

Utilization of Health Belief Model as a Guide for Prediction of Breast Self-Examination

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Abstract:

Breast cancer is currently the most prevalent cancer among women in both the developed and developing countries. American Cancer Society estimated that there were 175, 000 new cases of invasive breast cancer and 40,000 new cases of breast cancer in situ in the primary stage women. About 95% of all breast cancers can be early detected by breast self examination (BSE). The Health Belief Model (HBM) is a conceptual model that has been used to predict health related behaviors. **Aim of the study:** Using of Health Belief Model as a Guide for Prediction of Breast Self-Examination. **Materials and Method:** A quantitative descriptive correlational cross-sectional research design was used to carry out this study. **Setting:** The study was conducted from February 2017 up to April, 2017 at, Main University Hospital, Alexandria, Egypt. **Subjects:** A total of 120 eligible women attending the outpatient clinic at Main University Hospital in Alexandria were selected to participate in the study. **Two Tools** were used to collect the necessary data for the research. **Tool I:** Sociodemographic characteristics and clinical data structured interview questionnaire. It was divided into two parts. **Part one:** Concerned with participants' Socio demographic data pertaining to age, marital status, level of educational, and level of income. **Part two:** Concerned with clinical data of the participants such as history of breast problems, heard about BSE, performing BSE, family' history of breast cancer and sources of information. **Tool II:** Champion Health Belief Model Scale (CHBMS). It is consisted of 31 items; perceived of susceptibility (3 items) perceived seriousness (6 items), perceived benefits (4 items), perceived barriers (8 items), and perceived self- efficacy (10 items). All items were arranged in a Likert scale ranging from strongly disagree; scored: one to strongly agree; scored: five. Latest version of the statistical software package SPSS (Version-21) was used. Descriptive and analytical statistical test were used to analyze the data. **Results:** The mean age of participants was 32.2 (SD=8.1). there was statistically significant difference in relation to perceived benefits and self-efficacy and barrier between women performing and not performing breast self-examination (P = 0.03, 0.001 and 0.001) respectively. perceived self-efficacy was statistically significant positive predictors for BSE performance (p= 0.003) while, perceived barriers was statistically significant negative predictors (p= 0.001). **Conclusion:** Women performing breast self-examination had more perceived benefits and self-efficacy than women who not performing. Moreover, there was statistically significant difference regarding BSE perceived barrier between women performing and not performing breast

self-examination. perceived self-efficacy was statistically significant positive predictors for BSE performance while, barriers was statistically significant negative predictors for BSE performance.

Key words: Health belief model, breast self-examination, Prediction, breast cancer, perceived susceptibility, perceived seriousness, perceived benefits, perceived barriers, self-efficacy or confidence.

1. Introduction:

According to WHO 2013, Cancer is a global issue that can affect any one without distinction of age, sex, or social status.^[1] Worldwide, the five most common types of cancer that kill women are; breast, lung, stomach, colorectal and cervical cancer. Breast, cervical and colorectal cancer can be cured if detected early and treated adequately.^[1,2] Breast cancer is the most common malignancy among women in both developed and developing countries.^[1-4] Breast cancer is one of the most significant health problems facing women that poses a threat to women health and wellbeing.^[5] Excluding skin cancer, breast cancer is the most common cancer in women accounting for nearly one in three of diagnosed cancer.^[1,2, 6] American Cancer Society estimated that there were 175, 000 new cases of invasive breast cancer and 40,000 new cases of breast cancer in situ in women in 2010.^[6]

The incidence of breast cancer ranked second from all new cancer cases worldwide in 2008 constitutes 10.9% and ranked the fifth of death from cancer constitute 6.1%.^[2,7] Worldwide in 2010, breast cancer cases constitute 22.9% of all female cancer.^[2] WHO estimated that, one in every eight women will develop breast cancer during her lifetime and it is commonly existing between 48-52 years old.^[8] The incidence rate of breast cancer in developed countries in 2008 was 692.634 cases similar to the cases in developing countries which was 691.521 cases nonetheless the majority of deaths from breast cancer occur in developing countries.^[7,8] American Cancer Society; (2010) reported that breast cancer is diagnosed in about 1.3 million women annually worldwide and around 465,000 will die from the disease.^[6] In 2012, 1.7 million women were diagnosed with breast cancer estimated by Latest world cancer statistics.

In addition, 6.3 million breast cancer survivors who had been diagnosed with the disease in the previous five years. Breast cancer is also the most common cause of cancer death among women (522,000 deaths in 2012) and the most frequently diagnosed cancer among women in 140 of 184 countries worldwide.^[9] The burden of the disease is increasing in both developed and developing countries and if no action is taken it will go out of control.^[6] Breast cancer is consider the most common cancer among women in Egypt. It was found that the prevalence of breast cancer incidence rate in Egypt accounted for more than 37.7% from all female cancers. While maternal deaths as a result of breast cancer constitute 29.1% from all female cancers in 2008.^[10]

Breast cancer (BC) prevention cannot be achieved, however early detection which consider the cornerstone to control the prognosis of breast cancer. Current screening methods to detect breast cancer include mammography, clinical breast examination by a professional health care provider, and breast self-examination. While mammography and clinical breast examination may be costly, inconvenient, and potentially embarrassing to some women, breast self-examination

(BSE) can provide excellent chance for women with breast cancer to be cured. BSE has been widely studied because it is an easy, safe, and economical health related behavior. BSE seems to be so convenient, it might be expected that most women would readily use this simple screening technique. However, the National Health Interview Survey (NHIS) reported that although 92% of women have heard of BSE, only about 29% of women practice BSE monthly. ^[11, 12]

Breast self-examination is a screening technique for early detection of breast changes or abnormalities. It is performed monthly by women aged 20 and over through which the two breasts, axilla and lymph nodes are observed and palpated by the woman. BSE help woman to be familiar with the look, shape and size of her breasts. Consequently, she become oriented with normal appearance and consistency of her breasts and capable to detect any changes in the breast early and have a chance for treatment at excellent curable phase of the disease as well as attain a better survival rate. Studies have shown that most breast cancer patients find the first signs of the disease themselves as a palpable breast mass. BSE is relatively simple procedure, cost free, painless, non-invasive, controlled by the woman herself, and safe health-related behavior. In addition early detection of BSE plays an important role in reducing morbidity and mortality rates among women due to BC. ^[13-17] Theoretically, early diagnosis of BC is reliable for achieving survival rate of 95% if discovered at an early stage. ^[19]

The health belief model (HBM) is a conceptual model that has been given a direction to explaining health related behaviors. In this model, the subjective experience cognitions and attitude of the individual determines whether the person will engage in a specific health-related behavior or not. ^[17] The model was formulated to answer questions about why individuals utilized health services, why they did or did not follow up on health care recommendations, and what predictors influenced on individual compliance with medical regimens. ^[14, 19] It has sub items; Perceived susceptibility; Perceived seriousness or severity ; Perceived benefits; Perceived barriers and Perceived Self-efficacy or confidence

Perceived susceptibility: reflects a person's view of the likelihood of experiencing a potentially harmful condition. This is a subjective perception of the risk of contracting a particular health problem or harmful condition. ^[16, 20, 21] The health belief model predicts that individuals who perceive that they are susceptible to a particular health problem will engage in behaviors to reduce their risk of developing the health problem. ^[21] Individuals with low perceived susceptibility may deny that they are at risk for contracting a particular illness. ^[19, 20, 22]

Perceived seriousness or severity is concerned with how threatening a condition is to the individual. The health belief model proposes that individuals who perceive a given health problem as serious are more likely to engage in behaviors to prevent the health problem from occurring or reduce its severity. Perceived seriousness encompasses beliefs about the disease itself whether it is life-threatening or may cause disability or pain as well as broader impacts of the disease on functioning in work and social roles. ^[16, 20, 21] Perceived seriousness includes the individual's evaluation of the medical consequences; disability; pain; disfigurement and the social consequences; effects on family; work; social relationships. ^[16] These two dimensions make up the individual's psychological state of readiness to take action. "Action will not occur unless the individual believes in both personal susceptibility and the serious repercussions of illness, should it occur". ^[18] This combination of susceptibility and severity can be termed the perceived threat.

^[14] Perceived severity and susceptibility to a given health problem depend on information about this problem. The health belief model predicts that higher perceived threat leads to higher likelihood of participating in health-promoting behaviors. ^[20, 21]

Perceived benefits about the effectiveness of engagement in healthy actions that seems of perceived benefits as he / she believes that this action will reduce susceptibility to a health problem or decrease its seriousness. An individual evaluates the recommended action in terms of its feasibility and efficacy in reducing the perceived threat. ^[20, 21]

Perceived barriers refer to an individual's assessment of the obstacles to behavior change. ^[16] It indicates the beliefs the individual holds concerning issues such as costs associated with applying this health action. ^[23] Barriers are the potential negative aspects of a particular action. Barriers may be financial, physical pain and discomfort, as well as negative psychological effect. ^[14]

Self-efficacy or confidence refers to an individual's perception of his / her competence to successfully perform a behavior. ^[21] Confidence in one's ability to effect change in outcomes. Self-efficacy was a key component of health behavior change. ^[21] Most recently, ^[20] have proposed the addition of confidence as a separate independent variable. Self-efficacy is the belief that one can successfully execute a behavior that will then lead to a desirable outcome" ^[24] In putting the concepts together into a coherent whole, Becker stated that, "The combined levels of susceptibility and severity provided the energy or force to act and the perception of benefits with less barriers provide a preferred path of action" ^[25]

When past behavior has been considered in applications of the HBM to BSE, it has been found to be the strongest predictor of BSE. Some researchers have suggested that past behavior should be considered as an additional independent predictor variable. Against this backdrop, it is imperative to gain an understanding of the psychosocial predictors of BSE among women with an elevated risk of breast cancer. The present study therefore considers the utility of the Health Belief Model (HBM) as a framework for predicting BSE in a sample of women. According to the HBM when individuals are faced with a potential threat to their health they consider their susceptibility to, and the severity of, the health threat. For example, those women who perceive themselves to be susceptible to breast cancer and believe it to be a serious disease will be motivated to take action against the health threat. Which action is pursued is seen to be a function of a cost-benefit analysis of the perceived benefits of, and perceived barriers to, different actions and perceived susceptibility. ^[26, 27]

Studies have been reported that the percentage of women performing BSE is less than 15%. Literatures concluded that there are important associations between the early diagnosis-related attitudes and behaviors, and health beliefs of women. ^[28- 30] Nurses constitute the largest group of health professionals. Nursing role encompass provide correct and necessary information to the patient as well as public on breast cancer. They have more contact with patients than other healthcare staff, and are in constant communication with them. Patients also feel more comfortable asking their nurses questions as most nurses are female. Nurses therefore play a crucial role in informing the public and patients regarding breast cancer and encouraging them to perform regular BSE for early diagnosis. ^[31- 34]

In order to improve women behavior and attitude of BSE for early screening of BC, it is of great importance to identify predictors that urge or prohibit women to do so. One of the best models that proved to be highly influential in studying behaviors' predictors for applying BSE is the Health Belief Model (HBM). So, the purpose of this study was to utilize Health Belief Model as a Guide for Prediction of Breast Self-Examination.

Aim of the study

The aim of this study was using of health belief m as a guide for Pprediction of breast self-examination.

Research question:

What are the predictors of breast self- examination using Health Belief Model?

2. Materials and Method

Materials

Research design

A quantitative descriptive correlational cross-sectional research design was used to carry out this study.

2.1 Setting

The study was conducted in the outpatient clinics at, The Main University Hospital, Alexandria, Egypt. It is a university hospital affiliated to the Faculty of Medicine – University. It provides service to patient from four governorates of Alexandria, Beheira, Marsa Matrouh and Kafr El Sheikh. It contains inpatients and outpatient department. Out patients clinics covers all specialty area while, the inpatient includes 1617 beds for in patient cases, and the average of occupied bed are 1032 (7.63%).^[35] The hospital provide general medical and surgical services as well as intensive care and specialized services as open heart surgery, liver, kidney, Oncology, causality, burn and emergency services. The hospital services, also includes rehabilitation and physiotherapy for the public in the four governorates.

2.2 Subjects

A convenience sampling technique is used to select a total of 120 participant eligible women attending the outpatient clinic at Main University Hospital in Alexandria were selected to participate in the study based on of their availability at the time of data collection and willingness to participate in the study as well as met the inclusion criteria. Women were approached as they were entering or leaving the outpatient clinic. Women were invited to take part in the study from February 2017 up to April, 2017. The sample size was determined based on The Epi info program was used to estimate sample size using the following parameters:

- a- population size= 58 /month
- b- Expected frequency = 50%
- c-Acceptable error = 5%
- d- Confidence coefficient = 95
- e- Estimated sample size= 120

2.3 Inclusion and Exclusion criteria: In the present study only women who were available and willing to participate in the study, recruited. In addition women who were 20–60 years old, with no current or previous cancer included.

2.4 Data collection tools:

2.4.1 Material:

2.4.1.1 Two Tools: were used to collect the necessary data for the research.

2.4.1.1.1 Tool I: Sociodemographic characteristics and clinical data structured interview questionnaire. It was developed by the researcher according to the current and relevant literature. It was divided into two parts as follow:

2.4.1.1.1.1 Part one: Concerned with participants' Sociodemographic data pertaining to age, marital status, level of educational, and level of income.

Part two: It concerned with clinical data of the participants such as history of breast problems, heard or not about BSE, performing BSE or not, family' history of breast cancer and sources of information.

2.4.1.1.1.2 Tool II: The Champion's Health Belief Model Scale (CHBMS).^[24]

It consists of 5 subscales includes 31 items; Perceived susceptibility (3 items); Perceived seriousness (6 items), Perceived benefits (4 items), Perceived barriers (8 items), and Perceived self- efficacy (10 items). All items were arranged in a Likert scale have 5 response choices ranging from strongly disagree; scored: one to strongly agree; scored: five. The Arabic version of revised Champion's Health Belief Model Scale (CHBMS) was tested for validity and reliability in Mikhail and Petro-Nustas^[36] and found satisfactory. Reported Cronbach's alpha for the CHBMS was 0.928.

2. 4.2 Method:

The study was executed according to the following steps:

- 1- Permission to collect data after explaining the purpose of the study was obtained.
- 2- Tool 1 was developed by the researchers after extensive review of recent and related literature.
- 3- Tools II Arabic version of revised Champion's Health Belief Model Scale (CHBMS)^[24] was tested for validity and reliability in Mikhail and Petro-Nustas^[36] and found satisfactory. As well as It was tested for content validity by a jury of five experts in the field of the research study. The recommended modifications were done and the final form was prepared after proving validity. Then the overall tools' reliability and internal consistency for the scale was tested using alpha Cronbach's coefficient test and the result was statistically highly acceptable ($r = 0.928$)
- 4- A pilot study was conducted on 10 % of the study sample from Main University Hospital and they were excluded from the total study subject's number. The poilt study aims to validate the effectiveness of the study instrument and the value of the questions to elicit the right information to answer the research questions and to establish the reliability of the questionnaire. In addition to ascertain the clarity, feasibility, simplicity of all the questions, estimate the time required for the interview to be completed, and review the overall

responses of the women, as well as the applicability of the tools to identify obstacle that might interfere with the process of data collection. Necessary modifications based on the results of pilot study were introduced.

- 5- Each study subject was individually interviewed in the outpatient clinic in waiting area before or after met with physican. The estimated duration of each interview was about 15 minutes. Data collection started from February 2017 up to April, 2017, two days per week.
- 6- Statistical analysis: Latest version of the statistical software package SPSS (Version-21) was used. The collected data was revised, categorized, coded, computerized, tabulated and analyzed. Descriptive statistics and Independent t-test and Logistic regression analysis were used to identify and compare the sociodemographic and clinical information, influencing factors, and the five constructs of the HBM between two preference groups. P value ≤ 0.05 or 0.001 was considered statistically significant.

2.4.2.1 Ethical considerations:

Before embarking to data collection, an informed oral consent was obtained from each recruited women to share in the study. Prior consent, full information provided to the women by the researcher and explaining the purpose of the study, as the informed consent covers all the required elements such as study title, aim and process of data collection. All participants were assured that their participation is voluntary and they have the right to withdraw at any time & the right to ask any question at the end of the interview. In addition, her anonymity, privacy, and confidentiality of her data were all emphasized prior starting the interview. Each study participant was approached separately. The average fill out time of each interview was about 15 minutes. Questions were asked personally by the researchers.

3. Results

Table 1 shows sociodemographic characteristic and clinical data of the women

It was observed that the mean age of the women was (32.2 ± 8.1). Half (50%) of the women was in the age group from $20 < 35$. The highest majority (94.17) of the women was married. Regarding education it was noticed that more than half (55.8%) was read and write or elementary school, while only (7.5%) had university education. Concerning level of income more than half (57.5 %) of women had income equal to expenses while only (3.3 %) had income higher than expenses.

Regarding, history of breast problems it was illustrated that the highest majority (92.5%) of the women had no history of breast problems. Moreover, the majority (85.83%) of the women had no family history of breast cancer. The table also shows that more than two third (68.3%) of the women was not performing breast self-examination while more than three quarter (78.33%) heard about breast self-examination. Near three quarter (72.5%) of the women had knowledge about breast cancer and breast self-examination in which, about (74.17%) of women gained this information from media.

Table 1: Sociodemographic characteristic and clinical data of the women

Variable	N = 120	%
Age Mean (SD)	32.2 ± (8.1)	
Age (year)		
20 < 35	60	50
35 < 45	45	37.5
45 ≤ 60	15	12.5
Marital status		
Married	113	94.17
Unmarried	7	5.83
Level of education		
Read & write/ Elementary school	67	55.8
Preparatory /Secondary school	44	36.7
University	9	7.5
Level of income		
less than expenses	47	39.2
equal to expenses	69	57.5
higher than expenses	4	3.3
History of breast problems		
Yes	9	7.5
No	111	92.5
Heard about BSE		
Yes	94	78.33
No	26	21.67
Performing BSE		
Yes	38	31.7
No	82	68.3
Family history of breast cancer.		
Yes	17	14.17
No	103	85.83
knowledge about breast cancer and BSE		
Yes	87	72.5
No	33	27.5
Source of information about breast cancer and BSE*		
Media	89	74.17
Health professionals	23	19.17
Book or journal	29	24.17
Other (friends, internet, community)	55	45.83

* More than one choice was indicated for the question

Table 2 shows comparison of Health Belief Model factors among women regarding BSE performance

Regarding perceived susceptibility and seriousness of women related to breast self-examination performance it was observed that there was no statistically significant difference between women performing or not performing breast self-examination ($P = 0.97$ and 0.27) respectively.

However, there was statistically significant difference in relation to perceived benefits and self-efficacy between women performing and not performing breast self-examination ($P = 0.03$ and 0.001) respectively. Women performing breast self-examination had perceived more benefits $17.34 \pm (2.7)$ and self-efficacy $35.90 \pm (7.6)$ than women not performing it.

Moreover, there was statistically significant difference regarding BSE perceived barrier between women performing and not performing breast self-examination ($P = 0.001$). Women performing breast self-examination had lower perceived barrier mean score $16.36 \pm (5.3)$ than women not performing $19.55 \pm (5.7)$.

Table 2: Comparison of Health Belief Model factors among women regarding BSE performance

Sub-scales of health belief model	Score range	Performing BSE Yes (n = 38) Mean \pm (SD)	Not Performing BSE No (n = 82) Mean (SD)	t	p* value
Susceptibility	3-15	7.68 \pm (2.5)	7.67 \pm (2.4)	0.23	0.97
Seriousness	6-30	21.10 \pm (5.6)	21.80 \pm (4.7)	0.53	0.27
BSE benefits	4-20	17.34 \pm (2.7)	16.53 \pm (3.1)	1.80	0.03*
BSE barriers	8-40	16.36 \pm (5.3)	19.55 \pm (5.7)	-10.7	0.001*
BSE self-efficacy	10-5	35.90 \pm (7.6)	28.30 \pm (7.5)	4.10	0.001*

*Independent t-test $p \leq$ value 0.05 or 0.001

Table 3 shows logistic regression analysis of Health Belief Model items for prediction of BSE performance

It was noticed that perceived susceptibility, seriousness and benefits was not statistically significant predictors of breast self-examination performance ($p = 0.95, 0.14$ and 0.07) respectively. This table also shows that perceived self-efficacy was statistically significant positive predictors for BSE performance ($p= 0.003$) while, perceived barriers was statistically significant negative predictors for BSE performance ($p= 0.001$). This means when perceived barrier for BSE increased women performance decreased while, women who had high self-efficacy were more likelihood to perform BSE.

Table 3: Logistic regression analysis of Health Belief Model items for prediction of BSE practice

Variable	B	S.E	Wald	Odds ratio	CI*	p
Susceptibility	0.004	0.075	0.003	1.01	0.86-1.16	0.95
Seriousness	0.052	0.036	2.092	1.05	0.98-1.13	0.14
BSE benefits	-0.138	0.077	3.236	0.87	0.75-1.01	0.07
BSE barriers	-0.355	0.050	50.183	0.70	0.63-0.77	0.001*
BSE self-efficacy	0.075	0.025	8.881	1.08	1.02-1.13	0.003*
Constant	3.897	1.933	4.063	49.2	-----	0.05

Model chi-square = 111.2, $df = 5$, $p \leq$ value 0.05 or 0.001 Nagelkerke R Square = 0.52

*Confidence interval for odds ratio

Table 4 shows logistic regression analysis of demographic and clinical characteristics of the women items for prediction of BSE practice.

It was founded that age, level of income, heard about breast self-examination and sources of information was not significant predictors of breast self-examination performance.

On the other hand, it was noticed that marital status, level of education was significant predictors of breast self-examination performance ($p= 0.001$ and 0.008) respectively.

In addition, history of breast problem, family history of breast cancer and knowledge about BSE and breast cancer was significant predictors of breast self-examination performance ($p= 0.001, 0.002$ and 0.001) respectively.

Table 4: Logistic regression analysis of demographic and clinical characteristics of the women items for prediction of BSE performance.

Variable	B	S.E	Wald	Odds ratio	CI*	P
Age (year)	-0.231	0.305	3.236	.794	0.437: 1.442	0.448
Marital status	-0.055	0.020	50.183	0.07	0.63-0.77	0.001*
Level of income	0.001	0.012	02.331	1.001	0.978:1.024	0.920

Level of Education	1.549	0.908	8.961	4.707	0.794:27.894	0.008*
History of breast problems	0.032	0.009	48.124	1.032	1.013:1.052	0.001*
Heard about BSE	0.005	0.078	0.213	1.011	0.88-1.14	0.95
Family history of breast cancer.	0.076	0.027	8.871	1.09	1.03-1.23	0.002*
Information about breast cancer and BSE	0.054	0.008	40.142	1.055	1.039:1.072	0.001*
Source of information about breast cancer and BSE*	0.155	0.037	2.093	1.06	0.98-1.33	0.15
Constant	3.897	1.933	4.063	49.2	-----	0.05

$p \leq$ value 0.05 or 0.001*Confidence interval for odds ratio

4. Discussion

Breast cancer is the most frequent malignancy of women worldwide. It is the leading cause of female cancer related disability and mortality. ^[37] The burden of this disease is increasing in both developed and developing countries and if no action is taken, it will go out of control. ^[6] 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 practice. ^[33] The American cancer society recommended that women should be aware of how their breasts normally look and feel and report any new breast changes to health professional as soon as they are found. Women should be informed that breast self-examination should be considered for them beginning in their 20 years. ^[38] Breast self-examination is one of the most important screening methods for early diagnosis of breast cancer. Breast self-examination is safe, noninvasive, simple and very economical method. Despite the relative benefits of breast self-examination, its application remain very low in Egypt. ^[10] Therefore, this study aimed to using health belief model as a guide for prediction of breast self-examination.

4.1 Sociodemographic characteristic and clinical data of the women

The result of the present study revealed that half of the women was in the age group from 20 < 35. This result similar to Abolfotouh et al (2015) who mentioned that (62.1%) of women were of age 18 to less than 35 years. ^[37] This study result indicated that the highest majority of the

women was married. This result similar to Tilaki and Auladi (2012) who reported that (85.6 %) of the women were married.^[39] In contrast, Mohamed et al (2016) mentioned that the majority of women were single.^[40]

Regarding education it was noticed that more than half was read and write or elementary school, while only few had university education. This result in line with Tastan et al (2011) who mentioned that nearly two third of the studied women was elementary and secondary school while only nearly third had university education.^[41] In contrast, Abolfotouh et al (2015) emphasized that the majority of the women were secondary and university educated.^[37]

Concerning level of income more than have of women had income equal to expenses while only few had income higher than expenses. This result is in line with Al-Harbi et al (2017) who mentioned that regarding level of income about 59% of women considered their financial status as medium, 38% as poor, and 3% as good.^[42] In the same line Tilaki and Auladi (2012) mentioned that Approximately 71 % of women were satisfied for the family income.^[39]

Regarding, history of breast problems it was illustrated that the highest majority of the women had no history of breast problems. This result is in line with Abolfotouh et al (2015) who found that only 22.9% of women reported family history of breast cancer.^[37] In addition, Al-Harbi et al (2017) stated that more than three quarter 79% of the women did not complain of any breast problems whilst, 8% complained from breast problems.^[42] Concerning family history the present study founded that the majority of the women had no family history of breast cancer. This result is in line with Mohamed et al. (2016) and Al-Harbi et al (2017) who mentioned that most of the women had no family history of breast cancer.^[40,42]

The present study illustrated that more than two third of the women was not performing breast self-examination while more than three quarter heard about breast self-examination. This result is in line Abdel-Fattah (2000) in Alexandria, Egypt , El Saghir et al(2007) in developing Arb countries and Aghamolaei (2011) in Iran who stated that large percentage of women s did not perform breast self-examination while majority of them heard about it.^[43- 45] Moreover, Yelda et al (2012) in western Turkey, Asian mentioned that 97% of women heard about breast self-examination and only 36.7 % performed it.^[46] As well as Abolfotouh et al (2015) in Riyadh, Saudi Arabia mentioned that almost all women heard about breast self-examination while only (41.6%) of women reported that they have practiced breast self-examination.^[37]

Regarding women knowledge the present study founded that near three quarter of the women had knowledge about breast cancer and breast self-examination. This result is in line with Erbil and Bolukbas (2014) who stated that although women are knowledgeable in the practice of BSE, they did not perform BSE regularly.^[47] The present study added that near three quarter of women gained knowledge about breast cancer and breast self-examination from media. This result reinforce the fact that media is very effective method in dissemination of knowledge among public and play an important role in shaping the development of future generations. The result of present study is similar with Boulos and Ghali (2014), Iheanacho et al (2013) , Habib et al (2010) and Mohamed et al (2016) who mentioned that media was the most common women source of information about breast cancer and breast self-examination.^[48-50, 40] However, this result is in

contrast with Rizwan and Saadullah (2009) who emphasized that the main source of information for women about breast cancer and breast self-examination was from friends and colleagues.^[51]

4.2 Health Belief Model factors among women regarding BSE performance

The result of the present study founded that there was no statistically significant difference regarding perceived susceptibility and seriousness between women performing or not performing breast self-examination. This result incongruent with Mohamed et al (2016) who mentioned that women attitude regarding breast self-examination according to health belief model revealed that there was no statistically significant difference regarding perceived susceptibility and severity among women.^[40] Moreover, Tilaki and Auladi (2012) mentioned that no significant differences were observed on the subscales for perception of susceptibility, seriousness between women performed and not performed BSE.^[39]

On the other hand, the present study founded that there was a statistically significant difference in relation to perceived benefits and self-efficacy between women performing and not performing breast self-examination. Women performing breast self-examination had more perceived benefits and self-efficacy than women who not performing. This result is congruent with Canbulat and Uzun (2008) who reported that, among Turkish female health workers, the score of perceived BSE benefits and self-efficacy of the group that had previously performed BSE were significantly higher than those who had not.^[52] In addition, Tilaki and Auladi (2012) mentioned that the average scores in domains of perceived benefit and self-efficacy were significantly higher among those who performed BSE compared with those who did not.^[39] Moreover, Abolfotouh et al (2015) stated that the higher benefits and confidence levels are in favor of doing breast self-examination.^[37]

Moreover, there was a statistically significant difference regarding BSE perceived barrier between women performing and not performing breast self-examination in which, women performing breast self-examination had lower perceived barrier score than women not performing it. This result is similar to Özkan et al. (2010) and Erbil and Bolukbas (2012) who mentioned that the barrier perceived scores of women who practice BSE were lower than nursing students who do not BSE practice, and the difference was statistically significant^[53,54]

4.3 Regarding predictors of breast self-examination performance

Result of the present study revealed that perceived susceptibility, seriousness and benefits was not statically significant predictors of breast self-examination performance. This result similar to Noroozi et al (2010), Charkazi et al (2013) and Al-Harbi et al (2017) who emphasized that perceived seriousness, susceptibility was not significantly predicting the BSE performance.^[55,56,42] However, Gozum and Aydin (2004) and Tilaki and Auladi (2012) mentioned that perceived benefits were significant scale for predicting BSE performance.^[57,39] On the other hand, Asghari et al (2016) observed that positive perception of susceptibility to cancer has a significant relationship with doing BSE.^[58]

The present study founded that perceived self-efficacy was statistically significant positive predictors for BSE performance while, perceived barriers was statistically significant negative

predictors for BSE performance. This means when perceived barrier for BSE increased women performance decreased while, women who had high perceived self-efficacy were more likelihood to perform BSE. This result in line with Tastan et al (2011) who indicated that the women with higher level of self-efficacy have lower risk for not making breast self-examination while women having higher levels of breast self-examination barrier have higher potential for not making breast self-examination. ^[41] In addition, Abolfotouh et al (2015) stated that breast self-examination performance was directly associated with higher score of confidence and indirectly associated with barrier to perform breast self-examination. ^[37] Moreover, Al-Harbi et al (2017) mentioned that women who perceived more benefits in relation BSE were more likely to engage in the behavior. Women level of perceived barriers to BSE was found to be negatively associated with their performance of BSE. Thus as perceived barriers decreased the women's level of BSE increased ^[42]. On the other hand, this result contradict with Donnelly et al (2011) who mentioned that perceived benefits and barriers have no significant effects to BSE performance. ^[59]

Moreover, this study result founded that age, level of income, heard about breast self-examination and sources of information was not significant predictors of breast self-examination performance. This result similar to Tastan et al (2011) and Abolfotouh et al (2015) who mentioned that age and level of income was not significant predictors of breast self-examination practice. ^[41,37] In addition Jirojwong (2003) emphasized that sociodemographic characteristic of the women were not associated with breast self-examination performance. ^[60]

On the other hand, the present study result emphasized that marital status and level of education was significant predictors of breast self-examination performance. In this conduct, Karayurt and Dramal (2007) emphasized the relationship between the women's educational status and breast self-examination performance. ^[30] In addition, Tastan et al (2011) mentioned that marital status and level of education was significant predictors of breast self-examination performance. ^[41] However, this result not in agreement with Abolfotouh et al (2015) who mentioned that educational level was not significant predictor for breast self-examination performance. ^[37]

In addition, present study noticed that history of breast problem, family history of breast cancer and knowledge about BSE and breast cancer was significant predictors of breast self-examination performance. This result is in line with Tastan et al (2011) who found that family history of breast cancer and information about BSE /breast cancer is significant predictors of breast self-examination performance. ^[41] Moreover, this result similar to Erbil and Bolukbas (2014) and Asghari et al (2016) who indicated that breast cancer knowledge, history of breast cancer in family were factors affecting BSE performance. ^[54-58]

Finally, health professionals should continue to highlight the positive benefits of performing BSE as well as developing ways to address the barriers that women may experience. Moreover, given the strong predictive utility of self-efficacy interventions should seek to enhance women's confidence in their ability to perform BSE.

5. Conclusion

The present study concluded that the majority of the women had no history of breast problems or The family history of breast cancer. More than two third of the women was not performing breast self-examination while more than three quarter heard about breast self-examination. Near three quarter of the women had knowledge about breast cancer and breast self-examination.

In addition, there was no statistically significant difference regarding perceived susceptibility and seriousness between women performing or not performing breast self-examination. On the other hand, there was statistically significant difference in relation to perceived benefits and self-efficacy between women performing and not performing breast self-examination. Women performing breast self-examination had more perceived benefits and self-efficacy than women who not performing. Moreover, there was statistically significant difference regarding BSE perceived barrier between women performing and not performing breast self-examination in which, women performing breast self-examination had lower barrier score than women not performing it.

Perceived susceptibility, seriousness and benefits was not statistically significant predictors of breast self-examination performance. On the other hand, perceived self-efficacy was statistically significant positive predictors for BSE performance while, barriers was statistically significant negative predictor for BSE performance. Regarding sociodemographic and clinical characteristic marital status and level of education was significant predictors of breast self-examination performance. As well as history of breast problem, family history of breast cancer and knowledge about BSE and breast cancer were significant predictors of breast self-examination performance.

6. Recommendation

It is recommended for further research to find the impact of health educational program on women practice and knowledge of breast self-examination. As well as it is highly recommended for replication of the study in other regions with different sample and in different culture groups.

Moreover, It is important to note that this study did not include clinical breast examination as one of its areas of focus because breast self-exam and clinical breast exam are the two main forms of BC screening behaviors recommended for women in this age group, future research should examine both behaviors in terms of BC screening compliance. Finally, health professionals should continue to highlight the positive benefits of performing regular BSE as well as developing ways to address the barriers that women may experience.

7. Conflict of Interest

The authors declare that there are not any sources of funding and potential conflicting interest for this study.

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