the various screening methods.

Educational workshops should be provided by the nurses in various healthcare centers to train women in the process of breast self-examination

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