Health Belief Model among Post -Menopausal Women regarding Breast Cancer

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Abstract

Background: Breast cancer is a group of diseases in which cells in breast tissue change and divide uncontrolled, typically resulting in a lump or mass. Most breast cancers begin in the lobules (milk glands) or in the ducts that connect the lobules to the nipple. **Aim of study:** Was to assess health belief model among post- menopausal women regarding breast cancer. **Research design**: A descriptive research design was utilized to conduct this study. **Setting:** The study was conducted at Early Detection Unit for Tumors, Pathology Department affiliated to Benha University Hospital. **Sample:** Simple random sample of 25% woman of all women attended to previously mentioned setting which includes 150 women from 600 women. **Tools of data collection:** Two main tools were used. **Tool I**: A structured interviewing questionnaire which included 3 parts **a)** socio-demographic characteristics of women, **b)** Obstetric and family history of the women, **c)** Knowledge of women regarding health belief model, breast cancer and breast self-examination. **Tool II:** Champion's Health Belief Model Constructs scale that adopted to assess the studied women's behaviors regarding breast cancer and breast self-examination **Results:** 24% of women had average total knowledge level. On the other hand, 59.3% of them got their information from social media. Regarding health belief model, 43.3% of women had low perception about health belief model, while only 20.7% of them had good perception about health belief model. **Conclusion:** There were statistically significant relations between total knowledge of the studied women and their educational level. Also, there was highly statistically significant relation between the studied women's total knowledge and age. And there were no statistically significant relations between women's knowledge and marital status, income, residence and occupation. **Recommendation:** Educational programs should be conducted to improve perception about health belief model.

Key words: Breast cancer, Health belief model, Post-menopausal women

Introduction

Menopause is defined as the permanent cessation of menstruation. The diagnosis is made retrospectively after menstruation is absent for 12 months. Most women enter menopause between the ages of 49 and 52 years, and the average age among women in the United States of America (USA) is 51 years. Menopause before the age of 40 years is defined as premature menopause. Women spend one-third of their life in the postmenopausal stage. It represents a primary ovarian failure where there is a depletion of ovarian follicles, the primary source of estrogen **(Johnson et al., 2019).**

Breast Cancer (BC) is the most common cause of cancer in women and the second most common cause of cancer death in women in USA. BC refers to cancers originating from breast tissue, most commonly from the inner lining of milk ducts

or the lobules that supply the ducts with milk. Worldwide, breast cancer comprises 10.4% of all cancer incidences among women, making it the second most common type of non-skin cancer (after lung cancer) and the fifth most common cause of cancer death **(Jagsi et al., 2019).**

Breast cancer typically has no symptoms when the tumor is small and most easily treated, which is why screening is important for early detection. The most common physical sign is a painless lump. Sometimes breast cancer spreads to underarm lymph nodes and causes a lump or swelling, even before the original breast tumor is large enough to be felt. Less common signs and symptoms include breast pain or heaviness, persistent changes such as swelling, thickening, or redness of the skin. Nipple changes, such as spontaneous discharge (especially if bloody), scaliness, or retraction. Any persistent change in the breast should be evaluated by a physician **(Henery et al., 2020).**

The Health Belief Model (HBM) is the basis of interventions to increase knowledge of health challenges, enhance perceptions of personal risk, encourage actions to reduce or eliminate the risk and in its later dimension build a sense of self-efficacy to undertake the needed changes. While it focuses on the individual, the model recognizes and addresses the social context in which health behaviors take place **(Green et al., 2020).**

Health Belief Model (HBM) can be effective in studying cancer preventive behaviors. According to this model, people must believe that even in the absence of any symptom, the disease may exist. When people find themselves at risk of the disease (perceived susceptibility) and realize that the disease has serious potential consequences (perceived seriousness) and believe that prevention would have positive results (perceived benefits) and barriers of that behavior is fewer than obtained benefits (perceived barriers) and believe that they have the ability to perform health behavior activities (self-efficacy), it would be more probable for them to accomplish this behavior **(Masoudiyekta et al., 2018).**

Community Health Nurses (CHNs) are part of the targeted community, have the ability to reach the unreached, are able to tailor health interventions to the target audience and above all are trusted individuals in their communities. CHNs are usually the first contact with the health system and the strongest link between people and primary health care. The most common role for CHNs is awareness raising and education. Activities included CHNs conducting door-to-door home outreach visits in the community to raise awareness about breast cancer, providing educational talks at community health centers and communal areas (such as cafés and places of worship), handing out pamphlets and information leaflets, showing motivational videos on mobile phones and teaching women how to perform breast self-examination **(Bittencourt & Scarinci, 2019).**

Significance of the study:

Breast cancer is the most common type of cancer among women with an increase rate of 21.4% to 24.4% of all new cancer cases. Breast cancer is the fifth cause of cancer death among women. So BC study opens the door to find better ways to prevent, detect, and treat breast cancer, and to improve the quality of life of both cancer patients and survivors. From studying causes and prevention to learn how to manage and treat **(Azamjah et al., 2019).**

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In Egypt, breast cancer is the most common malignancy in women, accounting for 38.8% of cancers in this population, with the estimated number of breast cancer cases nearly 22,700 in 2020 and forecasted to be approximately 46,000 in 2050 **(Alorabi & Elghazawy, 2021).**

The HBM is a theoretical model created to explain health-related behaviors, and it focuses on the role of social and psychological attributes in determining behaviors. HBM focus on the efforts of people trying to improve public health by understanding why they failed to adopt preventive health measures. In the HBM, post-menopausal women's beliefs such as the perceived benefits of health behaviors, obstacles to practice and self-efficacy influence their commitment to health-promoting behaviors. The HBM theoretically emphasizes cognitive elements. From a cognitive point of view, post-menopausal women's behavior often depends on their rational expectations **(Durham et al., 2020).**

Aim of the study

This study aimed to assess health belief model among post- menopausal women regarding breast cancer.

Research questions:

1- What is the knowledge of women about breast cancer?

2- To what extent the women applying health belief model regarding breast cancer?

3- Is there a relationship between socio demographic characteristics of the women, their knowledge and health belief model?

Subject and Method:
Research design:

A descriptive design was utilized in the current study. Descriptive research design aims to accurately and systematically describe a population, situation or phenomenon.

Setting:

The study was carried out at Early Detection Unit for Tumors; Pathology Department affiliated to Benha University Hospital. This clinic provides free services for a high flow rate of women seeking medical services and nursing care.

Sampling:

Simple random sample was used in this study. 25% woman of all women attended to previously mentioned setting which included 150 woman from 600 woman, they chosen according to certain criteria:

- Women over 45 years old.
- Free from chronic diseases.

Tools of data collection:

Two main tools were used for data collection.

Tool I: A structured interviewing questionnaire: This tool designed by the investigator and revised by supervisor staff, based on reviewing related literatures and it was written in simple clear Arabic language: It comprised of three parts to assess the following:

Part I:

Socio-demographic characteristics of the women involved in the study. It included 7 close ended questions about (age, marital status, educational level, occupation, place of residence, family type and family monthly income).

Part II: Included the following:

a) Obstetric history of women. It included 7 close ended questions about (age of occurring the first period, duration of the period, regularity of period, number of labor, breast feeding, contraception means used and its type).

b) Family history of women regarding breast cancer and included 5 questions about (if there's any family members have breast cancer and kinship, medical history of women that include having any chronic disease. And surgical history of women which include any operation and type of operation performed before).

Part III:

a) Health Belief Model knowledge that included 4 questions about (definition of health heath belief model, number of elements of health belief model, benefits of using health belief model and to what extend women can apply health belief model).

b) Breast cancer knowledge which included 7 questions about (meaning of breast cancer, causes of breast cancer, risk factors of breast cancer, symptoms of breast cancer, methods of prevention of breast cancer, diagnoses of breast cancer and treatment of breast cancer).

c) Breast self-examination knowledge that included 7 questions about (meaning of breast self-examination, best age to start breast self-examination, frequency of breast self-examination, suitable time for doing breast self-examination, performing breast self-examination, correct position for performing breast self-examination and barriers of performing breast self-examination).

Knowledge scoring system:

• The scoring system for women knowledge was calculated as follow (2) score for correct and complete answer while (1) score for correct and incomplete answer and (0) for don't know answer.

• The total score of knowledge =36

• The total Knowledge score was considered good if the score of the total knowledge >75% (> 27 points), while considered average if it equals 50-75% (18-27 points) and considered poor if it is <50% (<18 points).

Tool II: Champion's Health Belief Model Constructs scale that adopted from Parsa et al (2008) that used to assess health belief model and its component. It was translated into Arabic by the investigator and divided into 6 parts.

Scoring system:

• The scoring system for health belief model was calculated as follows by giving (2) for agree, (1) agree to some extent, (0) disagree.

• These were respectively scored for positive items, and reversed for negative items. Total health belief model score =76.

• The total health belief model score was considered good if the score >75% (>57points), while considered average if it equals 50-75% (38-57 points), and considered poor if it equals < 50% (<38points).

Content validity and reliability:

The tools validity was done by five members of Faculty's Staff Nursing Experts from the Community Health Nursing Specialties who reviewed the tools for clarity, relevance, comprehensiveness, applicability and easiness for implementation and according to their opinion minor modification were carried out. Reliability of tools was done by Cronbach Alpha test. Cronbach alpha for knowledge was 0.724 and for perception was 0.930.

Ethical Consideration:

All ethical issues were assured, oral consent has been obtained from each woman before conducting the interview and given them brief orientation to the purpose of the study. They were also reassured that all information gathered would be treated confidentiality and used only for the purpose of the study. Women had right to withdraw from the study at any time without giving any reasons.

Pilot study:

The pilot study was carried out on 15 women which represented 10% of the sample size and applied over one month from 1 February to 28 February. The pilot study was made to assess the tool clarity, applicability and time needed to fill each sheet, completing the sheet consumed about 30-45 minutes. No modification was done, so the pilot study sample was included to the total sample.

Field Work:

The actual field work was carried out over about 6 months from the beginning of June 2021 to the end of November 2021. The investigator visited the Early Detection Unit for Tumors, Pathology Department affiliated to Benha University Hospital two days per week (Sunday-Thursday) to collect data from women to assess their knowledge and practices. and provide them with correct information regarding breast cancer and health belief model and also illustrate breast self-examination checklist. The average time needed for the sheet was around 30-45 minutes, the average number interviewed at the Out-Patient Clinics were 3-4 patients/day depending on their responses of the interviewers.

Statistical analysis:

All data collected were organized, tabulated and analyzed by using the Statistical Package for Social Science (SPSS version 21), which was used frequencies and percentages for qualitative descriptive data and X^2 was used for relation tests, mean and standard deviation was used for quantitative data, spear mean correlation test (r) was used for correlation analysis and degree of significance was identified. The observation of associations were considered as the following: Highly significant (HS) P< 0.001, significant (s) P≤ 0.05 and not significant (NS) P> 0.05.

Results:

Table (1): Shows socio-demographic characteristics of the studied women and it was clear that; 42.7% of the studied women aged 40 < 50 years old and had secondary education and employed respectively. Regarding to marital status, 73.3% of the studied women were married, 87.3% of them lived in rural areas,78.0% of them lived in nuclear family and 57.3% of them had enough family monthly income.

Table (2): Shows that; 78.0% of the studied women started menarche at age of 12- 14 years old, 94% of them the period lasts from 3-5 days and 62.7% of them had regular periods. While 68.3% of them have delivered more than three times and had regular breast feeding and 84.0% of them used contraceptive method.

Table (3): Describes that; 62.7% of the studied women had family history of breast cancer and 74.5% of them their mothers had a history of breast cancer. In addition to 78.7% of them didn't suffer from any chronic diseases and 84.0% of them didn't perform any operation before. And 33.3% of them perform hysterectomy or removal of one ovaries or fallopian tube ligation respectively.

Figure (1): Clears that; 56.7% of the studied women had poor total knowledge score about breast cancer and health belief model, 24% of them had average total knowledge score level and only 19.3% of them had good total knowledge score level.

Figure (2): Illustrates that; 43.3% of the studied women had low perception about health belief model regarding breast cancer, while 36% of them had moderate perception about health belief model and 20.7% of them had good perception about health belief model.

Table (4): Shows that, there was statistically significant relations between the studied women's total knowledge score and their educational level (p < 0.05), and there was highly statistically significant relation between the studied women's total knowledge score and their age (p < 0.001). While there were no statistically significant relations between the studied women's total knowledge score and their marital status, occupation, place of residence, family type and family monthly income.

Table (5): Illustrated that; there was highly statistically significant relations between the studied women's total perception score and their age, educational level and place of residence. While there were no statistically significant relations between the studied women's total perception score and their marital status, occupation, family type and family monthly income

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Table (1): Frequency distribution of the studied women regarding to their socio-demographic characteristics (n=150).

Socio-demographic characteristics	No	%
Age		
20 < 30 years old	25	16.7
30 < 40 years old	19	12.7
40 < 50 years old	64	42.7
≥ 50 years old	42	28.0
Mean ±SD	49.75 ± 6.21	
Marital status		
Single	32	21.3
Married	110	73.3
Divorced	8	5.3
Educational level		
Illiterate	16	10.7
Basic education	8	5.3
Secondary education	64	42.7
University education and above	62	41.3
Occupation		
House wife	56	37.3
Employee	63	42.0
Free business	31	20.7
Place of residence		
Urban	19	12.7
Rural	131	87.3
Family type		
Nuclear family	117	78.0
Extended family	33	22.0
Family monthly income		
Enough	86	57.3
Not enough	56	37.3
Enough and saving	8	5.3

**Table (2): Frequency distribution of the studied women regarding to their obstetric history (n=150).**

Obstetric history	No	%
Age of occurring the first period		
12 – 14 years old	117	78.0
16 – 17 years old	33	22.0
Duration of the period		
3 – 5 days	141	94.0
6 – 8 days	9	6.0
Regularity of the period		
Yes	94	62.7
No	56	37.3
Number of labor (n=126).		
Once	23	18.3
Twice	17	13.5
Three times and more	86	68.3
Breastfeeding (n=102).		
No breast feeding	24	19.0
Irregular feeding	16	12.7
Regular breast feeding	86	68.3
Contraception means (n=126).		
Yes	126	84.0
No	24	16.0
Types of contraception means		
Vaginal Intrauterine device	110	87.3
Contraceptive pills	8	6.3
Contraceptive injection	8	6.3

Table (3): Frequency distribution of the studied women regarding to their family history (n=150).

Family history	No	%
Family history of breast cancer		
Yes	94	62.7
No	56	37.3
Kinship (n=94)		
Mother	70	74.5
Sister	24	26.6
Medical history		
Suffering from chronic disease		
Yes	32	21.3
No	118	78.7
Chronic diseases suffering from (n=32).		
Hypertension	8	26.0
Diabetes mellitus	16	60.0
Cardiac diseases	8	26.0
Surgical history		
Any operation before		
Yes	24	16.0
No	126	84.0
Operations that performing before for them (n=24)		
Hysterectomy	8	33.3
Removal of one of ovaries	8	33.3
Fallopian tube ligation	8	33.3
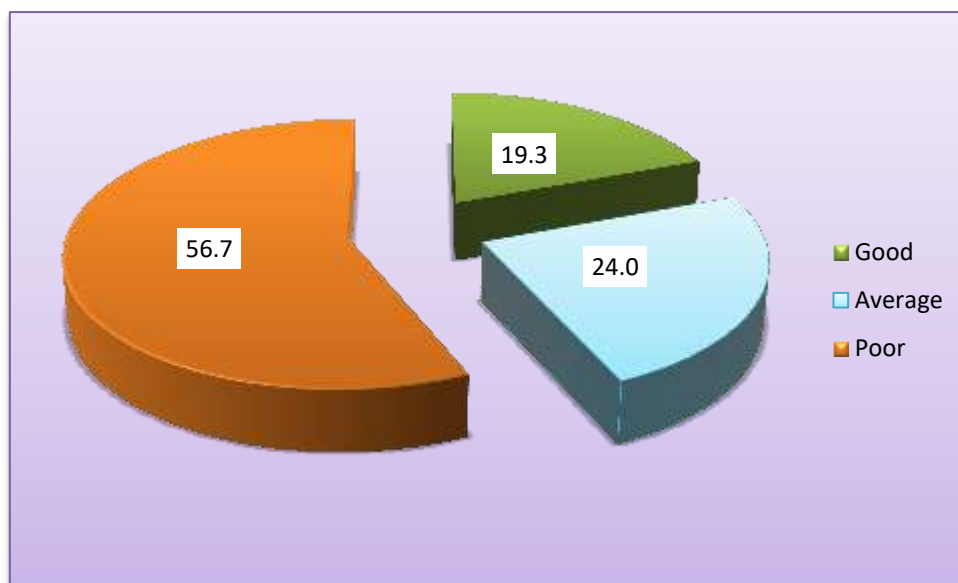
Figure (1): Percentage distribution of the studied women regarding to total knowledge about health belief model about breast cancer.
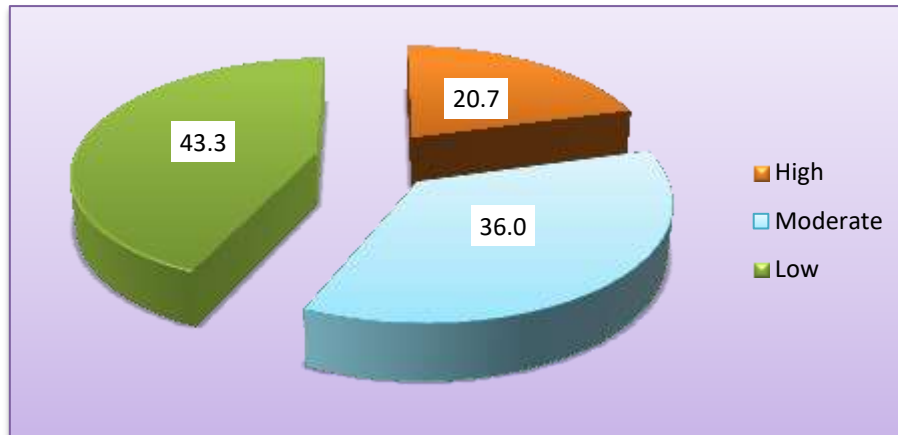
Figure (2): Percentage distribution of the studied women regarding to their total perception level about health belief model about breast cancer (n=150).

Table (4): Statistically relation between total knowledge of the studied woman and their socio-demographic characteristics (n=150).

Socio-demographic characteristics	Total knowledge score						X^2	p-value
	Poor (n=86)		Average (n=36)		Good (n=29)			
	No	%	No	%	No	%		
Age								
20 < 30 years old	23	27.1	2	5.6	0	0.0	24.68	.000**
30 < 40 years old	14	16.5	4	11.1	1	3.4		
40 < 50 years old	33	38.8	16	44.4	16	61.7		
≥50 years old	16	17.6	14	38.9	13	44.8		
Marital status								
Single	22	25.9	5	13.9	5	17.2	3.456	0.485
Married	60	70.6	28	77.8	22	75.9		
Divorced	3	3.6	3	8.3	2	6.9		
Educational level								
Illiterate	16	18.8	0	0.0	0	0.0	16.19	.013*
Basic education	5	5.9	1	2.8	2	6.9		
Secondary education	34	40.0	19	52.8	11	37.9		
University education and above	30	35.3	16	44.4	16	55.2		
Occupation								
House wife	34	40.0	10	27.8	12	41.4	6.327	0.255
Employee	31	36.5	21	58.3	11	37.9		
Free business	20	23.5	5	13.9	6	20.7		
Place of residence								
Urban	10	11.8	5	13.9	4	13.8	0.144	0.93
Rural	75	88.2	31	86.1	25	86.2		
Family type								
Nuclear family	67	78.8	29	80.6	21	72.4	0.698	0.705
Extended family	18	21.2	7	19.4	8	27.6		
Family monthly income								
Enough	47	55.3	20	55.6	19	65.5	1.047	0.903
Not enough	33	38.8	14	38.9	9	31.0		
Enough and saving	5	5.9	2	5.6	1	3.4		

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Table (5): Statistically relation between total perception score of the studied women and their socio- demographic characteristics (n=150).

Socio- demographic characteristics	Total perception score						X2	p-value
	Low (n=65)		Moderate (n=54)		High (n=31)			
	No	%	No	%	No	%		
Age								
20 < 30 years old	20	30.8	5	9.3	0	0.0	20.67	.000**
30 < 40 years old	4	6.2	9	16.7	6	19.4		
40 < 50 years old	27	41.6	22	40.7	16	48.4		
≥50 years old	14	21.6	18	33.3	10	32.3		
Marital status								
Single	12	18.5	14	25.9	6	19.4	1.371	0.849
Married	49	76.4	38	70.4	23	74.2		
Divorced	4	6.2	2	3.7	2	6.5		
Educational level								
Illiterate	14	21.5	0	0.0	2	6.5	24.47	.000**
Basic education	4	6.2	3	5.6	1	3.2		
Secondary education	30	46.2	18	33.3	16	51.6		
University education and above	17	26.2	33	61.1	12	38.7		
Occupation								
House wife	24	36.9	21	38.9	11	35.5	0.824	0.935
Employee	29	44.6	22	40.7	12	38.7		
Free business	12	18.5	11	20.4	8	25.8		
Place of residence								
Urban	10	15.4	3	5.6	6	19.4	18.51	.000**
Rural	55	84.6	51	94.4	25	80.6		
Family type								
Nuclear family	50	76.9	40	74.1	27	87.1	2.024	0.364
Extended family	15	23.1	14	25.9	4	12.9		
Family monthly income								
Enough	38	58.5	30	55.6	18	58.1	0.509	0.973
Not enough	23	35.4	21	38.9	12	38.7		
Enough and saving	4	6.2	3	5.6	1	3.2		

Discussion:

Breast is a very vital organ of a female's body and females are very conscious about it as women will be depressed if have any disease or illness related to this organ. Breast cancer is the most frequent malignancy of women worldwide. BC is the leading cause of female cancer related disability and mortality. Many women miss early detection and treatment opportunities owing to lack of information, knowledge and awareness of breast cancer as well as to cancer screening practices **(Harbeck et al., 2019).**

Regarding to the socio-demographic characteristics of the studied women, the current study showed that, slightly less than two thirds of them aged 40 < 50 years old with mean age 49.75±6.21 and had secondary education and employed. This finding disagreed with **Tithi et al., (2018),** they studied "A Cross-sectional Survey on Knowledge regarding Breast Cancer and Breast Self-examination among Bangladeshi Women (total number of women= 1051)" and reported that, the mean age the study participants was 32.34± 9.86 and less than half of them (45.67%) were below 30 years. Less than half of their respondents (45.10%) completed graduation while 11.99% were illiterate.

But this finding came inconsistent with **Ertem et al., (2017)** they studied "Determination of the Health Belief and Attitude of Women regarding Breast Cancer and Breast Self-Exam in Turkey (total women=350)" and reported that, average age of women who participated in their study was 33.25±10.27. Less than half of them (47%) were in age group of 20–29 years old, more than two fifth of them (43.7%) were primary school graduates.

More over this finding disagreed with the study performed by **Kohler et al., (2017),** they studied "A framework for Improving Early Detection of Breast Cancer in sub-Saharan Africa, they stated that, half of their participants were housewives.

Regarding to marital status of the studied women, the present study showed that, less than three quarters of them were married, the majority of them lived in rural areas, more than three quarters of them lived in nuclear family. These findings agreed with **Tithi et al., (2018)** they reported that, less than three quarters of their participants (72.3%) were married. More over these findings were accordance with **Othman et al., (2017)** they studied "Knowledge, Attitudes and Practices of Breast Cancer Screening among Women in Jordan and revealed that majority of their women were married. These findings might be due to the marriage age in Egypt begin after 18 years old, so the majority of menopausal women is expected to be married.

But these findings came inconsistent with **Fatouh et al., (2020)** they studied " Women's Perception regarding Screening for Early Detection of Breast Cancer in Egypt (total number of women= 150)" and reported that, less than three quarters of their subjects (74%) lived in urban areas, more than half of them (57.3%) were married.

Regarding to family monthly income of the studied women, the present study illustrated that, more than half of the studied women had enough family monthly income. This finding came in accordance with **Ertem et al., (2017),** they reported that, slightly less than two thirds of their participants had a family monthly income that was just equal to

their monthly expenditure. Also this finding was supported by **Abolfotouh et al., (2017)**, they studied "Using the Health Belief Model to Predict Breast Self-Examination among Saudi women (total women =225)", and stated that more than half of their sample (53.7) had enough family monthly income.

But this finding differed with **Solikhah et al., (2019)**, in their study entitled "Awareness Level about Breast Cancer Risk Factors, Barriers, Attitude and Breast Cancer Screening among Indonesian Women", in Indonesia they found that, two fifths of their studied women had not enough income. In addition to this finding disagreed with the result of study performed by **Abu-Helalah et al., (2017),** they studied "Knowledge, Barriers and Attitudes towards Breast Cancer Mammography Screening in Jordan", they reported that, more than three quarters of their studied women had not enough income

Regarding to obstetric history of the studied women, the current study revealed that, more than three quarters of the studied women started menarche at age of 12- 14 years old, most of them period lasts from 3-5 days and less than two thirds of them had regular periods. These findings came in accordance with **Bashirian et al., (2019)**, they studied "An application of the Protection Motivation Theory to Predict Breast Self-Examination Behavior among Female Healthcare Workers (total number=501) in Iran" they reported that, more than two thirds of their studied women (69%) started menarche at age of 12 and more than half of them had regular periods. Also these findings came in the line with **Surakasula et al., (2016),** they mentioned that, more than three quarters of their studied women (78%) reported that, the first period were before 12 years old and last 6:7 days. This might be due

to this age is the normal age of puberty among girls.

The current study showed that, slightly more than two thirds of the studied women delivered three times and more and had regular breast feeding respectively and most of them used contraceptive method. These findings came in accordance with **Fatouh et al., (2020)**, they stated that, less than three quarters of their studied women (71%) had 3 children or more and more than three quarters of them (79%) had regular breast feeding. This might be due to that the women know the importance of breast feeding.

Regarding to the family history of the studied women, the current study showed that, less than two thirds of the studied women had family history of breast cancer and slightly less than three quarters of them their mothers had history of breast cancer. These findings differ with **Bashirian et al., (2019),** they stated that the most of their studied women (88%) had no family history of breast cancer. Also these findings came inconsistent with Abolfotouh et al., (2017), they reported that more than one fifth of their subjects (22.9 %) had family history of breast cancer (3.3 % near relatives & 19.6 % far relatives). More over these findings disagreed with **Ertem et al., (2017)**, they stated that the majority of their studied women (90.0%) did not have any other diseases related to breasts cancer, the majority of them (98%) were not diagnosed with breast cancer, the majority did not have any relatives in their families with a cancer diagnose in their medical history.

The present study revealed that, more than three quarters of the studied women didn't suffer from any co-morbidity diseases and the most of them of them didn't perform any operations before. These findings disagreed with **Grossman et al., (2017),** they

studied "Hormone Therapy for the Primary Prevention of Chronic Conditions in Post-menopausal Women US Preventive Services Task Force Recommendation Statement" in USA and mentioned that, more than half of their participants (54%) didn't suffer from any co-morbidity disease and didn't perform any surgical operations.

Regarding to total knowledge level of the studied women, the current study clarified that, more than half of the studied women had poor total knowledge score level, slightly less than one quarter of them had average total knowledge score level and less than one fifth of them had good total knowledge score level. These findings disagreed with the result of study performed by **Naqvi et al., (2018),** they studied "Awareness, Knowledge and Attitude towards Breast Cancer, Breast Screening and Early Detection Techniques among Women, they stated that, one third of their studied women had poor level of total knowledge regarding the breast cancer.

This result in the same line with **Eltwansy (2018),** who studied "Early Detection of Breast Cancer: Knowledge, Perception and Barriers among Females: A Cross Sectional Study at Zagazig District (total women = 270)" and mentioned that, more than half of their participants (55.2%) had poor total knowledge score about breast cancer. These result confirmed with **Hassan et al., (2017),** they studied " Awareness about Breast Cancer and Its Screening among Rural Egyptian Women, Minia District: A population-Based Study" and mentioned that, more than half of their participant (53%) had poor total knowledge.

Regarding to the studied women total perception level about health belief model, the current study showed that, more than two fifths of the studied women had low perception about health belief model, while more than one third of them had moderate perception about health belief model and one fifth of them had good perception about health belief model. This result may be related to the sensitivity in speaking of such topics among Egyptian women due to their customs and beliefs that had clear impact on their perception regarding breast self-examination.

These findings came in accordance with **Juárez-García et al., (2020),** they studied "Adaptation and Validation of the Health Belief Model Scale for Breast Self-Examination in Mexican Women" and reported that, less than half of their studied women had low perception about health belief model.

The present study showed that, there were statistically significant relations between the studied women's total knowledge score and educational level ($p < 0.05$) and there was highly statistically significant relation between the studied women's total knowledge score and their age ($p < 0.001$). While there were no statistically significant relations between the studied women's total knowledge score and their marital status, occupation, place of residence, family type and family monthly income. These findings supported by **Al-Mousa et al., (2020),** they mentioned that their participants' level of education was the main factor identified as influencing the participants' knowledge of the risk factors, signs and symptoms, and knowledge of early detection methods of breast cancer. Also this finding came accordance with **Hassan et al., (2017),** they reported that there were highly statistical differences between total knowledge of their participants regarding breast cancer and their educational level.

Concerning the relation between total perceptions score of the studied women and their socio- demographic characteristics the present study revealed that, there were highly statistically significant relations between the studied women's perception score and their age, educational level and place of residence. These findings came in accordance with **Eltwansy, (2018)**, who stated that, there were highly statistically significant relations between their studied women's perception score and their educational level and place of residence respectively.

The result of the present study revealed that, there were no statistically significant relations between the studied women's total perception score and their marital status, occupation, family type and family monthly income respectively. This finding agreed with **Terfa et al., (2020),** they studied " Breast Self-Examination Practice Among Women in Jimma, Southwest Ethiopia: A Community-Based Cross-Sectional Study" and reported that, age, occupation, family history of breast cancer, and income are statistically significant with BSE practice.

Conclusion:

More than half of studied women had poor total knowledge score and only one half of them had good total knowledge score level. Only half of studied women had good perception about health belief model. There were statistically significant relations between the studied women's total knowledge score and their educational level, and there were highly statistically significant relation between the studied women's total knowledge score and their age. There were highly statistically significant relations between the studied women's total perception score and their age, educational level and place of residence

Recommendations:

- Health educational program should be developed and implemented for women to educate them about breast cancer and breast self-examination.
- Booklets, posters and other mass media should be available and distributed in all health care centers to improve women to enrich their knowledge and practice.
- Further studies needed to be focusing on implication of health belief model steps on women with breast cancer.

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نموذج المعتقد الصحي بين السيدات في سن ما بعد اليأس لسرطان الثدي

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يعد سرطان الثدى من اكثر انواع السرطان انتشارا، فالسبب الرئيسى لحدوثه غير معروفا حتي الان ولكن هناك العديد من العوامل التي تؤدى الي الاصابة به ومن ضمن هذه العوامل التقدم بالعمر، السمنة، تأخر سن البلوغ عند المراة، تأخر الحمل لما بعد سن الثلاثين، التعرض للإشعاع وشرب الكحول والمخدرات. ويعتبر نموذج المعتقد الصحي من اشهر النظريات المستخدمة في أبحاث السلوك الصحي ويتكون هذا النموذج من ستة مكونات وهي القابلية، شدة المرض، الفوائد، العقبات الموجودة، إجراءت العمل واخيرا الكفاءة الذاتية والاعتماد علي النفس. لذا هدفت هذه الدراسة الي تقييم نموذج المعتقد الصحي بين السيدات في سن ما بعد اليأس لسرطان الثدي وقد أجريت هذه الدراسة في وحدة الكشف المبكر لسرطان الثدي بمستشفى بنها الجامعي على ١٥٠ سيدة. أوضحت النتائج وجود علاقة ذات دلالة إحصائية بين مجموع درجات المعرفة للسيدات المشاركات ومستواها التعليمي، وأن هناك علاقة ذات دلالة إحصائية عالية بين النساء المشاركات و مجموع نقاط المعرفة وأعمارهم. بينما لا توجد علاقة ذات دلالة إحصائية بين مجموع درجات المعرفة للنساء المشاركات وحالتهم الاجتماعية ، ومهنتهم ، ومكان إقامتهم ، ونوع الأسرة ، ودخل الأسرة الشهري. وأيضا أوضحت النتائج وجود ارتباطات موجبة ذات دلالة إحصائية بين مجموع درجات المعرفة لدى النساء المشاركات ودرجة إدراكهن الكلية وقد أوصت الدراسة بوضع وتنفيذ برنامج تثقيفي صحي للمرأة لتثقيفها حول سرطان الثدي و الفحص الذاتي للثدي.وتوفير كتيبات وملصقات وتوزيعها في جميع مراكز الرعاية الصحية للارتقاء بالمرأة واثراء معرفتها وممارستها.