Early Detection of Breast Cancer: Knowledge, Perception and Barriers among Females: A Cross Sectional Study at Zagazig District.

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Abstract

Background: Early detection of breast cancer can dramatically change the prognosis. Perception towards breast cancer and screening methods is a crucial determinant of early detection. **Objectives:** To assess women's perception towards breast cancer and screening methods according to the subscales of health belief model and to identify the level of knowledge about cancer breast, early detection methods and the barriers against adapting screening behavior and to assess the presence of screening services in PHC. **Method**: a cross sectional study was carried out on 270 women from 13 randomly selected primary health care units at Zagazig district. Champion's Health Belief Model Scale was used to assess perception. A structured questionnaire was used to assess knowledge about breast cancer. **Results**: More than 50% of the participants had a perception score less than the mean in all health belief model subscales, except in perception of benefits and barriers. Educated, working women with enough income and positive family history had more perception of susceptibility, severity, self-efficacy with lower perception of barriers. Only 55.2% of participants had fair total knowledge score about breast cancer. 37 % and 35.2 % of them conducted breast self-examination and clinical breast examination respectively. The main perceived barriers were towards clinical breast examination; 66% found it costly, 61% agreed that it is painful and 56% reported it as embarrassing behavior. Women with fair knowledge had higher perception in all scales of health belief model except perception of barriers. 53.8% of primary health units conducted health education sessions about breast cancer and mammogram was present in one urban center. **Conclusion:** More than half of the sample had low perception score and low total knowledge score regarding breast cancer and screening methods. The reported barriers were pain, embarrassment and expensive cost for clinical breast examination. Not all primary health care units provide awareness campaign or clinical examination of breast cancer.

Keywords: *health belief model, breast cancer, screening, perception.*

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Introduction

According to the WHO reports "Breast cancer is the most common cancer among women, impacting over 1.5 million women each year. In 2015, 570,000 women died from breast cancer – that is approximately 15% of all cancer deaths among women. Rates are increasing in nearly every region globally.[1]

About half of all BC cases occur in developing countries, with 43% mortality rate compared to 30% in developed countries.[2]

In Egypt, according to National Cancer Institute of Egypt, 2002-2003 the breast cancer represents 18.9% of total cancer cases, occurring between 30-60 years of age, with median age at diagnosis 49

years.[3] A significant proportion of BC cases present with advanced stages due to lack of awareness of early detection measures. Early diagnosis can produce "down staging" of the disease to earlier stages with more response to curative treatment, particularly in developing countries with limited resources.[4] For that; early and efficient detection of BC must be the cornerstone of decreasing morbidity and mortality [5]. Breast self-exam (BSE), mammography and clinical breast examination (CBE) are considered as screening methods for early detection of the disease.[6] BSE is simple, painless and harmless method that is recommended for females above 20 years to detect any change in appearance and texture of her own breast. With the fact of poor resources and lack of access to mammography in rural parts; it is important to early detect breast lumps by women and then present to a physician.[7]

The American Cancer Society recommends BSE to be conducted monthly in females over 20 years of age, women between 20-40 years were recommended to perform CBE once every three years and every year from the age of 40 along with annual mammography.[8]

The Health Belief Model (HBM) has been used as a theoretical framework to study breast cancer screening behaviors. The model assumes that health-related behavior is affected by a person's perception of the health problem and by the value associated with the healthy action to reduce that threat. Many Studies reported that the most influencing factors for women to get screened for breast cancer are women's health beliefs and attitudes.[9]

As educational campaigns and free health services were recommended to improve screening and to identify the barriers towards this behavior.[10] So the goal of this research is to study women's knowledge and perception towards breast cancer and screening methods according

to the subscales of health belief model and determine the availability of screening services in PHC.

Research question: What is the level of knowledge of women about cancer breast and what is perception of women towards breast cancer and screening methods according to the subscales of health belief model? Is there screening services conducted in PHC at Zagazig district?

Objectives

To assess women's perception towards breast cancer and screening methods according to the subscales of health belief model.

To identify their level of knowledge about cancer breast, early detection methods and the barriers against adapting screening behavior.

To assess the presence of screening services in PHC.

Methods

***Study design, setting and time*:** A cross sectional study was conducted on females at PHC units in Zagazig District in a period from September to November 2017.

***Sample size*:** was determined using Epi info version 6.04. The total number of PHC in Zagazig health district, Sharkia governorate is 26. Thirteen (13) was selected randomly using simple random technique. The total number of females who attended in these units at the time of vaccination was 5000, based on the results of pilot study that perception of females towards breast cancer was 25.2%. 80% power of the study, worst accepted was 20.16, CI 95% so the sample of females was 270. Adding 10% non-response the sample is calculated to be 297.

***Sampling technique*:** Cluster sampling technique and simple random sampling technique methods were used in the selection of PHC and females. Zagazig health district, Sharkia governorate includes (26) PHC (13) of them were

chosen by simple random technique. The selected units were visited at the time of vaccination (two days in the week) and all the women attending was included in the study using the cluster sampling technique until the sample completed.

Inclusion criteria and exclusion criteria: Females with age ranged from 20-40y and not diagnosed as cancer breast. Those who refused to participate in the study were excluded.

***Administrative Design and Ethical Aspects*:** Written administrative permission was obtained from Zagazig health district. Verbal consent was obtained from females to participate in this study. They were reassured about the strict confidentiality of any obtained information, and the study result will be used only for purpose of research.

Tools of data collection

Structured questionnaire: It was divided into 4 sections: (1) Data on demographic characteristics of participants (age, education, occupation, income, marital status) (2) Knowledge of participants about breast cancer (risk factors, symptoms and diagnosis) (3) Level of practice regarding breast self-examination and clinical examination. (4) Availability of screening services at the selected units (mammogram, clinical breast examination).

Scoring: For knowledge and practice section: every question had 2 answers; yes (1) and no (0). The total knowledge score was 28 (risk factors= 9 items, symptoms= 10 items and diagnosis= 9 items). The total mean score of knowledge was calculated. The knowledge is considered low if it is less than or equal to mean score (18.3) and fair knowledge if it is more than the mean score.

***Champion's Health Belief Model Scale (CHBMS)*,** it has been adapted for BC screening. It is divided into 6 subscales: Perception about BC susceptibility (5 items), perception of severity of BC (7 items), perceived benefits (6 items),

perceived barriers (7items), confidence in one's ability (perceived efficacy) (11 items), health motivation (cues to action) (7 items).

Scoring: All items from the subscales were scored by a five-point Likert scale.5= strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree. Each individual received six separate scores.

The validity and reliability of the Arabic version of (CHBMS) were tested by (Mikhail and Petro 2001).[11] Alpha coefficients ranged from 0.65 to 0.89.

Data collection procedures

The field work of this study was conducted through two stages.

A pilot study was conducted on 10% of the sample; to calculate the level of perception about breast cancer. Also it was used to evaluate the content validity, clarity and applicability of the study tool. Slight modifications were done; some questions were changed to a more simple language.

Fieldwork: The randomly selected units were visited at the time of vaccination (twice a week) to guarantee the attendance of reasonable number of females. In addition they usually wait for a long time that helped the investigators to fill the tools easily. The women were asked to participate in the study and the questionnaires were filled

***Statistical management*:** Data were analyzed using SPSS (the Statistical package for Social Sciences for Windows) version 20.0. Frequency, mean and standard deviation were used to summarize data. T test was the test of significance used. A p-value of less than 0.05 was considered significant.

Results

Table (1) demonstrated the criteria of the studied sample; the mean age of was 30 years; the majority of them were married (79.6%). Regarding the educational level, 58.5% had secondary and lower education. About half were

Table (1): Distribution of the studied sample according to the socio-demographic data (n=270)

		N	**%**
Age in years:	20-<30 y	144	53.3
	30-40y	126	46.7
	Mean ± SD	30 ± 6.2	
	Range	20-40	
Educational level:	≤secondary	158	58.5
	>secondary	112	41.5
Occupation:	Not working	134	49.6
	Working	136	50.4
Income:	Not enough	161	59.6
	Enough	109	40.4
Marital status:	Married	215	79.6
	Divorced/Widowed	55	20.4
Family history of BC (1st degree relatives)	Yes	99	36.7
	NO	171	63.3
Friend diagnosis with cancer:	Yes	108	40.0
	NO	162	60.0

working females (50.4%) but (59.6%) of them had no enough income. More than 60% of the sample had no family history of breast cancer and no friends diagnosed with it.

The mean score of subscales of health belief model were clarified in **table (2)**, more than 50% of the studied sample had perception score less than the mean except perception of benefits and barriers.

Table (2): Mean score of subscales of health belief model regarding perception of cancer breast among studied sample

Subscales	**No. of items**	**Range**	**Mean ± SD**	**N (%)**
Perceived Susceptibility	4	4 - 20	12.5±4.8 ≤ 12.5 > 12.5	161 (59.6) 109 (40.4)
Perceived severity	12	12 - 60	39.7±12.9 ≤ 39.7 > 39.7	155 (57.4) 115 (42.6)
Perceived benefits	10	16 - 50	35.9±11.9 ≤ 35.9 > 35.9	114 (42.2) 156 (57.8)
Perceived barriers	16	16 - 80	39±13.1 ≤ 39 > 39	132(48.9) 138 (51.1)
Cues to action	7	7 - 33	15.9±6.9 ≤ 15.9 > 15.9	180 (66.7) 90 (33.3)
Self-efficacy	12	12 - 60	30.6±12.7 ≤ 30.6 > 30.6	155 (57.4) 115 (42.6)

Table (3): Comparison between health beliefs and characteristics of studied sample

		Perceived susceptibility	Perceived severity	Perceived benefits	Perceived barriers	Cues to action	Self-efficacy
Age	20-<30y	11.8 ± 4.8	37.9 ± 13.2	35.8 ± 11.3	40.3 ± 13.3	15.6 ± 7.0	28.6 ± 11.7
	30-40y	13.2 ± 4.7	41.7 ± 12.2	36.1 ± 12.8	37.4 ± 12.8	16.3 ± 6.8	32.9 ± 13.4
	T	- 2.337	- 2.417	- 0.184	1.866	- 0.875	- 2.796
	P	0.02*	0.016*	0.854	0.063	.0.382	0.006*
Education	< secondary	11.7± 4.8	38.1± 12.7	35± 12.0	40.7± 13.9	15.4 ± 6.8	28.1 ± 13.5
	>secondary	13.6 ± 4.6	41.8 ± 12.8	37.2 ± 12.0	36.5± 11.6	16.6 ± 7.0	34.1 ± 10.5
	T	- 3.240	-2.342	-1.458	2.582	-1.33	-3.926
	P	0.001*	0.02*	0.146	0.01*	0.185	0.000*
Occupation	Not working	11.6 ± 4.5	37.2 ± 13.1	35.4 ± 11.2	40.8 ± 12.3	15.1 ± 6.5	27.7 ± 12.1
	Working	13.2 ± 5.0	42.1± 12.2	36.5 ± 12.7	37.1 ± 13.7	16.7 ± 7.3	33.5 ± 12.6
	T	-2.895	-3.235	-0.742	2.351	-1.902	-3.861
	P	0.004*	0.001*	0.459	0.019*	0.058	0.000*
Income	Not enough	11.7 ± 4.5	38 ± 12.1	33.9 ± 11.5	40.6 ± 13.5	14.9 ± 6.3	27.8 ± 12.3
	Enough	13.6 ± 5.1	42.2 ± 13.6	38.7 ± 12.0	36.5 ± 12.3	17.4 ± 7.6	34.7 ± 12.1
	T	-3.052	-2.612	-3.387	2.526	-2.952	-4.524
	P	0.003*	0.01*	0.001*	0.012*	0.004*	0.000*
Family history of BC	Yes	13.2 ± 4.7	41.8 ± 12.1	36.7 ± 11.4	39.1± 13.8	17 ± 7.4	31.3 ± 12.7
	No	11.1± 4.7	35.9 ± 13.3	34.5 ± 12.8	38.7 ± 12.0	14 ± 5.4	29.4 ± 12.5
	t	3.553	3.759	1.454	0.194	3.909	1.203
	P	0.000*	0.000*	0.148	0.846	0.000*	0.23
Friend diagnosis with BC	Yes	13 ± 4.9	41.4 ± 12.9	37.9 ± 11.0	40.1 ± 13.9	16.3 ± 7.3	31.3 ± 13.2
	No	11.7 ± 4.6	37.1 ± 12.5	32.9± 12.8	37.2± 11.7	15.4 ± 6.3	29.6 ± 11.8
	t	2.094	2.724	3.360	1.823	1.035	1.071
	P	0.037*	0.007*	0.001*	0.069	0.302	0.285

Table 3 clarified the relation between HBM subscales and socio-demographic criteria of the studied females. Income was the only factor that affects all subscales with significant higher score among enough income females, except for lower perception of barriers. Females aged from 30-40 years had higher severity, susceptibility and self-efficacy perception. Highly educated and working women had significant higher severity, susceptibility and self-efficacy perception with lower perception of barriers. Those with positive family history of BC had higher perception of severity, susceptibility and cues to action. However females who had a friend with BC highly perceived severity, susceptibility and benefits.

The knowledge about breast cancer was illustrated in **table (4)**, 55.2% of participants had fair total knowledge score (18.3 ± 8.0). Concerning knowledge of symptoms, 66.7% of the studied women had fair knowledge, while only 50% of them had fair knowledge about risk factors. Table (4) also shows the practice of early breast cancer detection behaviors, 37 % and 35.2 % had conducted breast self-examination and clinical breast examination respectively.

Table (4): Distribution of the studied sample according to Knowledge and practice of breast cancer

Knowledge	Mean score	n (N=270)	%
Risk factors	≤ 5.6	135	50.0
	> 5.6	135	50.0
Symptoms	≤ 8	90	33.3
	> 8	180	66.7
Diagnosis	≤ 4.7	61	22.6
	> 4.7	209	77.4
Total knowledge	≤ 18.3	121	44.8
	> 18.3	149	55.2
Practice			
BSE	YES	100	37.0
Clinical	Yes	95	35.2

Regarding barriers perceived by women for adopting behavior of early breast

Table (5): Distribution of studied sample regarding to perception of barriers for early detection of cancer breast (n, %).

Perceived barriers	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1-It is embarrassing to do monthly breast exams.	101 (37.4)	93 (34.4)	27 (10.0)	0	49 (18.1)
2- I have to give up in order to do monthly breast exams	84 (31.1)	93 (34.4)	42 (15.6)	6 (2.2)	45 (16.7)
3-Breast self-exams can be painful.	136 (50.4)	21 (7.8)	100 (37.0)	3 (1.1)	10 (3.7)
4-Breast self-exams are time consuming.	76 (28.1)	72 (26.7)	103 (38.1)	9 (3.3)	10 (3.7)
5-My family/ friends would make fun of me if I did breast self-exams.	131 (48.5)	110 (40.7)	27 (10.0)	0	2 (0.7)
6-The practice of breast self-exams interferes with my activities.	157 (58.1)	42 (15.6)	48 (17.8)	6 (2.2)	17 (6.3)
7-Doing breast self-exams would require starting a new habit, which is difficult.	157 (58.1)	57 (21.1)	48 (17.8)	6 (2.2)	2 (0.7)
8-I am afraid I would not be able to do breast self-exams.	131 (48.5)	27 (10.0)	27 (10.0)	36 (13.3)	49 (18.1)
9-It is embarrassing for me to have a breast exam performed by a physician.	60 (22.2)	32 (11.9)	27 (10.0)	90 (33.3)	61 (22.6)
10-Breast exams performed by a physician can be painful.	65 (24.1)	13 (4.8)	27 (10.0)	109 (40.4)	56 (20.7)
11-Breast exams performed by a physician are time consuming.	5 (1.9)	110 (40.7)	47 (17.4)	69 (25.6)	39 (14.4)
12-My family/ friends would make fun of me if I have a breast exam performed by a physician.	138 (51.1)	74 (27.4)	27 (10.0)	0	31 (11.5)
13-The practice of breast exams performed by a physician interferes with my activities.	107 (39.6)	13 (4.8)	27 (10.0)	56 (20.7)	67 (24.8)
14-Having breast exams performed by a physician would require starting a new habit, which is difficult.	128 (47.4)	59 (21.9)	27 (10.0)	10 (3.7)	46 (17.0)
15-I am afraid I would not be able to go to a breast exam performed by a physician.	59 (21.9)	115 (42.6)	78 (28.9)	0	18 (6.7)
16-Having breast exams performed by a physician are expensive.	38 (14.1)	28 (10.4)	27 (10.0)	96 (35.6)	81 (30.0)

cancer detection, the most perceived barrier was noticed in breast examination by a physician, as 66% found it costly, 61% agreed that it is painful and 56% of participants reported it as embarrassing behavior. On the other hand, more than 50% of the studied women disagree and strongly disagree with all the barriers concerning BSE as being embarrassing, painful, time consuming and interferes with daily activities **table (5).**

Table 6 shows the comparison between health beliefs subscales and knowledge and practice of females. There was statistical significant difference between knowledge of females about BC risk factors, symptoms and all subscales of health belief model. Females with fair knowledge about diagnosis significantly had higher scores in all subscales except in perception of benefits. Also there was statistical significant association between females who actually performed BSE and clinical examination and perception of all HBM subscales.

Regarding the breast cancer screening health services provided in the selected primary health care centers, **table (7)** demonstrated that 53.8% of centers (7 centers) are conducting health education sessions about breast cancer. About 71.4% of the primary health care centers (5 centers) perform these sessions once or twice a year. Clinical breast examination was conducted by about 23.1 % of the primary health care centers (3 centers). Mammogram was available in 1 urban health care centers. Only 23%) of the participants reported that they

Table (6): Comparison between health beliefs and knowledge and practice of the studied sample regarding breast cancer

		Perceived susceptibility	Perceived severity	Perceived benefits	Perceived barriers	Cues to action	Self-efficacy
Knowledge of risk factors	Low	10.4 ± 3.7	34.8 ± 10.6	30.2 ± 12.4	41.3 ± 13.9	13.7 ± 4.0	24.9 ± 10.7
	Fair	14.5 ± 4.9	44.5 ± 13.1	41.6± 8.2	36.6 ± 11.9	18.1 ± 8.4	36.3 ± 11.9
	t	-7.759	-6.668	-8.900	2.986	-5.595	-8.260
	P	0.000*	0.000*	0.000*	0.003*	0.000*	0.000*
Knowledge of symptoms	Low	8.9 ± 2.4	30.9 ± 7.7	23.9 ± 10.2	35.7 ± 12.9	13.7 ± 2.7	23.7 ± 9.2
	Fair	14.3 ± 4.7	44.9 ± 12.7	41.9 ± 7.4	40.6 ± 13.0	17 ± 8.0	34 ± 12.7
	t	-12.467	-10.589	-14.824	- 2.887	-4.926	-7.636
	P	0.000*	0.000*	0.000*	0.004*	0.000*	0.000*
Knowledge of diagnosis	Low	11.2 ± 3.5	34.9 ± 11.9	36.5 ± 6.5	52.9 ± 7.8	11.9 ± 3.1	16.2 ± 3.6
	Fair	12.8 ± 5.1	41.1 ± 12.8	35.7 ± 13.2	34.9 ± 11.5	17.1 ± 7.3	34.8 ± 11.2
	t	-2.899	-3.522	0.634	14.192	-8.004	-20.677
	P	0.004*	0.001*	0.527	0.000*	0.000*	0.000*
BSE	Yes	16.5 ± 4.3	49.6 ± 13.0	45.3 ± 5.0	31.7 ± 8.1	22.7 ± 5.9	42.9 ± 8.6
	No	10.1 ± 3.2	33.8 ± 8.5	30.4 ± 11.4	43.2 ± 13.7	11.9 ± 3.6	23.4 ± 8.3
	t	13.961	10.833	14.739	- 8.644	16.649	18.392
	P	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*
Clinical	Yes	17.4 ± 2.5	52.3 ± 7.2	44.5 ± 5.0	36.7 ± 13.7	22.2 ± 6.7	40.7 ± 12.2
	No	9.8 ± 3.5	32.8 ± 9.6	31.2 ± 12.1	40.2 ± 12.7	12.5 ± 4.1	25.1 ± 9.0
	t	20.592	17.335	12.678	- 2.094	12.725	10.92
	P	0.000*	0.000*	0.000*	0.037*	0.000*	0.000*

knew the places where mammogram is performed.

Discussion

Perception and knowledge about breast cancer and its early detection are the main predictors for changing women's behavior towards the disease and start early diagnosis. This study was implemented to assess women's perception towards breast cancer screening methods according to the domains of health belief model, to identify their level of knowledge about cancer breast, early detection methods and the barriers against adapting screening behavior. In addition; to assess the presence of screening services in PHC.

All subscales of HBM were less than the mean except for perception of benefits and barriers of early detection of BC. These results can be referred to culture and the state of denial most of Egyptian usually deal with dangerous diseases specially cancer. Moreover the majority didn't have a family history or friend with BC that may underestimate their perception to susceptibility and cues to action. In addition most of them were working females with limited time. This result especially low perception of susceptibility and seriousness in addition to high perception of barriers may reflect the low motives among the studied females towards early detection behaviors. HBM sub scores differ markedly between studies according to the criteria of the studied sample regarding their level of education, income and presence of cues to action especially in the first degree relatives [7]. Laing and Makambi [12] called perception of susceptibility as an independent predictor of repeated mammography.

According to Mikhail and Petro [11] they concluded that females with higher perception of susceptibility and seriousness of breast cancer would be more likely to perform early detection activities, compared to those who perceive more benefits and fewer barriers. Females with higher scores in self-efficacy had higher adoption of screening activities according to Tastan et al. [13] Moreover Tavafian et al [14] found

Table (7): Frequency of Studied primary health care centers providing breast cancer screening services

	N (n=13)	%
No of units performing Health education sessions	7	53.8
How many times: Once or twice/ year More than twice	5 2	71.4 28.6
Clinical breast examination	3	23.1
Presence of mammogram	1	7.6

that high perceptions of self-efficacy, susceptibility, benefits and low perceptions of barrier increased levels of early detection behavior.

Socio-demographic characteristics of the participants can affect their perception towards early detection of BC. Females with enough income reported higher perception of BC early detection, with lower perception of barriers. Enough income may give the woman easy access to early detection services without taking the cost into consideration. Also enough income may represent a chance for the woman to think about her health without the daily life pressures. Silver et al[15] and Ahmed et al[16] were in consistence with these results. In contrast Gumus et al[17] noticed no significant association between income and perception of early detection of BC.

The current study noted that older, working and highly educated females had higher perception of susceptibility, severity and self-efficacy. This may be explained by a human nature that when a person coming older his sense of being susceptible for the diseases increases. Moreover high education may empower the woman by knowledge that gives her the self-confidence and competence in adapting early BC detection. Welch et al[18], Tam et al [19] and Abolfotouh et al[20] was on the same line. In contrast; Sharaa[21] reported that multi-

responsibilities of working women make them delay any step for early detection of breast cancer.

Females with positive family history had higher perception of severity, susceptibility and cues to action. Family history especially in the first degree relatives may be an important cue and motive to adopt screening behavior. Females who had a friend with BC highly perceived severity, susceptibility and benefits. Here the role of a friend in giving advice to the female is clear in making a spot on the importance of early detection. Halapy et al[22] reported the same results. Also Kiheon et al[23] noticed an increase in risk perception and a decrease in belief of a cure associated with having a family member diagnosed with BC. Oppositely; Madlensky et al [24] reported that females with a strong family history did undertake more preventive behaviors.

Only 55.2% of studied females had fair knowledge, most of it was about the symptoms with lower scores regarding the knowledge about risk factors. This may explain the lower scores in perceiving susceptibility to BC. This low level of knowledge may be due to low levels of education, work, or lack of awareness campaigns provided by health services. Sim et al[25], Allam and Abd Elaziz[26] and Boulos and Ghali[27] found that poor knowledge was one of the underlying reasons for not seeking early breast cancer screening behavior.

Limited number of our participants actually performed early detection screening services that may be explained by low income, low level of knowledge, and low number of them who reported positive family history or a friend having BC. Moreover; in assessing the role of PHC in screening activities (table 7); only little number performed regular awareness sessions and clinical examination about the disease. Ramathuba et al[28] found that (94.7%) of their participants said that they had never

performed screening before. In a study done by Karima and Ashraf[29] they noted that 56.4% of women reported performing BSE during their lifetime. This may be compared to Akhigbe and Omuemu [30] who reported that the practice of BSE was about 77.6%. Akhigbe and Akhigbe [31] referred the practice of early detection to culture, level of knowledge, awareness campaigns and availability of health services.

With exploring the barriers towards early BC detection, most of the females focused on clinical examinatiouh by a physician they described it as costly, painful and embarrassing. This may raise attention to increasing this service as free one in different PHC centers, moreover with respecting the culture of females the service should be provided by a female physician to decrease embarrassment. Although most of females didn't perform BSE before, however they didn't see any barrier in adopting this behavior. In consistence with these results was Masoudiyekta et al [32], Abolfotouh et al[21] Hassoun et al[33] and Paskett et al [34].

In This study the relation between level of knowledge and HBM subscales was explored. The participants with fair knowledge had high perception of susceptibility, severity, cues to action, self-efficacy and low perception of barriers than those with low knowledge. That may raise the attention towards more awareness campaigns if we want to get rid of the bad outcome of this disease. Accordingly; Moodi et al [35] believed that increased perception of susceptibility, seriousness and self-efficacy usually reflects higher knowledge scores. Masoudiyekta et al [32] correlated the effect of knowledge with perceiving the benefits of early cancer detection behavior. Abd El-Hay and Mohamed[36] recommended that accurate knowledge clears the way for better health beliefs and has been associated with an increased rate of using the screening

methods. Meryem et al[37] noted that increasing knowledge and creating awareness among females is the key to develop protective behavior against the disease.

As availability of health services for early detection of BC is the link between transformation from knowledge into practice, so it was assessed in table 7. Although health education is the cornerstone and a basic element in the role of PHC services, however only 53.8% of them perform health education sessions about BC and its early detection mostly once or twice per year. That may reflect the reluctance in these services in increasing awareness about this bothering disease. WHO 2007[38] recommended two steps for the best control of BC which are; increasing awareness and referral for medical examination.

As most of physicians in PHC units are newly graduated and act as general practitioners, so 23.15 of the units provide clinical examination of the breast that is only provided where Gynecologist was present. As a result of lack of resources and the absence of basic requirements, it was expected that mammography was present only in one urban center. Fotedar et al[39] noted that although health education is important to increase the knowledge about early BC detection, however there is a defect in this role many PHC services. Michele et al[40] in their study about the role of PHC nurses in early detection of BC noted that 52.9% promoted educational meetings, 97.1% of nurses referred patients for clinical breast exam and 75.7% guided patients to perform first mammography In contrast to our results Sajida[41] mentioned a satisfying role of PHC either in providing health education or mammography for early BC detection. In Egypt there was a national program for screening of BC that started from 2009 to 2013, this program carried many activities included health education, and

outreach screening services their main challenge was fund of the mobile outreach screening units[42].

Conclusion and Recommendations:

More than half of the sample had low perception score and low total knowledge score regarding breast cancer and screening methods. The reported barriers were painful, embarrassing and expensive clinical breast examination. Not all primary health care units provide awareness campaign or clinical examination of breast cancer.

The results of this study recommended the application of awareness campaigns among women to improve their knowledge of BC and increase their perception of screening methods for early detection and diagnosis, increase commitment of PHC services for introducing health education and other early detection activities and increase the number of studies that determine perception and practice about BC early detection.

Limitations of the study:
Being a cross sectional study and resistance of some females to talk about breast cancer may limit the inference of the obtained results.

Conflicts of interest: There are no conflicts of interest.

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