

## Factors Related to Self-Breast Examination Based on Health Belief Model among Iranian Women

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**Abstract:** Breast cancer is the most common cancer among women worldwide. Mammography is one of the effective methods in reducing deaths resulted from breast cancer. The purpose of this study was to determine the factors related to Self-Breast Examination (SBE) based on the Health Belief Model (HBM). In this cross-sectional study, conducted in Kermanshah county, a total of 300 women who visited health centers were randomly selected to participate in the study. Data were collected based on self-report questioner. A questionnaire was developed to measure each of the HBM constructs. Regression and correlations were employed to determine SBE and the data were analyzed using SPSS-21. Mean age was 30.25 years (range 20-48). Almost, 41.4 % (94/227) of the participants reported having SBE. Linear regression analysis showed that the HBM variable accounted for 19% of the variation in SBE. In addition, a regression logistic showed perceived susceptibility (OR: 1.235 and P: 0.005) and perceived self-efficacy (OR: 1.264 and P: 0.001) were more influential predictors in SBE. Furthermore, among the background variables: age (OR: 2.680 and P: 0.034) and positive family history of breast cancer (OR: 36.074 and P: 0.001) were more influential predictors in SBE. Based on our result, it seems implementation of educational program about increasing susceptibility and self-efficacy among women may be useful in increasing SBE.

**Key words:** Self-breast examination, women, health belief model, Kermanshah county, SBE

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### INTRODUCTION

Breast cancer is common among women and it is known as the second cause of death among 40-44 years old women (Harirchi *et al.*, 2000). It is predicted that the number of breast cancer cases increases each year from 10-15 million by 2020 (Parkin, 2001). According to recent reports from Iran Cancer Institute, breast cancer accounts for 25% of cancers among Iranian women and it is known as the most common cancer among women in Iran; also, it is known to be most common among 35-45 years old women. It should be noted that average age range of breast cancer in Iran is a decade less than that of the developed countries (Harirchi *et al.*, 2004). Gender (women vs. men), age (over 40), genetics, pregnancy in higher ages and history on other cancers (endometrial and ovary) have been considered as risk factors for breast cancer (Redig and McAllister, 2013; Nelson *et al.*, 2012). Studies showed that cancer prevention and early

detection are essential to control the disease; regular preventing and screening habits decrease chances of cancer and mortality resulting from it (Lannin *et al.*, 2002). A critical way to prevent breast cancer is to have mammography to detect breast cell changes (Smith *et al.*, 2012). Recent statistics showed that one out of eight women suffers from breast cancer and over 203500 cases of the cancer are detected each year (Beisecker *et al.*, 1997). Early detection and effective treatment could help half of the women with cancer enjoy longer lives; studies suggest that there is a chance of 90% of survival for women with breast cancer while it decreases to 60% among women with late detection (DeSantis *et al.*, 2013). It should be mentioned that breast cancer causes changes to person's lifestyle and challenges her; it, also, increases dependency, self-confidence, vulnerability and pain and creates physical symptoms and disturbing thoughts in patients (Courten *et al.*, 1996). Unfortunately, a large proportion of women do not undergo breast cancer

preventive behaviors due to various reasons (Twinn *et al.*, 2002). In other hand, studies showed that focus on mediator and predictive behaviors would be essential in comprehensive health education and promotion programs (Jalilian *et al.*, 2013; Eslami *et al.*, 2014; Jalilian *et al.*, 2015). Many studies mentioned the role of the factors like perceived susceptibility, severity, benefit, barrier and self-efficacy for SBE in Health Belief Model (HBM) (Champion, 1993; Cohen and Azaiza, 2005; Noroozi *et al.*, 2011; Cam and Gumus, 2009).

Considering the importance of the issue, the main objective of present study was to determine the factors related to self-breast examination among a sample of Iranian women based on health belief model.

**MATERIALS AND METHODS**

This cross-sectional study was conducted on 300 women visiting health centers in Kermanshah county in the Western of Iran. The sample size was calculated at 95% significant level according to the results of a pilot study and a sample of 300 was estimated. Sixteen health centers in Kermanshah county were selected randomly and then the subjects in the sample were selected randomly among women visiting the health centers. Participants were asked to complete a questionnaire designed in for this purpose and information was gathered through self-reporting. Of the population of 300 women, 227 (75.6%) signed the consent form and voluntarily agreed to participate in the study.

A self-administered questionnaire and the Champion’s Health Belief Model Scale (CHBMS) were used as the data collection instruments (Champion, 1993). Prior to conducting the main project, a pilot study was carried out. Initially the relevant questionnaires were distributed among 30 women who were similar to study population in order to estimate the duration of the study conduction and to evaluate the reliability of the questionnaire. Estimated reliability, using alpha Cronbach coefficient for each HBM constructs questionnaire was as follows: perceived barrier ( $\alpha = 0.80$ ); perceived benefit ( $\alpha = 0.89$ ); perceived susceptibility ( $\alpha = 0.74$ ); perceived severity ( $\alpha = 0.90$ ); self-efficacy ( $\alpha = 0.91$ ) and behavioral intention ( $\alpha = 0.67$ ).

Data were analyzed by SPSS Version 21 using multiple bivariate correlations and logistic regression statistical tests at 95% significant level.

**RESULTS AND DISCUSSION**

The mean age of the respondents was 30.25 years (95% CI: 29.32, 31.17), ranged from 20-48 years. Regarding the educational status: 13.2% (n = 30) had under-diploma, 65.6% (n = 149) diploma and 21.1% (n = 48) had academic education. The 89.4% (203/227) were housewives and 10.6% (24/227) were employed. Almost 9.3% (21/227) of the respondents reported positive family history of breast cancer. Furthermore, 41.4% (94/227) of the participants reported had self-breast examination.

The correlation between different components of health belief model is shown in Table 1. According to these results, there is a mild to moderate correlation between different components of the model.

Linear regression analysis was performed to explain the variation of self-breast examination intention. As shown in Table 2, collectively, HBM variables accounted for 19% of the variation seen in self-breast examination intention.

A backward step-wise model (Table 3) building procedure was conducted and finally on 4th step the procedure stopped and the best model was selected. Among the HBM constructs perceived susceptibility and perceived self-efficacy were more influential predictors on self-breast examination (Table 4).

As mentioned in statistical analyses, a step-wise model building procedure was conducted and finally on 3rd step the procedure stopped and the best model was selected. Among the background variables age and positive family history of breast cancer were more influential predictors on self-breast examination.

The results of the study indicate that the perceived susceptibility and perceived self-efficacy as the two main constructs of HBM were associated with the women’s to SBE. In addition age and positive family history of breast cancer were more influential predictors on SBE. Furthermore, 41.4% of the participants did SBE at least once. In this regard Noroozi and Tahmasebi reported that 14.3% of the subjects in their studies had at least one

Table 1: Predictor variables correlation matrix

Variables	Mean (SD)	Scores range	X1	X2	X3	X4	X5
X1: Perceived barrier	28.68 (7.27)	9-45	1	-	-	-	-
X2: Perceived benefit	19.14 (5.44)	6-30	-0.440**	1	-	-	-
X3: Perceived susceptibility	9.18 (2.43)	3-15	-0.389**	0.232**	1	-	-
X4: Perceived severity	23.56 (6.10)	7-35	-0.200**	0.284**	0.377**	1	-
X5: Perceived self-efficacy	37.21 (8.13)	10-50	-0.296**	0.234**	0.247**	0.355**	1
X6: Behavior intention to BSE	6.13 (1.40)	2-10	-0.228**	0.256**	0.178**	0.226**	0.415**

\*\*p<0.01

Table 2: HBM variables which were predictors of self-breast examination intention

Variables	Unstandardized coefficients (B)	SE	Standardized coefficients (β)	t-values	Sig.
Perceived benefit	0.043	0.016	0.168	2.736	0.007
Perceived self-efficacy	0.065	0.011	0.376	6.109	0.001

Final model: step 4; R<sup>2</sup> = 0.19; F = 27.829; p<0.001

Table 3: Multiple logistic regression analysis for health belief model variables related to self-breast examination

Variables	Odds ratio	95.0% CI		p-values
		Lower	Upper	
Perceived susceptibility	1.236	1.067	1.431	0.005
Perceived self-efficacy	1.264	1.177	1.358	0.001

Final model: step 4

Table 4: Logistic regression analysis for background variables for predictor to self-breast examination

Variables	Odds ratio	95.0% CI		p-values
		Lower	Upper	
Age	2.680	1.077	6.671	0.034
Positive family history of breast cancers	36.074	4.728	275.262	0.001

Final model: step 3

mammography in their lifetime (Noroozi *et al.*, 2011). In addition, Cohen and Azaiza (2005) in their study reported 32% SBE among Jewish and Arab women. Also, Boxwala in their study among Asian Indian women in metropolitan Detroit, Michigan reported that out of 160 participants, 63.8% reported receiving both a clinical breast exam and mammogram within the past 2 years (Boxwala *et al.*, 2010). Based on our findings it seems that recognition of effective factors for improving SBE is necessary among Iranian women's.

Also, our results indicated that the majority of participants reported physicians' advice and health care staff as the most effective factors that persuaded women to undergo a SBE; this result is similar to the results reported by other studies (Noroozi *et al.*, 2011; Cam and Gumus, 2009; Sim *et al.*, 2009). Therefore, physicians' advice and health care staff play an important role to persuade women to take part in breast cancer screening program.

Our findings showed that perceived susceptibility and perceived self-efficacy were more influential predictors on self-breast examination. The findings of this study are consistent with those of other studies as many studies have found perceived self-efficacy as the most powerful predictor of SBE (Avci, 2008; Jirojwong and MacLennan, 2003; Secginli and Nahcivan, 2006; Umeh and Dimitrakaki, 2003).

It should be stated that self-efficacy is defined as the level of confidence a person feels to do something; it affects efforts and functioning of the individual (Rosenstock *et al.*, 1988). It also may enable people to

make health care improving behaviors. It is shown that individuals with higher self-efficacy rates are more diligent to overcome and control obstacles through using their self-management skills. As a result, understanding self-efficacy could help maintain and improve health care behaviors (Bandura, 1977). So, it seems that designing and implementation of educational programs to increase awareness about breast cancer and SBE self-efficacy may be useful to promote SBE among women.

Another finding of the present study was that a statistically meaningful relationship exists between positive family history of breast cancer and SBE which is in line with the findings of earlier studies investigating the SBE among women (Noroozi *et al.*, 2011; Sim *et al.*, 2009; Parsa and Kandiah, 2005). In addition, age was another factor with a meaningful relationship with SBE; it is also consistent with similar studies and emphasizes the importance of training young women.

## CONCLUSION

Understanding factors predicting SBE can help health educators to design educational intervention for promotion of SBE among women. Our findings showed that perceived susceptibility and self-efficacy were strong predictors for SBE and it seems implementation of educational program about increasing susceptibility and self-efficacy among women may be useful in increasing SBE.

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