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ORIGINAL ARTICLE

Health belief model and practice of breast self-examination and breast cancer screening in Iranian women

Karimollah Hajian-Tilaki · Sahar Auladi

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Abstract
Objective The objective of this study is to determine the role of different health belief model components in practice of breast cancer screening among Iranian women.
Subjects and methods A cross-sectional study of 500 women aged 18–65 years was conducted in an urban population under the coverage of a health therapeutic system in Babol, northern Iran in 2012. Demographic data and data regarding practice of breast self-examination (BSE), breast clinical examination (BCE), and mammography were collected by interview, and a standard health belief model questionnaire was used to assess women's attitudes in six different domains based on a Likert scale that ranked from 1 to 5. The average score of each item for each domain was calculated. The Wilcoxon rank test and a multiple logistic regression model were used to estimate the odds ratio of each domain for performing breast cancer screening (BSE, BCE, and mammography).
Results The mean age of the women was 31.2 (9.4) years. Overall, the average scores in domains of perceived benefit, self-efficacy, and health motivation were significantly higher among those who performed BSE and BCE, but not for mammography. For the domains of perception of susceptibility, seriousness, and barriers, no significant differences were observed. Higher scores on the scales of perceived benefits, perceived confidence/self-efficacy, and health motivation showed significant positive association with performing BSE [adjusted OR (95 % confidence interval [CI]) 1.73 (1.11, 2.72), 4.01 (2.39, 6.73), and 2.01 (1.30, 3.08), respectively] and BCE [adjusted OR (95 % CI) 1.65 (1.0, 2.95), 2.33 (1.39, 3.91), and 1.58 (1.0, 2.53), respectively], but not for performing mammography. For perceived susceptibility, perceived seriousness, and barriers, no significant association was observed.
Conclusions Positive attitudes toward perceived benefits, perceived confidence/self-efficacy, and health motivation have a strong association with performing BSE and BCE. The impact of health belief model subscales on breast cancer screening may vary with respect to culture and values.

Keywords Health belief model · Breast cancer · Breast self-examination · Breast clinical examination · Mammography

Introduction

Breast cancer is the most common malignancy among women in both developed and developing counties [1]. In general, its incidence is high (>80 per 100,000) in developed regions of the world and low (<30 per 100,000) in developing regions, but the trend is increasing while the range of mortality rates is much lower (6–23 per 100,000) because of favorable survival and early detection in developed regions [2]. Published studies have shown that early diagnosis and performance of screening programs have substantially decreased mortality and serious outcomes in recent decades [3, 4]. However, in developing countries, such as Iran, in addition to the increasing trend of its incidence in recent decades due to changing toward modern lifestyles, cases are diagnosed at late stages [5]. The barriers include lack of sufficient knowledge and perception of risk of susceptibility, lack of perception of benefit, and health motivation in performing breast self-examination

K. Hajian-Tilaki (✉) · S. Auladi
Department of Social Medicine and Health,
Babol University of Medical Sciences, Babol, Iran
e-mail: drhajian@yahoo.com

(BSE), breast clinical examination (BCE), and screening practice, as well as other sociocultural barriers that are associated with attitudes of women in societies [6].

The health belief model is a basic conceptual framework to consider health problems that are associated with behaviors. Based on this model, the domain of health practice is driven by health belief attitudes. This model was first adopted by psychologists in 1950 to explain why people would or would not use preventive care in surveillance programs [6]. Recently, researchers have reported that women's breast cancer screening practices also follow their health beliefs [7]. In this theoretical framework, women's breast cancer screening practices such as BSE, clinical examination, and mammography are influenced by their health belief model [7–9]. This model emphasizes that health behavior is affected by threats from health problems; for example, women perceiving susceptibility to breast cancer risk or believing that breast cancer is a serious disease are more likely to undergo BCE and breast cancer screening programs. Similarly, women perceiving greater benefits, with higher health motivation, and feeling less barriers to breast examination are more likely to perform BSE.

Published data from Asian women, in particular in the Islamic Republic of Iran, show that breast cancer has been increasing in recent decades [10]. In addition, women's practice of BSE, BCE, and mammography for breast cancer screening is low; overall, less that 15 % of women participated regularly in breast cancer screening [11–14]. Furthermore, published reports from the Islamic Republic of Iran indicate that more than 80 % of breast cancer is diagnosed at late stages [5]. These problems emphasize the significance of study on the barriers to breast cancer screening practice. On the other hand, there is no information regarding the health perception of Iranian women, the pattern of their health beliefs, and their association with health behavior in breast cancer screening. Thus, the objective of this study is to determine the role of different health belief model components in practice of breast cancer screening among Iranian women.

Methods and subjects

We conducted a cross-sectional study of 500 women aged 18–64 years in an urban population under the coverage of health therapeutic centers in Babol, located to the south of the Caspian Sea, in the north of Iran, in 2012. Assuming a rate of practice of breast examination of 20 %, this sample size is sufficient for practice estimates with maximum marginal error not exceeding 4 % with 95 % confidence interval (CI). Of the 12 health centers which cover the whole population of the urban area of Babol, 10 were selected, covering the health services for 85 % of the urban population. Since the size of the defined population under the coverage of the different health centers was roughly similar, an equal sample size of 50 women aged 18–64 years was selected from each health center consecutively among those who attended the health centers for child healthcare and family planning, and also to visit their family general practitioner. All subjects were interviewed using a standardized questionnaire. The questionnaire included demographic data such as age, educational level, occupation, husband's educational level, marital status, history of pregnancy, age at first pregnancy, menopausal status, family history of breast cancer, family income, practice of breast health examination (BSE, BCE by physician or nurse, and mammography), and knowledge of breast cancer risk factors. In particular, a previously validated, standardized health belief model questionnaire was used [11, 15]. This questionnaire measures women's health belief perception in six domains: perceived susceptibility to breast cancer risk (5 items), perceived seriousness (7 items), perceived benefits of breast examination (6 items), perceived barriers to BSE (5 items), confidence/self-efficacy (11 items), and health motivation (6 items). Each item was rated on a Likert scale from 1 (completely disagree) to 5 (completely agree). Except for barriers, higher score on all domains indicates positive attitude; for barriers, higher score shows negative attitude toward breast screening practice. We assessed the internal consistency of each subscale using Cronbach's α reliability coefficient. The reliability coefficients ranged from 0.83 for perceived health motivation to 96 % for perceived confidence. The study protocol was approved by the Ethical Research Council of Babol University of Medical Sciences, and all selected women gave written consent prior to participation in the study.

Statistical analysis

First, we calculated the sum of rank of each health belief domain, then divided the sum by the number of items to estimate the average score for each domain. In terms of practice of breast examination (BSE, BCE, and mammography), subjects with experience of breast examination at least once were categorized as performing; otherwise, they were not. In bivariate analysis, we used the Wilcoxon rank test to compare differences of mean scores between those performing BSE and BCE versus not. In addition, we categorized the level of each health belief domain as high (average >3) or low (average ≤ 3). We applied a multiple logistic regression model to estimate the odds ratio of each domain for performing breast cancer examination (BSE, BCE, and mammography). The crude and adjusted odds ratio and its 95 % CI were estimated. The odds ratio were

adjusted by age, women's educational level, husband's educational level, women's occupation, marital status, family income, family history of breast cancer, and knowledge of breast cancer risk factors. All tests were two-sided, and p value <0.05 was considered significant.

Results

A total of 500 women with mean (standard deviation, SD) age 31.2 (9.4) years (range 18–62 years) were entered into the study. Approximately, 428 subjects (85.6 %) were married, and over half of the study population were educated to university level; only 8.6 % were illiterate or had primary-level education, while the corresponding percentages for husband's education level among married women were 49.5 and 8.1 %, respectively. Approximately 71 % of women were satisfied for the family income, only 35 subjects (7 %) were menopause, and 6.6 % had family history of breast cancer; none of the study subjects reported history of breast cancer diagnosis. About half of subjects reported some knowledge on breast cancer, whereas 308 women (61.6 %) had either no information of BSE or no practice; 51 (10.2 %) participants had regular BSE practice once a month, and the remainder (28.2 %) had practice irregularly. In terms of BCE, 21 (4.2 %) of the study subjects performed it regularly (once a year); 374 (74.8 %) had no practice at all, and the remainder performed it irregularly. Overall, 38.4 and 25.2 % of participants practiced BSE and BCE, respectively, and only 12 % underwent mammography, while among women aged 40 years and older, 28.7 % had had at least one mammogram in their lifespan.

Table 1 compares the mean scores of the different health belief model domain scales between women who performed BSE and CBC versus those who did not. The Wilcoxon rank test results showed that the mean scores in the domains of perceived benefits, health motivation, and perceived confidence/self-efficacy were significantly higher among those who performed BSE and BCE compared with those who did not. However, no significant differences were observed on the subscales for perception of susceptibility, seriousness, and barriers. Overall, the mean scores were lower than the average level on the Likert scale for perception of susceptibility, seriousness, and barriers. Tables 2 and 3 present the crude and adjusted ORs for high (mean >3) versus low score (mean ≤3) on each subscale for performing BSE, BCE, and mammography using multiple logistic regression. After adjusting for age, women's education, women's occupation, husband's education, family history of breast cancer, family income, and level of knowledge of breast cancer, high score on the domain of perceived benefits of BSE was significantly positively associated with practice of BSE [adjusted OR (95 % CI) 1.73 (1.11, 2.72), 4.01 (2.39, 6.73), and 2.01 (1.30, 3.08), respectively] and of BCE [adjusted OR (95 % CI) 1.65 (1.0, 2.95), 2.33 (1.39, 3.91), and 1.58 (1.0, 2.53), respectively]. A greater odds ratio was observed in particular for the subscale of perceived confidence/self-efficacy, while a significant association was not observed with respect to perception of susceptibility, seriousness, and barriers with performing BSE and BCE. In addition, no association was found between health belief model (HBM) subscales and mammography practice.

Discussion

Our findings show that practice of BSE, BCE, and mammography was 38.4, 25.2, and 12 %, respectively. Over the six different domains of the health belief model, the mean score of perception of susceptibility was lower, which is interpreted as indicating that study participants feel less vulnerable to breast cancer risk. The lower mean score of the barriers scale shows that participants have less social difficulties in performing BSE. The higher scores for perception of benefits, confidence, and motivation indicate the positive attitudes of women on these scales. The mean

Table 1 Mean scores on various health belief model subscales with respect to performing BSE and BCE

Health belief	Performed BSE ($n = 192$)[a]	Not performed ($n = 308$)[a]	p value	Performed BCE ($n = 126$)[a]	Not performed BCE ($n = 374$)[a]	p value
Susceptibility	1.72 ± 0.78	1.77 ± 0.88	0.74	1.75 ± 0.78	1.76 ± 0.86	0.68
Seriousness	2.59 ± 1.08	2.85 ± 1.02	0.004	2.74 ± 0.95	2.75 ± 1.08	0.98
Barriers	1.59 ± 0.64	1.86 ± 0.8	0.001	1.63 ± 0.60	1.79 ± 0.78	0.17
Benefit	3.82 ± 0.86	3.27 ± 1.01	0.001	3.73 ± 0.80	3.41 ± 1.02	0.005
Confidence	3.01 ± 0.90	2.03 ± 0.89	0.001	2.84 ± 1.01	2.28 ± 0.98	0.001
Health motivation	3.38 ± 0.76	2.86 ± 0.80	0.001	3.38 ± 0.77	2.93 ± 0.81	0.001

p value calculated from Wilcoxon rank test

[a] Values represent mean ± SD

Table 2 Crude odds ratio (OR) and 95 % confidence interval (95 % CI) of different health belief model subscales for performing breast cancer screening

Variable	BSE		BCE		Mammography	
	OR (95 % CI)	*p* value	OR (95 % CI)	*p* value	OR (95 % CI)	*p* value
Susceptibility (high versus low)	0.84 (0.37, 1.92)	0.68	1.34 (0.57, 3.13)	0.50	0.95 (0.28, 3.25)	0.93
Seriousness (high versus low)	0.62 (0.42, 0.91)	0.02	0.83 (0.54, 1.28)	0.34	0.66 (0.36, 1.20)	0.17
Barriers (high versus low)	0.46 (0.18, 1.17)	0.11	0.37 (0.11, 1.25)	0.11	0 (–)[a]	–
Benefits (high versus low)	2.69 (1.8, 4.04)	0.001	2.13 (1.35, 3.35)	0.001	1.54 (0.85, 2.08)	0.15
Confidence (high versus low)	4.86 (3.11, 7.58)	0.001	2.63 (1.68, 4.11)	0.001	1.77 (0.99, 3.17)	0.05
Health motivation	2.52 (1.73, 3.66)	0.001	1.75 (1.16, 2.64)	0.008	1.15 (0.67, 1.99)	0.59

[a] The estimate of odds ratio was not reliable (low precision)

Table 3 Adjusted odds ratio (OR) and its 95 % confidence interval (95 % CI) of different health belief model subscales for performing breast cancer screening on multiple logistic regression analysis

Variable	BSE		BCE		Mammography	
	OR (95 % CI)	*p* value	OR (95 % CI)	*p* value	OR (95 % CI)	*p* value
Susceptibility (high versus low)	0.87 (0.34, 2.29)	0.78	1.51 (0.54, 4.18)	0.43	0.86 (0.22, 3.43)	0.83
Seriousness (high versus low)	0.67 (0.43, 1.05)	0.08	0.85 (0.53, 1.38)	0.53	0.75 (0.39, 1.41)	0.39
Barriers (high versus low)	0.65 (0.23, 1.86)	0.43	0.43 (0.11, 1.64)	0.22	0 (–)[a]	–
Benefits (high versus low)	1.73 (1.11, 2.72)	0.01	1.65 (1.0, 2.95)	0.05	1.06 (0.91, 3.09)	0.85
Confidence (high versus low)	4.01 (2.39, 6.73)	0.001	2.33 (1.39, 3.91)	0.001	1.58 (0.91, 3.09)	0.18
Health motivation (high versus low)	2.01 (1.30, 3.08)	0.002	1.58 (1.0, 2.53)	0.05	0.98 (0.53, 1.82)	0.96

Odds ratio adjusted for age, women's education level, husband's education level, women's occupation, marital status, family income, and knowledge of breast cancer

[a] The estimate of odds ratio was not reliable (low precision)

scores of the subscales for perceived benefits, perceived confidence, and health motivation were significantly higher among those who performed BSE and BCE compared with those who did not, but not for other scales. The adjusted OR showed that positive attitude on these three scales significantly increased BSE and BCE performance, but not mammography practice.

Based on the American Cancer Society's (ACS) recommendation of performing BSE once a month, according to our findings, 10.2 % participants followed this recommendation while 28.2 % of women stated that they examined themselves irregularly, and overall 38.4 % of women performed BSE either regularly or irregularly. According to our findings, BSE practice is rather similar to that reported among Turkish women [6, 15] but higher compared with female workers at a Muslim Turkish community [14] and those reported among women in the south of Iran [16]. However, some studies found that a majority of older women performed BSE on a regular basis [13, 17], while others reported that less than half of their study population practiced BSE monthly [18, 19]. For example, in a study among Asian-American population, there was wide variation between ethnic groups; regular BSE ranged from 5 % for Asian-Indian women to 23 % for Chinese women and 51 % for Filipino women, and overall 64 % of women aged 40 years or older had received a mammogram within the previous 2 years [20], while this percentage was much higher than for mammography practice in our study, in which only 12 % had had mammography. In contrast, in other studies in Asian and Turkish populations, the rate of undergoing mammography ranged from 5.1 to 25 % [6, 21]. The large variation in BSE and mammography practices across different studies may be explained by demographic characteristics, knowledge, attitudes, and availability of health services in breast cancer screening practice in different countries and regions.

In our findings, using Champion's health belief model scale (CHBMS), women who perceived higher confidence, greater benefits and health motivation, and less barriers were more likely to practice BSE and BCE. Thus, by using the CHBMS construct, the primary health provider can understand the beliefs that may influence women's BSE and BCE practice. Higher scores on all scales except for barriers indicate positive attitude, which we expected to be

positively related to screening behavior, while for barriers, a higher score indicates negative attitude. As in studies of Western and Asian countries, the results of this study indicate that some HBM subscales are useful to identify the influence on BSE and BCE for Iranian women. In this study, perceived susceptibility and seriousness, and barriers were not significantly associated with BSE and BCE practice, but increased perceived confidence level, BSE benefits, and health motivation were significantly associated with them. Similarly, in other studies of Turkish women, seriousness has been reported to be a nonsignificant predictor of BSE [18, 21]. In our results, the overall mean score of perceived susceptibility was relatively very low, and this perception did not vary in relation to BSE and BCE practice, the mean score of perceived seriousness being below the midpoint of the Likert scale. In contrast to HBM theory, perceived susceptibility, seriousness, and barriers were not found to be significantly associated with performance of BSE. One possible explanation is that our study population was relatively young with mean age of 31 years, and about half of the study participants were aged <30 years; thus, younger individuals did not think that they were susceptible to breast cancer risk and thus did not independently pursue information about BSE. Another explanation might be the lack of sufficient knowledge on breast cancer in this young age group, as about 48 % reported that they were not aware of breast cancer. However, in some studies, conflicting results have been revealed; for example, some studies emphasized that higher level of perceived susceptibility [8, 22] was associated with higher level of BSE performance. In contrast, in a study of African-American and Caucasian nurses, Foxall et al. [23] found no relation between BSE practice and perceived susceptibility or benefits, while Gozum and Aydin [24] reported perceived benefits as a significant predictor of BSE performance for Turkish women. However, perceived benefits, confidence/self-efficacy, and health motivation were significant scales for predicting BSE and BCE performance in the present study. This is also emphasized by the findings of American and Turkish studies, which reported that women who perceived greater benefits from BSE behavior were more likely to perform BSE [18, 25]. In addition, Canbulat and Uzun [18] reported that, among Turkish female health workers, the score of perceived BSE benefits/self-efficacy of the group that had previously performed BSE were significantly higher than those who had not. In other studies of Asian women from Korea, Hong Kong, and Jordan, perceived benefits was a significant predictor as well [22, 26, 27]. Perception of confidence/self-efficacy is found to be a significant factor for both BSE and BCE practice in the present study. This finding is consistent with Lu [28], whereas some others did not find such an association [24, 27]. The confidence level scores of participants who performed BSE and BCE were much higher than among nonpractitioners. In this regard, the results of this study are similar to findings from Chinese and Korean women [21, 26]. Moreover, our results also support Graham et al. [25] in that the frequency of BSE practice was related to health motivation. In contrast, in the studies by Han et al. [29] and Lee [26], it was stated that perceived health motivation was not found to be related to BSE.

In the present study, none of the HBM scales were significant predictors for mammography performance. This might be due to the lower rate of mammography practice, because the young study samples may not be suitable candidates to undergo mammography. Similarly, among Turkish female health workers, except for susceptibility, the perception of participants on other HBM subscales among women who had undergone mammogram was not significantly difference from the groups who had not [18].

The findings of this study should be interpreted cautiously due to some limitations. The sequential convenience sampling method used in this study with relatively young subjects restricts the generalizability of the results to similar cultures, demographic characteristics, and social status. In addition, roughly half of the study samples were relatively younger age (<30 years), and the smaller sample size of the subgroup of women aged 40 years and older limits the ability of the study to provide a precise estimate of mammography practice, which is mostly recommended for those aged 40 years and above. Moreover, use of self-reporting of CBC and mammography screening has not been validated among Asian women. Further studies are needed to verify the validity of such self-reports against medical records.

Despite these limitations, this study provides new insight into understanding the various attitudes corresponding to health belief model subscales and breast cancer screening practice among Iranian women. We used a valid and reliable questionnaire to assess the attitudes of women in terms of their health belief model, with high reliability coefficients of 0.84–0.96 being found in our study sample for various subscales.

In conclusion, any intervention regarding promotion of breast cancer screening among Iranian women should primarily focus on health belief model perceptions, in particular on the subscales of perceived benefits, confidence/self-efficacy, and health motivation. Further studies with larger sample size in women aged 40 years and older are needed to explore the influence of different health belief model subscales on breast screening practice among Iranian women.

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References

1. Hortobagyi GN, de la Garza Satazar J, Pritcharol K, Amadori D, Haidinger R, Hudis CA, et al. The global breast cancer burden: variation in epidemiology and survival. Clin Breast Cancer. 2005;6:391–401.
2. Prkin DM, Femandez LM. Use of statistics to access the global burden of breast cancer. Breast J. 2006;Suppl 1:S70–80.
3. Neison HD, Tyne K, Naik A, Bougatson C, Chan BK, Humphrey L. Screening for breast cancer: an update for the US preventive Services Task Force. Ann Intern Med. 2009;151:727–37.
4. Nestom L. How effective is screening for breast cancer. Br Med J. 2000;16:647–9.
5. Harich I, Karbakhsh M, Kashefi A, Momtahen AJ. Breast cancer in Iran: results of a multi center study. Asian Pac J Cancer Prev. 2004;5:24–7.
6. Dundar PE, Ozmen D, Ozturk B, et al. The knowledge and attitudes of breast self examination and mammography in a group of women in a rural area in western Turkey. BMC Cancer. 2006;6:43. doi:10.1186/1471-2407-6-43.
7. Katapodi MC, Lee KL, Facione NC, Dodd MJ. Predictor of perceived breast cancer risk and the relation between perceived risk and breast cancer screening: a meta analysis review. Prev Med. 2004;38:388–402.
8. Champion VL. Instrument refinement for breast cancer screening behaviors. Nurs Res. 1993;42:139–43.
9. Champoin VL. Development of a benefits and barriers scale for mammography utilization. Cancer Nurs. 1995;18:53–9.
10. Hajian-Tilaki KO, Gholizadehpasha AR, Bozorgzadeh S, Hajian-Tilaki E. Body mass index and waist circumference are predictor of breast cancer risk in Iranian women. Med Oncol. 2011;28:1296–301.
11. Secginli S, Nahcivan NO. Reliability and validity of breast cancer screening belief scale among Turkish women. Cancer Nurs. 2004;27:287–94.
12. Hajimahmodi M, Montzari A. Breast self examination: knowledge, attitudes and practices among female health care givers in Tehran. Breast J. 2007;8:222–5.
13. Chong PN, Krishhanan M, Hong CY, Swah TS. Knowledge and practice of breast cancer screening among public health nurses in Singapore. Singap Med J. 2002;43:509–16.
14. Avci IA. Factors associated with breast cancer self examination practice and belief in female workers at a Muslim community. Eur J Oncol Nurs. 2008;12:127–33.
15. Parsa P, Kandiah M, Moha Nasir MT, Hejar AR, Afiah MZ. Reliability and validity of Champion's health belief model scale for breast cancer screening among Malaysian women. Singap Med J. 2008;49:897–903.
16. Tavafian SS, Hasani L, Aghamollaei T, Zareh S, Gregory D. Prediction of breast self-examination in a sample of Iranian women: an application of health belief model. BMC Womens Health. 2009;9:37.
17. Meissner HL, Klabunde CN, Han PK, Benard VB, Been N. Breast cancer screening beliefs, recommendation and practice: primary care physician in the United States. Cancer. 2011;17:3101–11.
18. Canbulat N, Uzun O. Health belief and breast cancer screening behaviors among female health workers in Turkey. Eur J Oncol Nurs. 2008;12:148–56.
19. Alharbi NA, Alshammari MS, Barjas M, Almutairi BM, Makboul G, El-shazly MK. Knowledge, awareness, and practice conversing breast cancer among Kuwaiti female school teachers. Alex J Med. 2012;48:75–82.
20. Wu T, West B, Chen Y, Hergert C. Health beliefs and practices related to breast cancer screening in Filipino, Chinese and Asian-Indian women. Cancer Detect Prev. 2006;30:58–66.
21. Secginli S, Nahacivan NO. Factors associated with breast cancer screening behaviors in a sample of Turkish women: a questionnaire survey. Int J Nurs Stud. 2006;43:161–71.
22. Petro-Nustas W. Young Jordanian women's health beliefs about mammography. J Community Health Nurs. 2001;18:177–94.
23. Foxall MJ, Barron CR, Houfek J. Ethnic difference in breast self examination practice, and health beliefs. J Adv Nurs. 1998;27:419–28.
24. Gozum S, Aydin I. Validation evidence for Turkish adaptation of Champion's health belief model scales. Cancer Nurs. 2004;27:491–8.
25. Graham ME, Liggons Y, Hypolite M. Health belief and self breast examination in black women. J Cult Divers. 2002;9:49–54.
26. Lee EH. Breast self-examination performance among Korean nurses. J Nurse Staff Dev. 2003;19:81–7.
27. Fung SY. Factors associated with breast self-examination behavior among Chinese women in Hong Kong. Patient Educ Couns. 1998;33:233–43.
28. Lu ZI. Variables associated with breast self-examination among Chinese women. Cancer Nurs. 1995;18:29–34.
29. Han Y, Baumann LC, Cimprich B. Factors influencing registered nurses teaching breast-self examination to female clients. Cancer Nurs. 1996;19:197–203.