

RESEARCH COMMUNICATION

The Relationship Between Women's Health Beliefs and Their Participation in Screening Mammography

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Abstract

Breast cancer is the most common type of cancer in women. Early diagnosis of this disease can reduce mortality significantly and will promote women's quality of life. Changes in the women's beliefs and attitudes are necessary to encourage them to undergo screening mammography. To make this change happen, understanding their health beliefs is important. This attempt is to determine the relationship between women's health belief of city of Kerman with their participation in mammography on the basis of health belief model in the year 2005-2006. This study was an experimental-control one in which the main independent variable was health belief including different dimensions such as perceived sensitivity, perceived intensity, perceived barriers, perceived benefits, "cues to actions" and self-efficacy. Participation in the mammography was taken as the dependent variable. Two samples consisting of 148 women who had and 148 women who had not underwent mammography were selected. Data were collected through questionnaires and were analyzed by SPSS=12 software. The result of this study showed that women's health belief in some dimensions of health belief model such as perceived benefits of mammography use, the presence of cues to action in mammography use is associated with having mammography. Moreover the total score of mammography group was more than the score of the group without the mammography. When the two groups were compared in terms of demographic data, experimental group showed significant statistical differences with regard to age, benign breast mass and family history of breast cancer. (P, 0001) Understanding the benefits and advantages of mammography and cues to action will increase women's adherence toward doing it. It is of great importance to better realize breast cancer screening behaviors and factors influencing it. It is also necessary to recognize the factors affecting health professionals' and particularly nurses' use of mammography.

Key Words: Breast cancer - screening mammography - participation - health beliefs - Iran

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Introduction

Health lies at the heart of the concept of life quality (Park and Park, 2004). The health determining factors includes: biological factors like genetic and heredity structures, individual's behaviors, individual's responses, ideas and beliefs, social and physical environments, economic conditions and the amount of access to information and health services (Crisp and Taylor, 2005). Change in the behavior necessitates change in the beliefs (Glanz, 1996). Each year more than 11 million cases of cancer are diagnosed over the globe. Until the year of 2020 new cases of cancer is estimated to amount 16 million people. About 7 million or 12.5 % of the deaths in the world are caused by cancer (www.WHO.Int/cancer/whi, 2004). Breast cancer is the most common type of cancer among women and holds the second position after lung cancer among women's deaths caused by cancer. The WHO reports that more than 1.2 million cases of breast cancer have been diagnosed in the year 2006 worldwide (The World Health Report, 2006).

Prevention is the key element in all health promotion

policies. Screening for the sake of breast cancer has saved many women's lives and prevents chronic diseases. But most of the countries have not that capacity yet. The aim of the breast cancer screening is to increase early diagnosis and to reduce mortality rates (Sutherland, 2001). Mammography will identify slow-growing cancer before their development to diagnosis and touching stage (Parker et al., 1996). Nurses have a vital role in breast cancer prevention (Smeltzer, 2004). We can teach, give information and encourage women to prevent, identify and cure their breast problems. Health education issues can pave the way to strengthening, changing attitude, individual's perception and beliefs about the disease, its treatment and effects on the daily activities. With regard to the important role of beliefs in women's performance and the importance of taking mammography in women above 35 years of age as the most effective available method for the early diagnosis of breast cancer and also its direct relationship with women's health, therefore we decided to investigate women's health beliefs in relation to mammography. And we hope that by applying the findings of this study in different aspects of breast cancer

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education and mammography, we can proceed a bit further in applying overall programs of mammography screening and as a consequence we would be able to accomplish early diagnosis of breast cancer, its on-time treatment, decrease in mortality rates and ultimately in promoting society's health conditions.

Materials and Methods

This was an experimental-control group study in which the relationship between women's health belief of city of Kerman with their participation in mammography on the basis of health belief model was investigated. The sample population of this research was women of more than 35 years of age, divided in two groups as following: 1-the experimental group containing women who had taken mammography in public or private radiology clinics and public gynaecology clinics. 2-The control group consists of women who had never taken mammography and whom researchers went to their houses. Sampling for the mammography group was of simple kind in public and private radiology or gynaecology clinics. Women in non-mammography control group were chosen using again simple sampling method. In this sampling ten different places of city were selected and referred to in a clockwise manner. Twenty qualified women of the houses of the first alley of the first main street were chosen in each city location. The ratio of control to experimental was one.

In this study the data collection instrument was Campion revised questionnaire taken from health belief model scale which was prepared by Selda Secginli in 2006 in order to determine the rate of taking mammography and self-examination and to explore the variables related to breast cancer screening behaviors in a sample of Turkish women (Secginli and Nahcivan, 2006). Also a health belief questionnaire used by Lagerlund et.al. in the year 2000 for exploring Swiss women's attitudes, knowledge and participation in mammography was adopted from web resources and employed (Lagerlund et al, 2000). The content validity of the questionnaire was.94 and its reliability was.86.

To analyze the obtained data and arrive at study objectives, answers were scored from 1(completely agree) to 5 (completely disagree) and questions with three-choice scale (I agree, disagree, no idea) were scored 1, 2, 3 respectively. Questions with yes and no scale were scored 1, 2 respectively. Demographic variables like marital status (single, married, divorced, widow or widower) were

scored 2,1,3,4 respectively. Level of education (illiterate, literate, guidance school, diploma, higher diploma, bachelor, and higher) were scored 1, 2, 3,4,5,6 respectively. Employment including employed or housewife were given 1, 2. Scores for family monthly income (Less than 2 million Rials, 2 million Rials, more than 2 million Rials) were assigned 1, 2, 3. Mammography experience and history (yes or no) were scored 1 and 2. Benign breast mass history and family history (yes or no) were scored 1 and 2. Having or not having insurance was scored 1 and 2 respectively.

To analyze the obtained data and arrive at the study objectives, first scores of each dimension of the model was calculated by adding the score questions and then the total score was obtained from the addition of scores of the dimensions. In order to check whether the two groups are matched or not, t-test and chi-squared tests were employed to compare their individual characteristics. Other statistical instruments such as measures of central tendency and distribution, t-test and ANOVA test and linear multivariate regression were employed.

Results

The results showed that in the comparison of score mean of components of the model and total score of the control and experimental group there is no significant difference in other dimensions except in the perceived barriers and self-efficiency ones. Therefore the total score of the scores mean of the experimental were more than the control group in the perceived sensitivity, perceived severity, and cues to action dimensions (Table 1).

In order to explore the blurring factors, the perceived sensitivity does not depend on the group. As you can see at the footer of table 2, group means: (1-those who has done mammography and 2- Those who has not).On the other hand, perceived sensitivity depends on the benign breast mass history and breast cancer family history. So those who had not benign breast mass history had 1.63 less perceived sensitivity score in comparison with those with benign breast mass history. The group with no breast cancer family history had 1.84 less perceived sensitivity score in comparison with the group with breast cancer family history. Perceived benefits depend on the group so that for the mammography group perceived benefit score was .64 more than the group with no mammography. On the perceived barriers it should be said that: for each one-unit increase in the salary on the basis of the classification done according table subtitle, .52 points will be added to the score of the perceived barriers. Also for each one-unit increase in the salary on the basis of the classification done according to the table subtitle, .67 will be added to the perceived benefits score. The relationship between cues to action and variables according to multivariate linear regression is as following:

Cues to action depend on group, having benign breast mass, having breast cancer family history and age, amount of family monthly income. So that action guide score of mammography group was 4.03 score more than non-mammography group, and cues to action score of the group without benign breast mass history was 2.17 score less than the group with benign breast mass history. Cues to

Table 1. Comparison of the Score of the Model Components and Total Score in Control and Experimental Groups

Variable	Cases		Controls		P value
	Mean	SD	Mean	SD	
Perceived sensitivity	11.2	4.5	10.2	4.1	P=0.02
Perceived benefits	16.5	2.8	15.9	3.1	P=0.04
Perceived barriers	10.9	2.8	11.1	2.8	P=0.54
Perceived severity	12.6	3.1	11.8	3.5	P=0.02
Cues to action	13.3	5.7	7.8	6.1	P=0.001
Self -efficacy	15.6	3.6	15.5	3.1	P=0.89
Total	13.35	1.81	12	1.97	P=0.001

action score of the group with no breast cancer family history was 3.47 score more than the group with breast cancer family history. Regarding age it should be said that as age increases, cues to action score will have a .094 score increase and as the amount of family monthly income increases on the basis of the classification, 1.497 points will be added to the action guide score. It should be said that self-efficacy as part of this model has no dependency on the other mentioned variables. Findings show that the total score depends on the group, having Benign breast mass, having family history and the amount of family monthly income.

The total score of the parts of model in mammography group was 1.01 score more than the other group and also the total score of those people with no benign breast mass history was .59 score less than the other group. The total score of those with breast cancer family history was 1.64 score less than the other group. For each one unit increase in salary on the basis of classification, we had a .28 points increase in health belief.

Discussion

The present study, using this model to analyze the issue, confirms some of the dimensions of this model and proposes it to be applied in nurses' educational programs seeking health promotion, and in prevention programs. Nurses can use this model to explore the ways that these behaviors shape the quality of variation and stability of the health behavior and therefore pave the way for modification, variation and promotion of these health behaviors. In comparing the scores of the components of health model and the total score of the control and experimental group, the results of the Table 1 show that the scores of the experimental group were more than the

control group in various dimensions including perceived sensitivity, perceived benefits, cues to action, perceived severity, and total score mean. The scores mean of the perceived barriers and self-efficacy had no significant difference in control and experimental group. By analyzing the results of the table we get to this conclusion that in mammography group, the perceived sensitivity towards breast cancer was higher and it seems that women in mammography group are more prone to face breast cancer and therefore they perceive the sensitivity of the matter more than the others.

Aiken (1994) states that: women's health belief about sensitivity and susceptibility to breast cancer has a direct relationship with mammography acceptance (Aiken, 1994). Therefore women, who have more sensitivity to breast cancer and feel more insecure, have more adherences to take mammography treatment. Redman (1990) writes: women's attitudes toward screening play an important role in their participation in mammography. They have more tendencies to participate in screening if they come to this belief that they are exposed to breast cancer. Therefore we should put more emphasis on the spread and danger of breast cancer with continued education. But reminding the perceived potentiality should be done with care because much worry about this matter will cause women not to participate in mammography (Redman and Reid, 1990). Findings of the table 1 about the perceived benefits shows that scores mean of the two compared groups have a significant difference in terms of perceived benefits. So that the scores mean of the perceived benefits in experimental group was more than the control group. It seems that women in mammography group have accepted this treatment method as an early diagnosis of breast cancer and they believe in its benefits and they saw more privileges in taking mammography.

Table 2. Results of the Multivariate Linear Regression Model Which Shows the Effect of Significant Factors on the Components of Health Beliefs Model

Model Dimensions Variables	P.sensitivity	P.benefits	P.barriers	P.severity	Cues to Action	Self Efficacy	Total
Group*	0.38 0.41	0.64 0.31		0.59 0.95	4.03 0.001 <		1.01 0.001 <
Having benign breast mass**	-1.63 0.001 <				-2.17 0.001		-0.59 0.02
Having breast cancer family history***	-1.84 0.003				-3.47 0.001 <		-1.64 0.001 <
Age****				0.035 0.11	0.094 0.014		
Amount of family monthly income*****		0.67	0.52 0.001 <	0.006	1.497	0.001 <	0.28 0.029
Employment			-0.164 0.61				
Number of family members						0.089	-0.181
Level of education		0.197 0.157					0.11 0.16
Insurance Status							
Marital Status							

The upper number in each cell is the regression coefficient and the below number is its statistical significance. The gray cells were not significant in univariate analysis and have not been applied in multiple regressions. *1-Mammography history, 2-No mammography history **1-history of having benign breast mass, 2-No history of benign breast mass ***1-having breast cancer family history, 2-No breast cancer family history **** In statistical calculations age is inserted with its own number. ***** 1-less than 2 million Rials, 2- 2 million Rials, 3- More than 2 million Rials

Lagerlund and et al. (2000) showed this matter in their study that women's perception of benefits of mammography is one of the most influential factors in taking mammography. They also believed that raising women's level of awareness about mammography is an effective factor in shaping women's attitudes (Lagerlund et al., 2000). Walsh (1997) states that: knowledge of benefits and advantages of a health belief will lead individuals to do that (Walsh, 1991). In this present study the scores mean of the perceived severity in mammography group was more than the other group. Champion (2005) states that: women who believe that breast cancer is serious and dangerous disease have more adherences to do mammography (Champion et al., 2005). In the present study scores mean in cues to action dimension in experimental group was more than the control group. Secginli (2006) states in his study that visiting doctor regularly, call from doctor for mammography, reading or hearing about mammography were significantly more in mammography group so that those women who have heard or read about mammography had eight times more adherence to take mammography and those women who had a regular visit with the specialist doctor had three times more adherence to do mammography (Secginli and Nahcivan, 2006). In analyzing the relationship among the components of the health belief model with taking mammography, the results of the table shows that the perceived sensitivity was not associates with having mammography.

While Aiken states that women's health belief about breast cancer potentiality has a direct relationship with mammography acceptance. In the present study the perceived benefits was related with mammography. So that the perceived benefits score in mammography group was .64 points more than the non-mammography group. In Secginli's study (2006) the perceived benefits had a significant relationship with doing mammography. He also states that: alerting people on the basis of the relationship between health beliefs and doing screening behaviors should be focused on instructing screening advantages. In the present study cues to action dimension has a relationship with mammography so that cues to action scores of mammography group was 4.03 score more than non-mammography group.

Vincent (1995) states that: although some of the women are aware of the dangers of the breast cancer as the age increases but they resist against mammography because they believe that they do not have the symptoms or signs of the disease or the practitioner has not recommend it to them, therefore mammography is not necessary (Vincent and Bradham, 1995). In general the total score of the health belief in a group with mammography history was 1.01 points more than the other group. In analyzing the components of health belief model, the perceived sensitivity had relationship with having benign breast mass. So that perceived sensitivity score in group with benign breast mass was 1.63 score more than the group without benign breast mass history.

Aiken (1994) writes that: women's health beliefs on perceived sensitivity about breast cancer have a relationship with accepting mammography. Also cues to

action has a relationship with benign breast mass history so that mean score of the cues to action in group with benign breast mass was 2.17 points more than the group without benign breast mass. It is apparent that since this group is apt to have breast cancer and have high perceived sensitivity, therefore they look for more medical care and disease prevention behaviors. And as a result, they look more for cues to actions and medical recommendations. The perceived sensitivity is in relationship with breast cancer family history. So that the perceived sensitivity score in women with breast cancer family history is 3.47 points more.

The results of Finney (2003) show that women with breast cancer family history have a more perceived sensitivity score than the group with no breast cancer family history. And women with positive family history thought of themselves as being more exposed to breast cancer (Finney et al., 2003). Cues to action has a relationship with breast cancer family history so that cues to action score in group with no breast cancer family history was 2.17 score less than the other group. Finney states that: women with positive family history taking part in mammography have more cues to action score mean than women with negative family history who had participated in mammography. A cue to action has a direct relationship with age, so that as age increases .094 points will be added to cues to action score.

Chen (2007) states: as women get older, they have more tendencies to undertake health promotion behaviors and health positive behaviors and they visited doctor more than the other group. They reported their symptoms and signs of the disease more and also they had more knowledge and interest toward health issues. Perceived benefits have a relationship with family monthly income. It seems women with low income have more barriers on their way to undertake mammography. And they perceive mammography benefits less than the other group (Chen et al., 2007). Cues to action has a relationship with family monthly income. In this respect Wu (2006) states: women with low income have less regular visit with doctor and as a result they receive less doctors cues to actions to perform screening procedures. People with more income are involved in providing articles, magazines, and books related to breast cancer and they also try to participate in health promotion activities (Wu et al., 2003).

The findings of this study are aimed at reaching to a general objective i.e. determining the relationship between women's health belief of city of Kerman with their participation in mammography. These findings show that women health belief about taking mammography were different between the group who had undertaken mammography and the group who had not. And that these differences in attitudes lead to doing mammography -a health behavior- in one group and not doing it in the other. The role of the nurses is to investigate the people's beliefs about health threats and their participation in programs aimed at reducing the dangers and these programs will lead to better results for people's health. The findings of the present study will be used in studies related to health belief behaviors. Using the findings of this study we can carryout more extensive researches in other groups of

society and in other domains of health promotion behaviors.

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