

**Effects of education and preparation on anxiety in women referring for mammography**Hoda Ahmari Tehran<sup>1</sup>; Ahmad Kachoe<sup>2</sup>, Esmat Jafarbegloo (MSc)<sup>3</sup>, Zahra Abedini<sup>4</sup>, Yaser tabarraei<sup>5</sup><sup>1</sup> Instructor of Midwifery, Faculty of Nursing & Midwifery, Qom University of Medical Sciences, Qom, Iran.<sup>2</sup> Assistant Professor of General Surgery, Qom University of Medical Sciences, Qom, Iran<sup>3</sup> Instructor of Midwifery, Faculty of Nursing & Midwifery, Qom University of Medical Sciences, Qom, Iran.<sup>4</sup> Instructor of Nursing, Faculty of Nursing & Midwifery, Qom University of Medical Sciences, Qom, Iran<sup>5</sup> Department of Biostatistics, Faculty of Health, Sabzevar University of Medical Sciences, Sabzevar, IranCorresponding Author: [yasertabarraie@yahoo.com](mailto:yasertabarraie@yahoo.com), Tell: +98-0910-2911161

**Abstract: Objectives:** In this study we aimed to determine the effects of education and preparation on anxiety in women referring to mammography centers in Qom city. **Methods:** this study was a clinical trial. The study population were 160 women without a previous history of mammography, referring for performing mammography. Using simple sampling method, subjects were selected and were randomly assigned to case and control groups. In order to gather data, personal data questionnaire and Beck's anxiety scale were utilized. Anxiety of these subjects was analyzed before and after the education and preparation intervention. Gathered data were analyzed using spss software and paired t test, independent sample t test, chi square, Mann-whitney and Wilcoxon tests. Level of significance was determined as being  $p < 0.05$ . **Results:** Mean and average of anxiety score in case (education and preparation) group was  $10.9 \pm 5.2$  and  $21.15 \pm 8.4$  in control group, which was statistically significant ( $p < 0.0001$ ). Also study findings revealed that case group had less anxiety before mammography compared to the study beginning ( $p < 0.0001$ ); however, the control group had more anxiety after mammography compared to the study beginning.

**Discussion:** Considering the results of this study, we suggest that consultation and preparation education by different medical groups has been effective in reducing women during mammography.

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**Keywords:** education, preparation, anxiety, mammography.

**1. Introduction**

Nowadays, breast cancer is globally the most common cause of death in women; moreover, of three new cases of cancer one is breast cancer (Peled & Cormil., 2008; Brunicardi et al., 2010). Of every nine women one will be affected by breast cancer through her life (Taleghani., 2006). However, the incidence of breast cancer has been increased; the mortality rate of the disease has remained constant during 40 recent years. It is assumed to be due to early diagnosis and available treatments. In Iran, this disease has a high prevalence and it has constituted 18.9% of all cancers (Akbari et al., 2008). According to previous studies, cancer prevention and early diagnosis are vital measures for disease control and increment of life span. Therefore there is an essential focus on screening methods such as breast self-exam, clinical evaluation and mammography. Screening not only decreases the costs of therapy but also decreases the mortality rate (Abedian et al., 2006; Devolli-Disha et al., 2009). Among these mammography is of a great value and it has been used about two decades in screening programs (Mavorofrou et al., 2006). Mammography is the most specific and sensitive test that can be performed together with clinical

examination for early diagnosis of breast cancer. Therefore regular periodic mammography after 40 years of age is suggested (Scott et al., 2003; Jonathan et al., 2007). Worrysome, anxiety and depression in women referring to mammography centers have been observed in many studies. This can have negative effects (Emotional, social and physical dysfunction) on referring women and result in women's disinterest to mammography (Montazeri et al., 2005). However, these complications are temporary; anxiety of breast cancer is long-term in patients which needs consultation for elimination of disorders such as insomnia, depression and behavioral changes. Regarding women which already have breast cancer, anxiety is a part of disease course. Although anxiety in women referring for screening -healthy of false positive- is one the unwanted complications of these programs that can result in increased cost and decrement of participation in these screening programs (John et al., 1999). Previous studies have reported high percentage of fear, anxiety and depression in women referring to mammography centers. Montazeri and colleagues found that 27% of mammography center referring women had anxiety and 14% of them had depression. Anxiety has

reported to be observed in up to 35% in other studies. Various causes have been reported regarding the presence of anxiety and depression in these individuals. One of these causes is that women usually fear from the result of mammography and this fact is more applicable to women with familial breast cancer.

On the other hand, when the subject has the disease history her-self, even if the diagnosis is not cancer she would be more anxious. This fact indicates that anxiety forms in a chronic manner in these subjects (Bakhtiari.,2001). In addition, when this anxiety is resulted from lack of knowledge, it is revealed that these individuals need information that enlightens them about the benefits of perform screening and the risks if not performing it (Thornton & Bluman.,2003; Bollani & Donata., 1991). Majority of women believe that this kind of screening and answering, does not sufficiently inform them and will cause anxiety and depression (Montazeri et al.,2005). On the other hand, being unfamiliar with mammography apparatus and the process of mammography will result in anxiety formation. Brown Sofair and Lehlbach, while quoting Adler, declare that 47% of women do not refer to mammography centers because of anxiety and bewilderment from lack of proper knowledge. In addition, considering the results of some studies, risk factor affecting incidence of mental and spiritual tensions at the time of diagnosis of disease include: higher age, history of breast cancer in family, lack of social support from health service providers and low educational level. On the other hand, moderate effect of physicians' support on anxiety had been surveyed and results revealed that complete support from the physician will lead to reduced tension.

A number of studies reported the effects of various measures of pacification or music on prevention of this mental tensions; however, to our knowledge there is no study evaluating the effects of education and preparation by health service providers on women's anxiety. Therefore considering the effective role of health service providing groups on adjustment of women with various diagnostic measures, this study aimed to evaluate the effects of education and preparation on women referring to mammography centers.

## 2. Methods

This clinical trial study was performed to evaluate 160 women referring to Izadi Hospital of Qom without a history of breast cancer or positive family history, previous mammography, mental disorders and psychiatric diseases, and using antidepressants.

After obtaining informed consent, study participants were randomly assigned to either

intervention group or control using simple randomization method. For this purpose first woman was randomly assigned to one group and other women were assigned alternately to one of the groups. After consulting gynecology and midwifery faculty members, considering educational space and timing utilities, intervention group women were consulted and trained about anatomy and the function of breast, screening of breast diseases, mammography benefits, and possible false positive or false negative test results in 1 session and in another session the mammography apparatus has been introduced to participants in average 20 minutes using educational pictures and pamphlets by face to face method individually in the physical examination room. In addition, place and time of training was similar for every participants. All women were trained by a single instructor and before the beginning of mammography Beck's anxiety test was conducted for each group.

Data gathering tool was a two-section questionnaire. The first section was about the personal characteristics and the second section included the beck's standard anxiety questionnaire comprised of 21 four-choice questions which its reliability and validity had been evaluated in many studies (Fydrich et al., 1992; Osman et al., 2002; Kaviani et al., 2008). The choice "never" was scored 0, "mild" was scored 1, "moderate" was scored 2, and the choice "severe" was scored 3. The range of scores was from 0 to 63 and higher score represented higher anxiety. participants were allocated to one of the four groups of 'without anxiety'(scores less than 9), 'mild anxiety'( scores between 10-18), 'moderate anxiety' (scores between 19-29) and 'severe anxiety' (scores between 30-63). In this study descriptive statistics including mean and standard deviation, and inferential statistic including paired t test, independent sample t test, chi square, Mann-whitney and Wilcoxon tests were utilized.

## 3. Results

Age of studied individuals were between 28 and 75 years. Mean age was  $45.7 \pm 5.61$  in case group and  $44.6 \pm 5.59$  in control group. Two groups had not statistical difference between two groups regarding mean age ( $p=0.4$ ). Majority of case and control group were housewives having elementary school education and chi-square test did not show statistical difference between two groups regarding educational level and job ( $p=0.7$ ). Results revealed that mild anxiety was present in 45% of subjects in case group and 40% in control group. Severe anxiety was seen in 10% of control group and 6.1% of control group. Chi-square test did not reveal any statistical difference between two groups ( $p=0.5$ ) (table 1).

Table 1. Distribution of anxiety level in subjects of intervention and control groups at the beginning of the study.

Group	Intervention		Control		P
	Number	Percent	Number	Percent	
Anxiety level					NS
- Normal(< 9)	16	20	18	22.5	
- Mild (10-18)	36	45	32	40	
-Moderate (19-29)	20	25	25	31.25	
- Severe(30-63)	8	10	5	6.25	
Total	80	100	80	100	
Mean± SD	16±8.7		15.9±8.2		

NS: nonsignificant

Table 2. Distribution of anxiety level in subjects of intervention and control groups after education and preparation.

Group	intervention		Control		P
	Number	Percent	Number	Percent	
Anxiety level	36	45	8	10	Sig
- Normal(< 9)	32	40	21	26.4	
- Mild (10-18)	10	12.5	32	40	
-Moderate (19-29)	2	2.5	19	23.6	
- Severe(30-63)	80	100	80	100	
Total	80	100	80	100	
Mean± SD	10.9±6.2		22.3±9.4		

Sig: significant

Table 3. Distribution of mean anxiety level in intervention and control groups at the beginning of study and before mammography

Group	intervention	Control	P
Mean Difference	-5.3	6.4	Z=10.1
SD Difference	6.6	4.4	P=0.0001

Table 1. Distribution of anxiety level in subjects of case and control groups at the beginning of the study.

Findings displayed that anxiety level after education and preparation was normal in 45% of subject is case group and 40% of control group had moderate anxiety, and chi-square test revealed statistical difference between two groups ( $p < 0.001$ )(table 2).

Table 2. Distribution of anxiety level in subjects of case and control groups after education and preparation.

Anxiety level of both groups at the beginning of study was in mild level and age was between 40 to 50 years (case group 51.8% and control group 49%).

Chi-square test did not show statistical correlation between anxiety level and age in case group ( $p = 0.7$ ), but in control group the higher age was associated with higher anxiety level( $p < 0.05$ ). Anxiety

level at the beginning of study was at the mild level among all educational levels(45% in case group and 40% in control group) and chi-square did not show any significant difference between two groups ( $p = 0.07$ ). Mean anxiety level before the screening initiation was higher than the beginning of study and paired t test revealed that there was a significant difference between two groups( $t = 11.87$ ,  $p < 0.001$ ). In addition, mean anxiety in control group was higher before the screening initiation compared to the beginning of study in all age groups (t test  $p < 0.001$ ). The most anxiety increment was observed in 40 to 50 years old group. Mean anxiety in control group was higher before the screening initiation compared to the beginning of study in all educational levels with the most increment in illiterate group. However anxiety was decreased after the intervention in case group in all educational and age groups ( $p = 0.001$ ). Mean difference of anxiety before and after the preparation

in terms of age displayed decrement of mean anxiety in case group and increment of anxiety in control group in all age groups (independent t test and Mann-whitney,  $p < 0.0001$  for both analyses).

In terms of educational level, mean anxiety level before the mammography initiation compared to study beginning Mann-whitney test revealed significant decrement in case group and significant increment in control group ( $p < 0.0001$ ). Finally, mean anxiety level before the mammography initiation compared to study beginning was decreased in case group and was increased in control group (Mann-whitney,  $p < 0.0001$ ) (table 3).

Table 3. Distribution of mean anxiety level in case and control groups at the beginning of study and before mammography.

#### 4. Discussion

The present study displayed that education and preparation is effective on anxiety of women. Providing precise and proper information about different aspects of breast diseases and mammography screening method is effective on anxiety. Mainiero et al (2001) evaluated the utilization of educational audio tapes in waiting room of mammography clinic and they did not reach statistically significant difference between two groups. Researchers suggested that utilization of health service providers for familiarization of women may reduce the anxiety.

Montazeri et al. (2005) reported that anxiety and depression in women do not have correlation with the diagnosis of mammography, and other factors are determinants of their anxiety and depression. Researchers have stated that unfortunately lack of enough information and lack of intimate relation between subjects and mammography provider can affect the anxiety and depression.

Results of this study revealed that preparation program is effective on decrement of anxiety in women referring to mammography centers in all age and educational level groups. Therefore preparation in necessary in all educational and age groups.

According to our results the highest anxiety level -both at the beginning of the study and before mammography- was observed in higher than 40 years old age group. In this regard researchers believe that increase in age is associated with increment of anxiety (Hafslund, 2000). Illiterate and poorly educated group suffered more from anxiety, this certifies that low information or other socioeconomic factors independent from the disease can affect the level of anxiety (Montazeri et al., 2005; Mainiero et al., 2001). In the study of Mainiero et al. educational and age level had significant correlation with the amount of anxiety in women, as the amount of anxiety was higher in poor educated and older women. Atashzadeh Shourideh (2007) states that one of important duties of

medical team is providing sufficient and proper information about the disease and individuals level of understanding, in order to improve health. Because, one of the most important factors regarding incidence of anxiety and stress in lacking sufficient information about different stages of diagnosis and treatment process. Because in majority of cases, educational sessions considering adequate and precise explanation about costs, benefits and errors of diagnostic methods have positive effects on the result on treatment. This will help the women to pass the diagnosis and treatment process having complete awareness and reassurance and to have better eagerness to approach the problems and difficulties caused by disease.

In this regard Aro et al. (1996) in their study -in order to evaluate the pain and unpleasantness of screening- on 883 women ready for screening in a clinic in Helsinki, found that 59% of women have known mammography unpleasant and 4% of them noted mammography to be of severe pain. These researchers, at the end of their study, suggested that employees involved in mammography must give helpful information and make the setting pleasant in order to lower the anxiety and inappropriate pain of mammography, especially for first-timers.

Natan et al. (2004) in their meta-analysis study found that fear, anxiety and worrisome of mammography screening is a rooted in many various causes and health service providers have a significant role in approaching this fear and anxiety.

#### 5. Conclusion

In conclusion results of the present study revealed that providing educational, preparatory and thinking support by health and treatment service groups significantly eases the anxiety of women toward mammography. Therefore, supplying women with precise and proper information regarding various aspects of breast diseases and mammography screening method is effective for soothing their anxiety in order to improve women's mental and physical health.

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#### Conflicts of interest

None of the authors have any conflicts of interest to declare.

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