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# Comparing individual and peer education on the constructs of theory of planned behavior in mammography

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## Abstract:

**INTRODUCTION:** Breast cancer is the most common cancer in women. It can be diagnosed in the first stage by screening. One of the methods for screening breast cancer is mammography. Mammography as a health behavior needs education. The theory of planned behavior examines the factors associated with the behavior.

**AIM:** This research was conducted to compare the individual and peer education on the constructs of the theory of planned behavior in mammography.

**METHODS:** This study was a clinical trial. A total of 100 women who attending the selected health centers of Isfahan city were classified randomly into two groups: peer and individual education. Education was based on the constructs of the theory of planned behavior (attitude relative to the mammography behavior, subjective norms, perceived behavioral control, and behavioral intention). The data were collected using a researcher-made questionnaire. Data were analyzed using descriptive-analytical statistics.

**RESULTS:** The mean score of attitude toward behavior in the individual education group was significantly higher than peer education ( $P < 0.05$ ). In addition, the average score of subjective norms in peer education group was significantly higher than individual education ( $P < 0.05$ ). The mean scores of perceived behavioral control constructs and behavioral intention were not significantly different ( $P > 0.05$ ).

**DISCUSSION:** The results of this study showed the effectiveness of education (individual and peer) based on the theory of planned behavior on attitude toward behavior, subjective norms, perceived behavioral control, and behavioral intention related to performing mammography in women. It seems that using educational intervention can be useful to promote the screening behaviors of breast cancer. In general, there were no significant differences between the two methods in changing theoretical constructs.

## Keywords:

Education, individual, mammography, peer, theory of planned behavior

## Introduction

The most common cancer in the world is breast cancer, accounting for 28.8% of all women's cancers.<sup>[1]</sup> After lung cancer, the disease is considered the second cause of cancer deaths among women.<sup>[2]</sup> According to the global statistics, out of every ten women, one person is at risk of developing the disease.<sup>[1]</sup>

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Yearly, one million new cases of breast cancer are diagnosed worldwide. It is estimated that there are currently 4.4 million women in the world who have been diagnosed with breast cancer over the past 5 years.<sup>[3]</sup>

Breast cancer is one of the most common malignancies among Iranian women, with an outbreak of 22 per 100,000 reported. One of the reasons is the late detection of cancer and increased complications.<sup>[4]</sup>

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There are several ways to prevent diseases that screening is the most reliable and effective way.<sup>[5]</sup> Screening can reduce the risk of breast cancer and its mortality rate.<sup>[6]</sup> The results of studies indicate that after 15 years, the mortality rate of breast cancer has decreased by screening.<sup>[7]</sup>

One of the methods for screening breast cancer is mammography. Despite the impact of breast cancer screening on mammography on the reduction of mortality, the main reasons for not doing so include: the lack of awareness of women in this domain, concerns about the result of mammography, the unavailability of mammography, painfulness, lack of knowledge of mammograms, negligence, lack of time, lack of understanding of partner, and high cost.<sup>[8-11]</sup> According to the stated, one of the methods for primary prevention of cancers in the general population is the secondary prevention education by cancer-screening education.<sup>[12]</sup>

According to studies, education has contributed to improving awareness and performance of breast cancer screening.<sup>[13]</sup> Regarding the fact that cancer control behavior is complex and is influenced by various factors such as psychological, personality, and social factors, one of the health theories used to change the behavior of individuals is the theory of planned behavior.<sup>[14]</sup> In this theory, the main determinant of behavior is the behavioral intent. This theory includes the following constructs, some of which have indirect constructs: behavior, behavioral intention, attitude toward behavior (behavioral beliefs and behavioral consequences assessment), subjective norms (normative beliefs, motivation to follow), and perceived behavioral control (control beliefs and perceived power).<sup>[15-17]</sup>

Appropriate educational methods are important in the level of learning and the willingness of individuals to change their health behaviors. There are different educational methods for teaching health subjects. One of these methods can be individual or face-to-face education. Individual education is provided by the trainer individually. It provides the opportunity to exchange verbal and nonverbal ideas and emotions between learner and educator. This type of education improves interpersonal relationships. In this way, the educator can provide an opportunity for active learning in real life while offering optimal patterns in accordance with individual characteristics.<sup>[18,19]</sup>

Another method of health education is peer education. The peer education technique follows Bandura's Social Learning Theory. The purpose of this type of training is to develop knowledge, attitude, and behavior toward healthy behaviors by those who have not specifically trained in it but have shared experiences. Is a kind of

humanitarian and altruistic support and can be used as a complementary approach along with other health promotion strategies.<sup>[20,21]</sup>

Considering that one of the tasks of the midwife is breast cancer screening and education about the importance of performing mammograms, selecting a more effective teaching method is important. Each of the methods of individual and peer education has advantages and disadvantages. Hence, the present study has considered that compared behavioral intention and the other three constructs of the theory of planned mammography behavior (attitude toward behavior, subjective norms, and perceived behavioral control) in two groups of individual and peer education, in women who are referred to the two selected health centers.

## Methods

This is a clinical trial study, with ethical committee code 395782 that is done in two groups and in multistage. A random sampling method was used to select 100 women referred to selected health centers. The samples were randomly divided into two groups. In this way, the odd numbers were in the individual education group and the paired numbers were in the peer education group. The inclusion criteria for this study were aged 40 and over, lack of mammography experience, minimum reading and writing literacy, and Iranian nationality. Furthermore, exclusion criteria were included the diagnosis of benign or malignant breast disease during the study by providing documentation, unwillingness to continue to participate in the research, and not attending a classroom session. The number of samples in the intervention stage in the test and control group based on the relationship:

$$n = \frac{2(z_1 + z_2)2s^2}{d^2} = \frac{2(1.96 + 0.84)2s^2}{(0.7)^2} = 32$$

At least 50 people in each group (intervention and control) were studied. Due to the probability of losing people, 50 people were studied in each group. The data collection tool was a researcher-made questionnaire that included demographic and fertility characteristics and the constructs of theory of planned behavior. Demographic and fertility characteristics questionnaire included age, education, number of children, marital status, job, and family history of breast cancer. The questionnaire on the constructs of the theory of planned behavior included 17 questions, whose constructs were measured by the 5-point Likert scale (totally agree, agree, no comment, do not agree, and totally disagree).

To determine the validity of the questionnaire, 15 faculty members of the faculty of nursing and midwifery and

school of public health were selected. To determine the reliability of the questionnaire, a test-retest was used in the study population. Repeatability tests were used for statistical analysis and the number was considered to be >0.7%. At the end of the study, they were excluded from the study.

After the random sampling of the two groups, the questionnaires were provided to the participants by pretest and posttest at the beginning of the first session and the end of the last session. Questionnaires were evaluated in both groups. The participants received the education in two 60-min sessions by the researcher. The educational content is selected based on the resources and guidelines. The content of the material included the necessity and importance of breast cancer and its screening, the importance of mammography, the timing of mammogram, and the correction false beliefs.

In the individual education group, the education was done face-to-face by the researcher. Educations were conducted at health centers and the time of which sessions was determined by the opinion of the referring person. In education, films and related photographs were used. The peer educator group was five people who had the characteristics of being able to communicate with people with a diploma and higher, the same age with peers and living in their neighborhood (for easy access to people). Educators were selected among health volunteers of the health centers. Then, the content was provided by the researcher. In this group, films and related photographs were also used. Education to them was done in two

sessions by the researcher and answered to questions that they asked. After completing the course, they were asked to transfer the same educational content to the people who were introduced to them. To each of the health volunteer, ten women were introduced to teach them individually. Educational pamphlets were also given to them to use for education. The researcher's contact number was also provided to peer educators to contact them if needed. The questionnaires were completed again by the samples after the end of the two sessions. Data were analyzed using the Statistical Package for the Social Sciences 18 software and descriptive statistics.

## Results

In this study, two groups of individual and peer education were similar in terms of demographic characteristics. Chi-square test showed that the frequency distribution of age, number of children, job, marital status, and educational level did not differ significantly between the two groups ( $P > 0.05$ ). Furthermore, there was no statistically significant difference in the incidence of family history of breast cancer in the two groups ( $P > 0.05$ ) [Table 1].

The results of paired *t*-test showed that mean scores of attitude toward behavior, subjective norms, perceived behavioral control, and behavioral intention in the two groups after intervention significantly increased ( $P < 0.05$ ). Independent *t*-test showed that there was no statistically significant difference between mean scores of attitude toward behavior, subjective norms,

**Table 1: Frequency distribution of age, number of children, job, marital status, education level, and family history of breast cancer in two groups**

Variable	Individual education group, n (%)	Peer education group, n (%)	Statistical test ( $\chi^2$ , <i>P</i> )
Age			
40-50	31 (62)	29 (58)	0/31, 0/87
50-60	14 (28)	15 (30)	
60 ≥	5 (10)	6 (12)	
Number of children			
1-2	16 (32)	16 (32)	0/61, 0/84
3 ≥	34 (68)	34 (68)	
Job			
Homemaker	46 (92)	45 (90)	0/21, 0/98
Employed	4 (8)	5 (10)	
Marital status			
Married	46 (92)	45 (90)	1/90, 0/39
Single	3 (6)	5 (10)	
Divorced	1 (2)	0	
Education			
Primary	35 (70)	32 (64)	0/47, 0/097
High School	8 (16)	14 (28)	
University	7 (14)	4 (8)	
Family history			
Yes	10 (20)	7 (14)	0/64, 0/84
No	40 (80)	43 (86)	

perceived behavioral control, and behavioral intention before intervention between two groups ( $P > 0.05$ ). In addition, the results of independent  $t$ -test showed that the mean of attitude score toward intervention after intervention in the individual education group was significantly higher than that of the education group ( $P < 0.05$ ). However, independent  $t$ -test showed that mean score of subjective norms after intervention in peer group was significantly higher than that of individual education group ( $P < 0.05$ ). Furthermore, independent  $t$ -test showed that the mean score of perceived behavioral control constructs and their behavioral intention before and after intervention were not significantly different between the two groups ( $P > 0.05$ ) [Table 2].

### Discussion

The results of this study showed that the two methods of individual education and peer education can change the mean scores of attitude structures relative to the mammography behavior, subjective norms, perceived behavioral control, and behavioral intention.

In general, the women with positive attitudes about mammography believe that by doing the mammography, they can guarantee their health.<sup>[22]</sup> In addition, the positive attitude toward behavioral change in a positive way toward screening for breast cancer is more important.<sup>[23]</sup>

The researchers in this domain showed that having the positive beliefs about the behavior consequences can lead to increasing the use of mammography methods as a breast cancer screening.<sup>[24]</sup>

Although the two methods of individual education and peer education were accompanied in the present study by increasing the positive attitudes relative to the mammography behavior, individual education was more effective than peer education. It seems that more effectiveness of the individual education can be due to the possibility of exchanging the ideas and feelings in verbal and nonverbal forms between the learner and the educator about mammography. In this regard, the researchers have expressed that due to creating the opportunity for active learning and providing suitable personal patterns, individual education can be effective in screening education.<sup>[18,19,22]</sup> The results by Akbarzadeh *et al.* studies showed that the peer education has more effects than the individual education on creating positive attitude toward the breast self-examination. In this respect, she stated that those findings could be due to the high effectiveness of the youth age group from their peers in this study.<sup>[25]</sup>

The other findings of our study showed that the score of subjective norms that included the importance of the attitudes of the husband, relatives, family, friends, and the health providers about mammography after intervention in peer group was higher than that of the individual group. Since the feelings and values about the learned items are expressed better in instructing the peer learners,<sup>[20,21]</sup> it seems that the greater effectiveness of peer education is due the mentioned advantages regarding this education method.

Although the findings of the present study indicate the effectiveness of both (individual and peer) education methods on subjective norms, the results of the research

**Table 2: Mean score of attitude toward behavior, subjective norms, perceived behavioral control, and behavioral intention (from 100) in both groups before and after intervention**

Theoretical constructs	Group	Mean±SD		Paired $t$ -test	
		Before the intervention	After the intervention	$t$	$P$
Attitude toward behavior	Individual education	58±12/3	74/4±9/8	9/07	0/001>
	Peer education	58/5±11/9	67/6±11/9	5/14	0/001>
Independent $t$ -test	$t$	0/28	3/13		
	$P$	0/78	0/002		
Subjective norms	Individual education	62/9±14	67/5±13/1	3/02	004/0>
	Peer education	66/1±13/6	74±13/5	3/77	0/001>
Independent $t$ -test	$t$	1/14	2/45		
	$P$	0/25	0/02		
Perceived behavioral control	Individual education	11/2±54/5	11/9±69/7	7/84	0/001>
	Peer education	51/1±13/4	65/4±16/6	6/07	0/001>
Independent $t$ -test	$t$	1/37	1/46		
	$P$	0/17	0/15		
intention behavior	Individual education	66/5±14/3	76/2±12/5	4/84	0/001>
	Peer education	64/5±17/3	77/8±13/8	5/39	0/001>
Independent $t$ -test	$t$	0/62	0/63		
	$P$	0/53	0/52		

SD=Standard deviation

by Sargazi *et al.* showed that the subjective norms related to the early diagnosis of breast cancer had no difference before and after the individual education.<sup>[22]</sup> Subjective norms indicate the role of key people in the person's decisions. Their role in Sargazi *et al.* has not been studied, while considered in our study. The dissimilarity of the findings of the mentioned studies with that of ours can be due to the used tools for the subjective norm constructs.

The score of the perceived behavioral control in this study that consider the perceived control and ability beliefs had increased after the educational intervention in comparison to the time before the intervention, but no significant difference was found between the individual and peer education groups. Hatefnia *et al.* showed in their studies that the perceived behavioral control constructs after the face-to-face educational intervention had significant difference relative to the time before the intervention.<sup>[26]</sup> Regarding the present study and the studies done by Hatefnia *et al.*, the increased score of the perceived behavioral control after the educational intervention implies the effectiveness of education in creating the ability and perception toward overcoming internal and external barriers. The barriers include getting enough information about mammography, regulating the time, ability to change the attitudes of the relatives, providing mammography costs, access to mammography centers, and knowing the physicians to interpret the mammography results.

According to this, it seems that the lack of difference between individual and peer education groups in the perceived behavioral control constructs can be due to the similar effects of the two methods in the above barriers.

On the other hand, it should be noted that the external barriers do not change only with educational interventions, and they also require the nonindividual education.

The findings of this study showed that the score for behavioral intention after the educational interventions with the peer and individual education increased in comparison with the time before the intervention. This finding was consistent with the results obtained by Babazadeh *et al.* They showed that the behavioral intention for the screening of AIDS increased significantly in young girls through the education by the peer group.<sup>[27]</sup>

Furthermore, the results of our study revealed that no significant difference was there between the score for behavioral intention after the educational interventions with the peer and individual education. The behavioral intention is the most important determining factor in the behavior that can be due to the attitudes, subjective norms, and the perceived behavioral control.<sup>[15]</sup> Thus, lack of difference between the constructs in the two peer

and individual groups can be because of the effectiveness of the behavioral intention from the constructs.

In general, the researchers believe that the theoretical-planned behavior constructs (behavioral intention, perceived behavioral control, and subjective norms) are among the important and predicting factors for screening behaviors.<sup>[28,29]</sup> Thus, considering peer and individual education based on the theory of planned behavior constructs may be useful in increasing the use of mammography method as a screening technic.

Although this study examined attitude toward behavior, subjective norms, perceived behavioral control, and behavioral intention related to performing mammograms in women, lack of evaluating the mammography behavior after peer and individual educations was the limitation of this study. Hence, more researches are recommended in this field.

According to the stated points, peer education can be applied for developing the knowledge and attitude, as well as practicing healthy behaviors by the people who are not specialized in that respect but have common experiences.<sup>[20,21]</sup> Thus, the use of peer education by the health providers is recommended to change the theoretical-planned behavior constructs (attitude toward behavior, subjective norms, and perceived behavioral control) and finally, to create the behavioral intention for mammography.

## Conclusions

This study demonstrated that there were no significant differences between the two methods in changing theoretical constructs. In general, individual and peer education could improve the intention of mammography behavior and other constructs of the theory of planned behavior (attitude toward behavior, subjective norms, and perceived behavioral control).

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## Conflicts of interest

There are no conflicts of interest.

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