

Research Article

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Effectiveness of video assisted teaching (VAT) on knowledge and pre procedural anxiety level of patients undergoing mammography aims, kochi

Abstract

An experimental study to identify the effectiveness of Video assisted teaching (VAT) on knowledge and pre-procedural anxiety level of patients undergoing mammography was conducted in Amrita Institute of Medical Sciences and Research Centre, Kochi. The objectives of the study were to 1) evaluate the effectiveness of video assisted teaching on knowledge among patients undergoing mammography, 2) evaluate the effectiveness of video assisted teaching on pre procedural anxiety among patients undergoing mammography, 3) find the association between knowledge among patients undergoing mammography and selected demographic variables, 4) find the association between pre procedural anxiety among patients undergoing mammography and selected demographic variables. The hypotheses of the study were H01: There is no significant difference in the knowledge level of patients undergoing mammography before and after the administration of Video assisted teaching between the experimental group and control group. H02: There is no significant difference in the pre procedural anxiety level of patients undergoing mammography before and after the administration of Video assisted teaching between the experimental group and control group.

Research methodology: The design used for the study was true experimental design. The study was conducted among 60 subjects (30 each in experimental and control group) who met the eligibility criteria using simple random sampling. The demographic data and level of knowledge regarding mammography were assessed using structured questionnaire, data regarding the level of anxiety related to mammography was assessed using Becks anxiety inventory.

Results: Breast self examination were occasionally performed by 14(46.7%) women in the experimental group and 3(10%) in the control group. Majority of the patients both in the experimental 18(60%) and control group 17 (56.7%) received information regarding mammography through mass media. The mean post test knowledge score (19.06) of the subjects in the experimental group was significantly higher ($p<0.001$) than the mean post test knowledge score (6.3) of control group. Hence the null hypothesis was rejected and alternative hypothesis was accepted, with the inference that video assisted teaching was effective in improving the knowledge on mammography. The mean post test anxiety score (17.4) of the subjects in the experimental group was significantly lower ($p<0.001$) than the mean pre test anxiety score (27.24) of control group. Hence the null hypothesis was rejected and alternative hypothesis was accepted, with the inference that video assisted teaching was effective in reducing pre procedural anxiety level of patients undergoing mammography. The level of knowledge on mammography was significantly higher among educated ($p<0.001$), employed ($p = 0.002 < 0.05$), residing in urban area ($p = 0.016 < 0.05$), breast self examination ($p = 0.002 < 0.01$) and previous knowledge on mammography ($p = 0.035 < 0.05$). The pre procedural anxiety on mammography was significantly higher among patients with family history of breast cancer ($p = 0.047 < 0.05$) and family history of other cancer ($p = 0.007 < 0.01$).

Conclusion: With proper education, knowledge on mammography can be enhanced and anxiety can be reduced. Creating an awareness among the mothers undergoing mammography will not only help them to undergo the procedure at the earliest but also will help in transferring their knowledge to a similar group, ultimately resulting in early detection and control of breast cancer.

Introduction

Breast cancer is the most common cancer and the leading cause of cancer deaths in women throughout the world; it is a major public health concern. The incidence of breast cancer is increasing throughout the world.¹ In 2012, 1.7 million women were diagnosed with breast cancer and there were 6.3 million women alive who had been diagnosed with breast cancer in the previous five years. Since

the 2008 estimates, breast cancer incidence has increased by more than 20%, while mortality has increased by 14%. Breast cancer is also the most common cause of cancer death among women (522 000 deaths in 2012) and the most frequently diagnosed cancer among women in 140 of 184 countries worldwide. It now represents one in four of all cancers in women.² Cancer of the female breast was the most common cancer in women being the leading site in Mumbai (30.3%), Thiruvananthapuram (28.5%) and Dibrugarh (14.8%)

cancer registries. It was the second most common cancer in the remaining registries. The relative proportion of breast cancer in females varied from 14.4% in Guwahati to 30.3% in Mumbai. The two south Indian registries Bangalore and Thiruvananthapuram had the highest age adjusted incidence rate at 36.6 and 35 per 100,000 respectively (ICMR-2011). In Kerala breast cancer is the leading site of cancer in females among three hospital based cancer registries such as Malabar Cancer Centre, Thalassery (28.9%), Regional Cancer Centre Thiruvananthapuram (27.8%) and Amrita Institute of Medical Sciences, Kochi (23.8%). An important observation from population based cancer registry data is the high incidence of breast cancer among females both in Thiruvananthapuram (35.1) and in Kollam (25.8) per 100,000 respectively (NCPR- 2013).³

Cancer screening tests play a pivotal role in reducing breast cancer related mortalities.⁴ Mammography, clinical breast examination and breast self-examination (BSE) are the secondary preventive methods used for screening in the early detection of breast cancer.⁵ The American Cancer Society (ACS) recommends CBE and mammography in the early detection of breast cancer.⁶ "Mammography" has been found to be the most consistent of the screening methods and is considered the gold standard for early detection of breast cancer.⁷ It is the proven means of detecting breast cancer before it can be detected by physical examination or breast self examination. When properly performed, mammography can effectively detect 85-90% of breast cancers. Mammography is a specific type of imaging that uses a low-dose x-ray system to examine breasts. A mammography exam, called a mammogram, is used to aid in the early detection and diagnosis of breast diseases in women.⁸ The knowledge level of patients undergoing mammography was less. The prevalence of anxiety is high among patients awaiting mammography. Patient's anxiety is often related to the anticipation of negative results and lack of knowledge of the method and how it diagnoses illness. Worry about the risk for breast cancer and pain are associated with mammography use. Both have been found to be a barrier in undergoing mammography by women.

Background of the study

Worldwide, over half a million women died of breast cancer in 2011 alone. Mammography screening is associated with a reduction of 20 to 35% in breast cancer mortality.⁹ According to the National Health Interview Survey, the percentage of women 40 years of age and older who reported having had a mammogram within the past 2 years was 67% in 2010. Mammography prevalence increased from 29% in 1987 to 70% in 2000, declined slightly (by 3.4%) from 2000 to 2005, and then stabilized.¹⁰ A variety of factors have been identified as responsible for women's abstinence from mammography screening in previous studies worldwide. Among these, exposure of breast, fear of breast cancer diagnosis, lack of awareness on the importance of the procedure, poor interactions with health care providers and the mammography screening procedure itself (such as painful mammograms and discomfort) were identified as inhibitors.¹¹ Kiguli et al.¹² conducted a descriptive cross sectional study to assess the knowledge, attitude and practice of women on breast cancer and mammography among 100 women reporting to radiology department, National referral hospital, Uganda in the year 2010. Consecutive sampling was used. Results revealed that only a few women were aware of the high incidence of breast cancer. Majority of women (78%) did not know about mammography. Of the participants, 66% had done breast self examination and 40% had a clinical breast examination. However, none of the participants had ever had a mammogram. The women did not know that X-rays are used during mammography. The women who had done breast self examination had significantly higher scores of knowledge ($p=0.013$) than those who had not. The

women's attitude towards mammography was negative. Most of them confused mammography with breast ultrasound. Regarding seeking mammography; level of literacy, occupation and marital status were significant on bivariate analysis ($p=0.003$), however only level of literacy and employment remained the significant independent variables on logistic regression analysis ($p=0.002$). Women beyond primary level of education were about four times more likely to go for mammography than women below that level of education. Employed women were seven times more likely than the unemployed to go for mammography. The impediment to go for mammography expressed by all women was the lack of knowledge about the role of mammography in breast cancer investigation and limited access to mammography services.¹²

Rubens et al.¹¹ conducted a study on Prevalence of anxiety in women undergoing mammography, Brazil in the year 2012. Two hundred and seventy-four patients were included. Results revealed that self-perception of anxiety was reported in 52.2% and most frequent causes of anxiety referred by patients were worry over results (35.3%) and fear of having pain or discomfort during the procedure (26.6%). The levels of anxiety according to the STAI (State Trait Anxiety Inventory) were moderate or high on 52.6% on the state component, and 82.1% on the trait component. There was no statistically significant difference on anxiety levels according to any of the demographic or clinical variables, or between patients who received and did not receive the educational folder prior to the exam. In conclusion anxiety was a common feature of women undergoing mammography, mainly caused by fear of the results and lack of knowledge of the exam. According to the results of these studies, there was no impact on reducing levels of anxiety with information measures immediately before the exam.¹¹

Need for the study

Mammography is a sensitive screening test that can create anxiety among women because examination of breast can be quiet embarrassing, based on their cultural belief. Preventing extreme anxiety during the examination is important, not only because of its sources of unpleasantness, but also because of patient's anxiety which may result in a wide range of potential complications including poor co-operation, more difficulty and painful procedure, incomplete or prolonged procedure. They may cancel the examinations and the financial burden of the patient may be increased. In the above mentioned studies, it was identified that patients undergoing mammography still need to educate themselves regarding the procedure. In the current practices, most of the females visit the health care system when they have any health issues. A few patients may come for regular screening programme. The system does not emphasize the primary prevention of illness. Therefore, it is of paramount importance, patients undergoing mammography should be provided with high quality need based education delivered by skilled health care provider.

Audio-visual presentations offer the ability to convey information in a graphical context. Video assisted teaching is an effective instructional method using advanced technology, it creates interest with its three dimensional audio and visual effects in the learners. A video can have a strong effect on mind and senses.

Avis et al.¹³ compared the effectiveness of videotapes to a standardized pamphlet for the medium's potential to increase mammography screening adherence, Boston in the year 2004. The team developed a video tape documentary which contained interviews of women of diverse ethnic backgrounds, as well as a leading medical oncologist, and a demonstration of a woman receiving a mammogram. Baseline and follow up surveys administered at two and 12 months

post-intervention revealed the videotape medium was slightly more effective (80.4%) than the pamphlet (74.8%) at increasing mammography screening. The researchers concluded that videotapes are a convenient, cost-efficient medium for increasing mammography rates. Ostensibly, it may appear that audio-visual mediums offer a greater potential to generate affective responses than print mediums.¹³ In Amrita Institute of Medical Sciences (AIMS) Kochi about 23.8 % cases of breast cancer are registered annually. About 250 patients report to radiology department every month for mammography. Among these 90% of screening mammography results showed to be normal. For this people, the education regarding early detection, prevention and regular screening for breast cancer is important in terms of follow up. During the time of appointment, an educational material regarding preparation and procedure on mammography is given to the patients. By providing women with updated educational material about mammography before the clinical visit, an individualized, focused discussion of information is facilitated. Providing patients with a low cost, simple educational intervention before screening mammography increases knowledge about the screening test, decreases anxiety about the procedure, potential follow up and generates dialogue between the patient and health care professional and thereby to the public. A number of studies reported the effects of various measures of pacification or music on prevention of mental tensions; however there were a few studies evaluated the effects of education and preparation by health care providers on women's anxiety. Therefore considering the effective role of health service providing groups on adjustment of women with mammography procedure, this study aimed to evaluate the effectiveness of video assisted teaching on knowledge and pre procedural anxiety level of patients undergoing mammography.

Statement of the problem

Effectiveness of Video assisted teaching (VAT) on knowledge and pre procedural anxiety level of patients undergoing mammography AIMS, Kochi.

Objectives of the study

Objectives of the study were to

- I. Evaluate the effectiveness of video assisted teaching on knowledge among patients undergoing mammography.
- II. Evaluate the effectiveness of video assisted teaching on pre procedural anxiety among patients undergoing mammography.
- III. Find the association between knowledge among patients undergoing mammography and selected demographic variables.
- IV. Find the association between pre procedural anxiety among patients undergoing mammography and selected demographic variables

Research methodology

Research approach

Quantitative approach was adopted for the study.

Research design

True experimental design.

Research setting

Amrita Institute of Medical Sciences (AIMS), Kochi.

Population

1. Target population.
2. All female patients visiting radiology department for undergoing mammography screening inCorporate hospitals, Kerala.
3. Accessible population.
4. Female patients visiting radiology department and planning to undergo mammography in Amrita Institute of Medical Sciences, Kochi.

Sample & sampling technique

- 1) The sample size was 60
- 2) 30 each in experimental and control group.
- 3) Simple random sampling was used.

Inclusion criteria

- a. Female patients undergoing mammography between 40-75 years of age.
- b. Patients who understand Malayalam.

Exclusion criteria

- 1) Patients taking appointment over the phone
- 2) Patients undergoing mammography as a part of medical checkup

Study instrument tool I

- I. Section A: Demographic data includes age, marital status, educational qualification, occupation, and area of residence, history of cancer and source of information.
- II. Section B: Knowledge questionnaire regarding mammography

Tool II: Becks Anxiety Inventory

Results

Most of the patients in the experimental group 19 (63.3%) and control group 16 (53.3%) were above 50 years of age. Majority of the patients in both experimental and control group 20 (66.7%) were having secondary level of education. About three fourths 23 (76.7%) of subjects in the experimental group were residing in rural area where as 17 (56.7%) of subjects in the control group belongs to urban area. Less than half of the subjects in the experimental group 6 (20%) and control group 7 (23.3%) had family history of breast cancer. Few subjects in the experimental group 12 (40%) and control group 10 (33.3%) visited OPD for the purpose of screening. Remaining subjects in the experimental group 18 (59.9%) and control group 10 (66.7%) visited OPD for breast related problems. Majority of the subjects in the experimental group 23 (76.7%) and control group 20 (66.7%) had previous knowledge on mammography. More than half of the patients both in the experimental group 18 (60 %) and control group 17 (56.7%) received information regarding mammography through mass media. More than half of the patients both in the experimental group 18 (60 %) and control group 17 (56.7%) received information regarding mammography through mass media. Table 1 shows the mean pre test knowledge score of experimental group as 4.3 and the control group as 5.862 (total knowledge score - 25), while comparing the mean pre test knowledge scores of both the groups by using independent t test, p value 0.581, which is greater than 0.05. Table 2 shows the comparison

of mean pre test and post test knowledge scores of the patients in the experimental group by paired t test. P value 0.001 is less than 0.001. And the comparison of mean pre test and post test knowledge scores of the patients in the control group by paired t test shows P value 0.298 is greater than 0.05 (Figure 1).

Table 3 shows the mean post test knowledge score of experimental group as 19.06 and the control group as 6.3, while comparing the mean post test knowledge scores of both the groups by using independent t test, p value 0.001, which is less than 0.001. Table 4 shows the mean pre test anxiety score of experimental group as 26.56 and the control group as 27.06 (total anxiety score-63), while comparing the pre test anxiety scores of both the groups by using independent t test, p value 0.12, which is greater than 0.05. Table 5 shows the comparison of mean pre test and post test anxiety scores of the patients in the experimental group by paired t test. P value <0.001 is less than 0.001.

Table 1 Comparison of the mean pre test knowledge scores of patients undergoing mammography between the experimental and control group

Group	Mean pre test knowledge score	SD	t value	P value
Experimental Group(n=30)	4.3	3.2	0.603ns	0.581
Control Group(n=30)	5.862	4.77		

n= 60; ns: not significant

Table 2 Comparison of mean pre test and post test knowledge scores of patients undergoing mammography between the experimental and control group

Group	Test	Mean	SD	't' Value	P value
Experimental Group (n=30)	Pre Test	4.3	3.29	18.61***	0.001
	Post Test	19.06	4.63		
	Pre Test	5.862	3.8	1.06ns	0.298
	Post Test	6.3	4.77		

n=60; ns: not significant; ***significant at p <0.001

Table 3 Comparison of the mean post test knowledge scores of patients undergoing mammography between the experimental and control group

Group	Mean post test knowledge score	SD	t value	P value
Experimental Group(n=30)	19.06	4.63	8.721***	0.001
Control Group(n=30)	6.3	4.77		

n= 60; ***significant at p < 0.001

Table 4 Comparison of the mean pre test anxiety scores of patients undergoing mammography between the experimental and control group

Group	Mean pre test anxiety score	SD	t value	P value
Experimental group (n=30)	26.56	2.84	2.3ns	0.12
Control group(n=30)	27.06	4.09		

n= 60; ns: not significant

Table 5 Comparison of mean pre test and post test anxiety scores of patients undergoing mammography in the experimental and control groups

Group	Test	Mean	SD	't' value	P value
Experimental Group (n=30)	Pre Test	26.56	2.8	29.471***	<0.001
	Post Test	17.4	2.6		
	Pre Test	27.06	4.09	1.85ns	0.85
	Post Test	27.24	4.16		

n= 60; ns: not significant; ***significant at p <0.001

Table 6 Comparison of the mean post test anxiety scores of patients undergoing mammography between the experimental and control group

Group	Mean post test anxiety score	SD	t value	P value
Experimental group(n=30)	17.4	2.6		
Control group(n=30)	27.24	4.16	0.441*	0.022

n= 60; *significant at p < 0.05

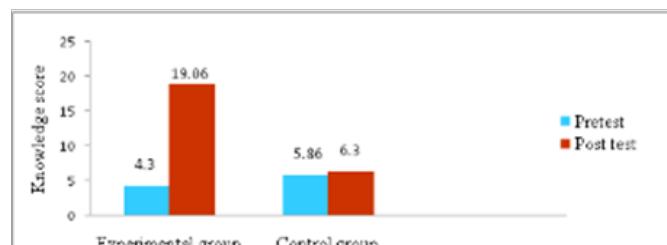


Figure 1 Comparison of mean pre test and post test knowledge scores of patients undergoing mammography in the experimental group and control group.

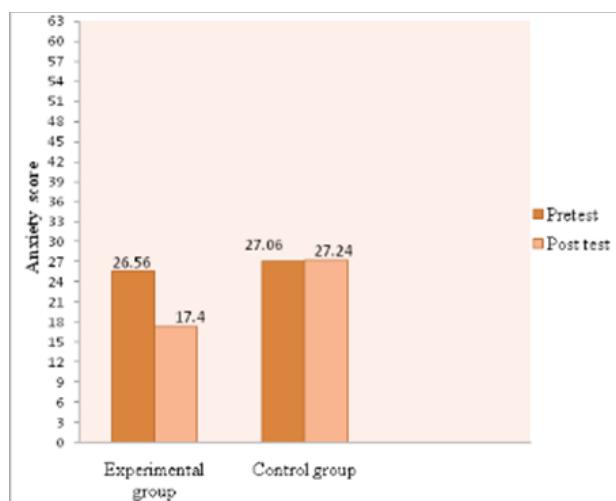


Figure 2 Comparison of mean pre test and post test anxiety scores of patients undergoing mammography between the experimental and control group.

Discussion

The researcher had attempted to discuss the findings of the present study with the available literature based on hypotheses and other findings. H01: There is no significant difference in the knowledge level of patients undergoing mammography before and after the administration of Video assisted teaching between the experimental group and control group. The mean pre test and post test knowledge score of the mammography patients in the experimental group was computed by paired 't' test. The mean pre test knowledge score of the mammography patients in the experimental group was 4.3 (total anxiety score-63). In the post test, the experimental group had an increase in knowledge score i.e. from 4.3 to 19.06. The paired 't' test revealed that the increase in knowledge score was statistically significant ($t=18.61$, $p<0.001$). The comparison of mean pre test and post test knowledge scores of patients in the control group by paired t test showed a p value 0.298 which is greater than 0.05. Hence it is concluded that there were no significant changes in the pre test and post test knowledge scores of control group. The mean post test

knowledge score of experimental group was 19.06 and the control group was 6. While comparing the mean post test knowledge scores of both the groups by using independent t test, p value obtained was 0.001 which is less than 0.01. Hence the null hypothesis was rejected and alternative hypothesis was accepted, with the inference that video assisted teaching was effective in improving the knowledge on mammography.

This is in congruence with the randomized controlled trial conducted by Haakenson on efficacy of a simple, low-cost educational intervention (pamphlets) in improving knowledge about risks and benefits of screening mammography. Results revealed that significant increase in knowledge about mammography were found in the educational intervention group compared with the control group on questions regarding age to begin screening mammography ($p<0.001$), recommended frequency of mammograms ($p<0.001$), overall reduction in mortality due to screening mammography ($p<0.001$), and proportions of women who required follow-up mammograms ($p<0.001$) or biopsy ($p<0.001$). Qualitative data results indicated that most women who received the educational intervention found the pamphlets are helpful and informative despite having had many previous mammograms. H02: There is no significant difference in the pre procedural anxiety level of patients undergoing mammography before and after the administration of Video assisted teaching between the experimental group and control group. The mean pre test anxiety score of the mammography patients in the experimental group was 26.56 (total anxiety score-63). In the post test, the experimental group had a decrease in anxiety score i.e. 17.4. The paired 't' test revealed that the decrease in anxiety score was statistically significant ($t=29.471$, $p<0.001$). The comparison of mean pre test and post test anxiety scores of the patients in the control group by paired t test showed a p value 0.85 which is greater than 0.05. Hence it is concluded that there is no significant decrease in the pre procedural anxiety levels in the control group.

The mean post test anxiety score of experimental group was 17.4 and that of the control group 27.24. While comparing the mean post test knowledge scores of both the groups by using independent t test, p value obtained was 0.022 which is less than 0.05. Hence the null hypothesis was rejected and alternative hypothesis was accepted, with the inference that video assisted teaching was effective in reducing pre procedural anxiety level. The mean pre test scores of pre procedural anxiety levels were compared in both groups (experimental and control group) and was found to be not significant ($t=2.3$, $p>0.05$).

The present study was congruent with clinical trial conducted by Hoda et al.¹⁴ to determine the effects of education and preparation (educational pictures & pamphlets) on anxiety in women referring to mammography centers. Results revealed that mean age was 45.7 ± 5.61 in case group and 44.6 ± 5.59 in control group. Mild anxiety was present in 45% of subjects in case group and 40% in control group. Severe anxiety was seen in 10% of experimental group and 6.1% of control group. Mean and average of anxiety score in case group was 10.9 ± 5.2 and 21.15 ± 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 ($p<0.0001$) and the control group had more anxiety after mammography compared to the study beginning.¹⁴ Video assisted teaching has been proved as an effective method of teaching compared to other methods. The effectiveness of video assisted teaching compared to other methods of teaching had been proved in a study conducted by Avis et al.¹³ who compared the effectiveness of videotapes to a standardized pamphlet for the medium's potential to increase mammography screening adherence. The team developed a video tape documentary which contained interviews of women of diverse ethnic backgrounds, as well as a leading medical oncologist, and a demonstration of a woman receiving a mammogram. Baseline and follow up surveys administered at two and 12 months post-intervention revealed that the videotape medium was more effective (80.4%) than the pamphlet (74.8%) at increasing mammography screening.¹³ Apart from the discussion of study findings based on the two hypotheses, the other two major findings of the study are discussed below:

The association between levels of knowledge, pre procedural anxiety on mammography with certain socio demographic variables was not statistically analyzed since there was no significant number of sample in each cell. As per statistical guidance, independent t test was used for comparing the level of knowledge, pre procedural anxiety among patients undergoing mammography with selected socio demographic variables.

A. Comparison of level of knowledge among patients undergoing mammography with selected socio demographic variables

In the present study, the comparison of level of knowledge on mammography between various socio demographic variables by independent t test showed significant differences among educated ($p<0.001$), employed ($p 0.002 <0.05$), those who were residing in urban area ($p 0.016<0.05$), breast self examination ($p 0.002 <0.01$) and previous knowledge on mammography ($p 0.035 <0.05$).

The above demographic variables that showed significant difference are no doubt is factors that enhance the knowledge of women about mammography.

Results of the present study supports the findings of Millicent which revealed that women with primary or secondary levels of education were about three times less likely to be aware of mammography when compared with those with tertiary level of education (OR=0.3, 95% CI, 0.12 - 0.73). The results of a descriptive cross sectional study conducted by Kiguli et al.¹² also showed that.

The level of breast cancer knowledge was the only variable significantly associated with the BSE and mammography practice ($p=0.011$, $p=0.007$) in the study conducted by Pmar on knowledge and attitude of mammography and breast self-examination in a group of women, Turkey.

B. Comparison of pre procedural anxiety among patients undergoing mammography with selected socio demographic variables

In the present study, the pre procedural anxiety was significantly higher among patients with family history of breast cancer ($p 0.047 < 0.05$) and family history of other cancer ($p 0.007 < 0.01$).

These findings are probably due to the anxiety and worry over the results. i.e. a perceived threat of diagnosing breast cancer due to perceived susceptibility. Similar findings were found in a study conducted by Rubens et al.¹¹ which revealed that self-perception of

anxiety was reported in 52.2% and most frequent causes of anxiety referred by patients were worry over results (35.3%) and fear of having pain or discomfort during the procedure (26.6%). However there was no statistically significant difference on anxiety levels according to any of the demographic or clinical variables, or between patients who received and did not receive the educational intervention prior to mammography.

A cross sectional descriptive study conducted by Sevban et al.¹⁵ to evaluate pre procedural anxiety levels of women undergoing mammography shows that the anxiety score average was highly determined on women who had breast cancer in their family and this difference was found statistically significant ($p<0.05$). Women who got information about mammography and who had family members screened for mammography had high scores averages. This difference was found statistically significant ($p<0.05$).

To conclude, the present study findings can be considered as an affirmation that video assisted teaching - a multidimensional teaching is effective in enhancing the knowledge and minimizing the pre procedural anxiety among women undergoing mammography. However, the significant differences found in a few demographic variables while comparing it with knowledge and pre procedural anxiety levels of women undergoing mammography need more extensive studies and validation.¹⁶⁻²⁰

Acknowledgements

None.

Conflicts of interest

The authors declare that there is no conflict of interest.

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