Effect of Implementing Designing Nursing Guidance on Anxiety and Satisfaction levels among Women Undergoing Mammography

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Abstract:

Aim: The aim of this study was to investigate the effect of implementing designing nursing guidance on anxiety and satisfaction levels among women undergoing mammography. **Methods:** A quasi-experimental two groups design was utilized. **Setting:** Diagnostic unit at the South Egypt Cancer Institutee, Assiut University, Egypt. **Sample:** 100 adult's patients who are admitted for mammography. Those patients were equally divided into two groups study and control (50 for each). **Tools:** Patients assessment sheet, anxiety scale and patient satisfaction with nursing care quality questionnaire. **Results:** Statistically significant difference among the study group and control group pre and post applying designing nursing guidance concerning anxiety (21.12±1.95, 6.8±4.34 respectively) while in control group (20.56±1.77, 20.02±2.63 respectively) Regarding satisfaction (31.34±6.24, 90.62±6.12 respectively) however in control group (25.42±5.44, 28.72±8.51 respectively).**Conclusions:** Nursing guidance about mammography had a statistically significant effect on the decreasing anxiety level and increasing the satisfaction level among the study group in comparing with the control group. **Recommendations:** Simple illustrated nursing guidance booklets should be available for patients undergoing mammography. Replication of this study on a larger sample.

Keywords: Anxiety, Breast cancer, Mammography, Nursing guidance & Satisfaction.

Introduction:

Breast cancer is the most prevalent kind of cancer in women; it is a significant global public health concern. One in eight women is at risk of acquiring breast cancer today, according to statistics **(WHO, 2021).**

Women who have no symptoms or indications of breast cancer might get mammograms to check for the illness. A screening mammography is the name given to this kind of mammogram. In screening mammography, each breast is often the subject of two or more x-ray images. It is frequently feasible to find tumors that cannot be touched using x-ray imaging. Micro calcifications, which are microscopic calcium deposits that can occasionally be an indicator of breast cancer, can also be seen during screening mammography **(Perone et al., 2019).**

Following the discovery of a lump or any indication or symptom of breast cancer, mammograms can also be performed to check for the illness. A diagnostic mammography is the name given to this kind of mammogram. Breast discomfort, thickening of the breast skin, discharge from the nipple, and changes in breast size or form can all be indicators of breast cancer in addition to a lump; however, these indicators could also point to benign illnesses. When obtaining a screening mammography is challenging due to unique conditions, such as the existence of breast implants, a diagnostic mammogram can also be performed to assess alterations discovered during a screening mammogram or to inspect breast tissue **(Moulder et al., 2018).**

The most frequent psychologically upsetting side effect of mammography is anxiety. It is "an abnormal and overwhelming sense of apprehension and fear often marked by physical signs (such as tension, sweating, and increased pulse rate), by doubt regarding the reality and nature of the threat, and by self-doubt about one's capacity to cope with it." **(Kaidar-Person et al., 2019).**

Patient satisfaction is a concept that individuals may interpret differently, and it can also imply various things to one patient at different times. Sometimes, healthcare practitioners use patient satisfaction as a key performance indicator. A happy patient is more likely to suggest the hospital to others for their medical needs. To reach agreements and develop measures for achieving the commitment of navigation to these aims, designated primary outcomes, it is assessed among patients having mammograms **(Redding et al., 2022).**

Women who have a mammogram are more likely to follow breast cancer screening, diagnostic, and treatment regimens on time. However, it's crucial to evaluate patient satisfaction and perceived care quality **(Brooks et al., 2021).**

By educating patients about breast diseases and breast examination, offering emotional support, and arranging with other healthcare professionals for further diagnostic and laboratory tests, nurse plays an important role in providing comprehensive patient education before, during and after mammography (**Huang et al., 2021**).

Before mammography the nurse should educate the patient; do not use deodorant, talcum powder or lotion under the arms or on the breasts on the day of the exam, Also she helps the patient to remove the closes specially the upper part of the body exposing the breast, and asking the patient to remove the jewelry especially round the neck (**Obadina et al., 2018**).

During and after mammography the core role of the nurse is to reassure the patient and maintain her privacy, Also the nurse asks the patient to change positions between images, asks that patient to hold the breath for a few seconds while the technologist takes the x-ray. After the procedure the nurse help the patient to wear her clothes (**Richards et al., 2018**).

Significance of the study:

According to the records of **South Egypt Cancer Institute 2018,** the number of patients who had Mammography was (**1225**) patients, the record in 2020 was (**2000**) patients, and the record in 2021 was (**2000**) patients. It was found that there are many numbers of patients coming to mammography and that no one gives them instructions. Also, it was found that most of these patients are prone to highly anxiety and not satisfy with the nursing services provide. They need special nursing instructions to minimize anxiety and increase their satisfaction. This study was the first study in this location of handling this topic.

Aim of the Study:

Study aimed to investigate the effect of implementing designing nursing guidance on anxiety and satisfaction levels among women undergoing mammography.

Study objectives

1. To assess patient's anxiety level.
2. To assess patient's satisfaction level.
3. To design and implement nursing guidance for women undergoing mammography.
4. To evaluate the effect of designing nursing guidance on anxiety and satisfaction levels among women undergoing mammography.

Research hypothesis:-

- Anxiety score will be improving among the study group than control group after applying the designing nursing guidance.

- Satisfaction score will be higher in the study group than control group after applying the designing nursing guidance.

Methods:
Research design:
A quasi-experimental two groups design was utilized was utilized in this study.
Technical design:
Setting of the study:
This study was conducted in diagnostic unit at the South Egypt Cancer Institute, Assiut University, Egypt.
Study subjects:
100 adult's patient who were admitted for mammography. Patients divided equally into two groups study and control (50 for each). The study group provided with the designing nursing guidance for mammography while the control group received the routine hospital care.
Sample size:
Based on the number of patients attended to Cancer Institute examine the same outcome and found significance difference, a sample size has been calculated using

$$n = \frac{N \times p(1-p)}{\left[\!\left[N - 1 \times \left(d^2 \div z^2\right)\right] + p(1-p)\right]}$$

The sample size was conducted to be 100 patient (**Steven, & Thompson, 2012**).

Inclusion criteria:
- Adult female patients aged 18-65 years.
- Patients undergoing mammography.
- Patients agree and able to participate.

Study tool:
Data were collected, through utilizing the following tool that consists of four parts:
Part 1: Demographic data of the studied patients: -
The patient's demographic information was evaluated before the nursing instruction was put into practice. The name, age, gender, education level, marital status, and occupation of the patient were all listed.
Part 2: Medical Data:
Its goal was to evaluate the patients under the study's clinical and medical conditions. It contained medical diagnoses, chronic disease presence, and mammography indications.
Part 3: Aanxiety scale:
This part was developed by (Humphris, 2000) pre & post
It aimed to assess the effect of the nursing guidance on the level of anxiety. It was used pre and post the application of the designing nursing guidance.
It consists of five items:

1. If you went to hospital to make mammography tomorrow, how would you feel?
2. If you were sitting in the waiting room, how would you feel?
3. If you lie on bed to preparation for procedure, how would you feel?
4. If you were link with a machine, how would you feel?
5. If you were during procedure, how would you feel?

Scoring system:

Each item scored as follows:
- Not anxious   = 1
- Slightly anxious   = 2
- Fairly anxious   = 3
- Very anxious   = 4
- Extremely anxious   = 5

Total score is a sum of all five items ranged from 5 to 25 degrees.19 degrees or above which indicated a highly anxious patient.

Part 4: Patient satisfaction with nursing care quality questionnaire:

It was adopted from Laschinger et al., (2005) pre & post

This survey was designed to gauge how satisfied the patient was with the nursing care they received during their mammogram. It was utilized both before and after applying the nursing instruction. There were twenty questions that assess the patient's satisfaction with the nursing treatment.

Scoring system :

The patient's nursing treatment was rated on a scale of excellent, very good, good, fair, and poor. When showing the patient's degree of satisfaction, the questionnaire's mean scores were utilized;
- Score 5   =   Excellent
- Score 4   =   Very good
- Score 3   =   Good
- Score 2   =   Fair
- Score 1   =   Poor

Total score: 100 degree.
- Scores from 0 to less than 50 indicated poor.
- Scores from 50 to less than 70 indicated good.
- Scores from 70 to 100 indicated excellent.

Designing Nursing guidance:

Arabic brochure was developed by researcher after revising present national and international literature; it includes (definition, purpose, technique, duration, preparation and instructions before, during and after mammography).Expert in medical surgical nursing and oncology checked the content and modifications were done accordingly.

Procedure:

Preparatory phase:
- Nursing guidance was prepared in simple Arabic language with photo illustrations based on local and international related literature.
- **Content validity and Reliability:** A panel of five experts created it after reviewing the instruments for things like clarity, relevance, thoroughness, understandability, application, and ease of administration. Expert professors in the fields of oncology and medical-surgical nursing reviewed the tools content validity, and corrections were completed as necessary. Test reliability for anxiety scale was favorable 0.89, and for patient satisfaction with nursing care quality questionnaire was excellent 0.94.
- **Ethical considerations:** The South Egypt Cancer Institute's director and the Ethical Committee of the Nursing Faculty at Assiut University both gave their approval for the study to be conducted. The researcher formally introduced herself to the patients before the initial interview. Oral consent was acquired for volunteer participation. By coding the data, anonymity and secrecy were guaranteed. Patients have the option to withdraw from the study at any point without providing a reason.
- **Pilot study:** To assess the viability and applicability of the tool, a pilot study with 10% (10 patients) was done. The tool was then adjusted in light of the findings of the pilot research. The real study included these patients.

Implementation phase:
- From February 2022 to June 2022, data were gathered at the diagnostic center of the South Egypt Cancer Institute at Assiut University in Egypt.
- Before starting data collection the researcher introduced herself to open a channel of communication, explained the nature and goal of the study.
- Patients were divided into two equal-sized groups randomly throughout this phase into study and control group (50) patients for each group.
- **Control group** of patients (50 patients) received routine hospital care.
- **Study group** of patients (50 patients) received routine hospital care and designing nursing guidance.
- Demographic and medical data were collected from patients in both the study and control groups that carried out at the morning shift using tool (part 1 and 2).
- Prior to the administration of the designing nursing guidance the patient's anxiety level and degree of satisfaction were measured using the anxiety scale and Patient satisfaction with nursing care quality questionnaire (part 3 & 4).

- The total time required to gather data from both groups was 15 minutes.
- Study group patient received a personalized explanation of the designing nursing guidance.
- The session carries on between 30 and 45 minutes.
- During the session, patients were assisted to recall the information; each patient received a copy of the designing nursing guidance (broushure), which included all the information concerning mammography.
- Following input from the patients to gauge their comprehension at the conclusion of the session, the researcher explained any areas that they felt were unclear.

Evaluation phase:
- Immediately following the implementation of designing nursing guidance, the researcher

evaluated anxiety and satisfaction levels for both groups by using the same tool (part 3 &4) to gauge how the designing nursing guidance implementation affected them.
- To prevent any impact on the study findings, the control group received a physical copy of the designing nursing guidance (broushure), after completing the research stages.

Statistical design:
Chicago, USA-based computer programme SPSS "ver. 22" used for data collecting and analysis. Data presented as mean, SD, percentage, quantity, and more. t test is used to assess whether a numerical variable is significant. Chi square analysis is used to determine a non-parametric variable's significance.

Results:
Table (1): Comparison between study and control group regarding demographic data n=100

Items	Study		Control		Pearson ChiSquare	Sig.
	N	%	N	%		
Age group						
20 > 40 yrs.	14	28.0	14	28.0		
40 > 60 yrs.	34	68.0	28	56.0	4.181	.124
60 < 65 yrs.	2	4.0	8	16.0		
Age by years	44.96±9.231		45.94±11.57		T :-.468	.641
Marital status						
Single	4	8.0	6	12.0		
Married	43	86.0	37	74.0	2.850	.415
Divorced	0	0.0	1	2.0		
Widow/er	3	6.0	6	12.0		
Level of education						
Illiterate	21	42.2	16	32.0		
Read and write	15	30.0	18	36.0		
Secondary education	11	22.0	10	20.0	3.996	407.
High education	2	4.0	6	12.0		
post graduate	1	2.0	0	.00		
Occupation						
Housewife	46	92.0	43	86.0		
Manual work	1	2.0	2	4.0	2.434	487.
Professional work	3	6.0	5	10		

Chi-Square Tests   Ns= Non significant difference

Table 2: Comparison between study and control group regarding medical history   n=100

Medical diagnosis	Study		Control	
	N	%	N	%
Right breast cancer	10	20.0	0	0.0
Left breast cancer	4	8.0	0	0.0
Right mastectomy	10	20.0	19	38.0
Left mastectomy	13	26.0	17	34.0
Bilateral mastectomy	8	18.0	7	14.0
Breast lymph	3	6.0	1	2.0
Right axillary mass	0	0.0	3	6.0
Left axillary mass	2	4.0	1	2.0
Fibroadnosis	0	0.0	2	4.0

Medical diagnosis	Study		Control	
	N	%	N	%
Indication				
Follow up	34	68.0	35	70.0
Pain	5	10.0	13	26.0
Follow-up and chemical	1	2.0	0	0.0
Follow-up and pain	2	4.0	2	4.0
Follow- up and hormone	7	14.0	0	0.0
Follow- up and diagnosis	1	2.0	0	0.0
Chronic disease				
Heart disease	1	2.0	2	4.0
Hypertension	7	14.0	9	18.0
Diabetes	4	8.0	4	8.0
Type of admission				
Outpatient admission	45	90.0	46	86.0
In patient admission	5	10.0	4	8.0
Time of admission				
First time of breast radiation	11	22.0	18	36.0
1-3 times	20	51.3	12	37.5
more than 3	19	48.7	20	62.5

Table (3): Comparison between means of study and control group regarding total level of anxiety pre and post applying designing nursing guidance n=100

Total level (5-25 marks)	Pre	Post	P.1	p.2
	Mean ±SD	Mean ±SD	F test	
Study group	21.12±1.95	6.8±4.34	.409 f	4.347 f
Control group	20.56±1.77	20.02±2.63	.137 p	.001**

*Independent t - Tests   *=Significant difference   *p≤0.05   **= highly significance, *p≤0.01*
Ns= Non significant difference.
p.1= Comparisons between study and control pretest regarding total level of anxiety.
p.2= Comparisons between study and control posttest regarding total level of anxiety.
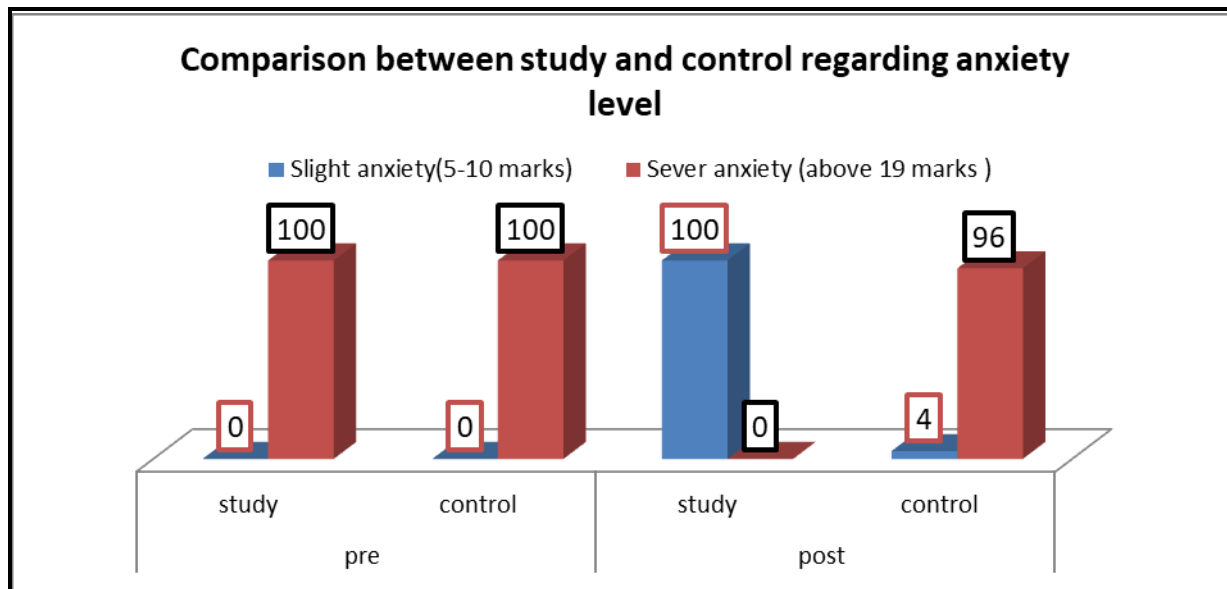

Fig.(1): Comparison between study and control group regard patient anxiety pre/post applying designing nursing guidance n=100

Table (4): Comparison between mean score for study and control group regarding patient satisfaction pre and post applying designing nursing guidance n=100

Total level (0-100 marks)	Pre Mean ±SD	Post Mean ±SD	P.1 t test	p.2
Study group	31.34±6.24	90.62±6.12	5.053	41.74
Control group	25.42±5.44	28.72±8.51	.001 **	.001**

*Independent t - Tests   *=Significant difference.   *p≤0.05   **= highly Significance, *p≤0.01*
Ns= Non significant difference.
p.1= Comparisons between mean score study and control pretest regarding total level of satisfaction.
p.2= Comparisons between mean score study and control posttest regarding total level of satisfaction.
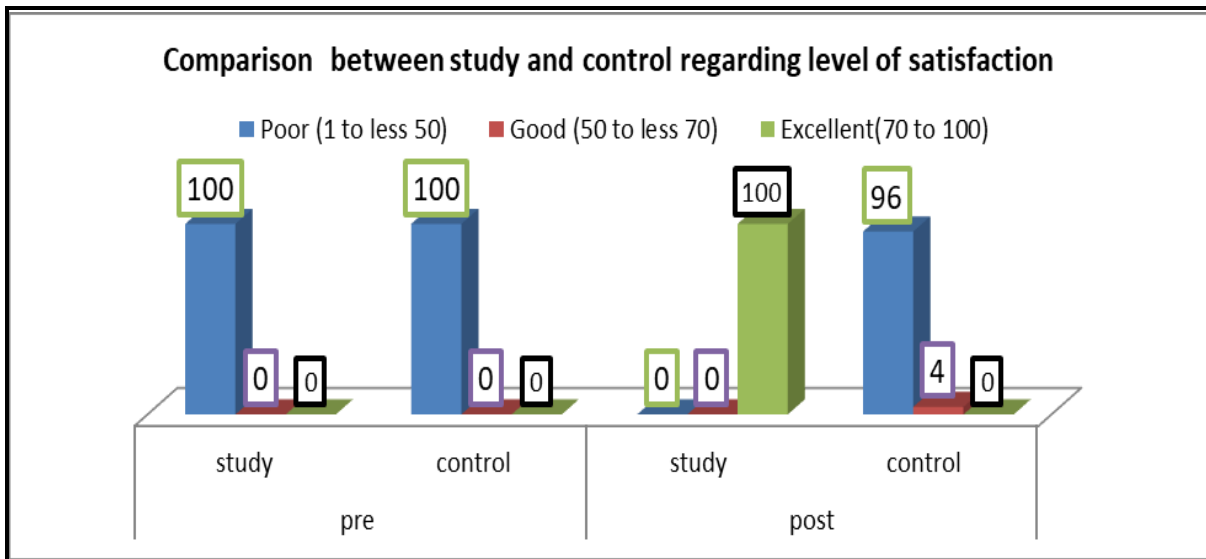

Fig. (2): Comparison between study and control regarding patient satisfaction pre / post applying designing nursing guidance. n=100
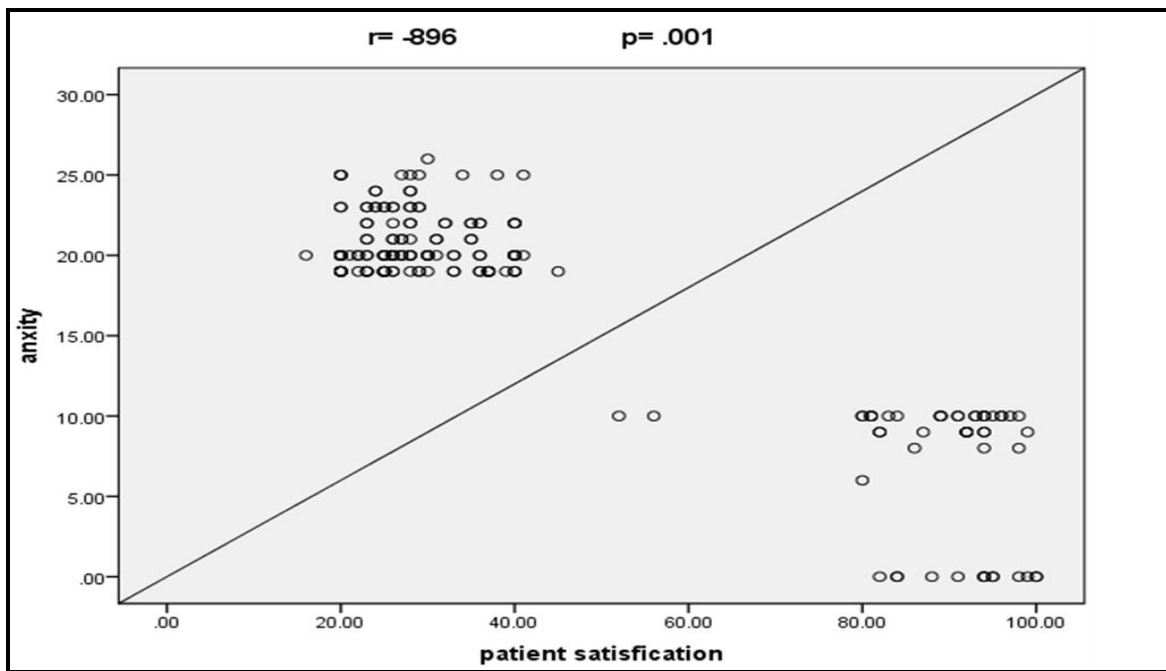

Fig. (3): Correlation between study and control regarding patient satisfaction and anxiety level n=100

Table (1): Shows that; the highest percentage of both study and control group their age ranged between 40 to 60 year with mean age (44.96±9.231, 45.94±11.57) and married (86.0%, 74.0% respectively). The highest percentage of study group was illiterate (42.2%) while control group was read and write (36.0%). Regarding occupation, the majority of both study and control group were housewife (92.0%, 86.0% respectively). No statically difference between study and control group.

Table (2): Clarifies that highest percentage of study group have left mastectomy (26.0%) while in control group have right mastectomy (38.0%). Regarding indication most of both study and control group have follow up indication (68.0%, 70.0% respectively).

Table (3): Shows that highly statically significant difference between study and control group pre / post -test regarding all items of anxiety with p. value**p≤0.01

Fig. (1): Shows that anxiety score for study group highly improved after applying designing nursing guidance than control group.

Table (4): Illustrate that highly statically significant difference between study and control group post applying designing nursing guidance regarding all items of satisfaction with p. value *p≤0.01

Fig. (2): Shows that study group patients more satisfied after applying designing nursing guidance in compare with control group.

Fig. (3): Present positive correlation between study and control regarding patient satisfaction and anxiety level with R=-.896 p=.001

Discussion:

The best way to find breast cancer early is through mammography, and routine screening can lower mortality. Unfortunately, some women experience discomfort or agony during the operation, which can also cause anxiety **(Whelehan et al., 2017)**

The current investigation found no statistically significant differences in the demographic and medical data between the study and control groups. This was crucial to make sure the two groups could be compared and to show that the randomization of the two groups had been successful. This was supported by **Weisburd et al., (2022),** who noted that it is crucial to guarantee group equality at the start of the trial in order to prevent bias based on a variable known to affect results, such as baseline reading ability or gender .

According to the current study, the majority of the patients were between the ages of 40 and 60. Accordingly, breast cancer is linked to both the immunological response and the hormonal changes that come with ageing. This result was consistent with that of **Heer et al., (2020)**, who found that more than

half of the breast cancer patients in the study ranged in age from 40 to less than 60. The mean age of the patients was 45.25 5.86 and 46.06 6.19 for the study and control groups, respectively, according to **Collaborative Group on Hormonal Factors in Breast Cancer (2019)**.

The current study demonstrated that there was a statistically significant difference between the study and control groups after the administration of the designing nursing guidance, with the study group experiencing a decrease in anxiety. According to the researcher, applying the nursing advice to the study group had a more positive impact on anxiety levels than it did on the control group . In this regard**, Lee et al., (2020)** revealed that breast cancer anxiety is greater in women who undergo screening mammography than in those who do not, suggesting that breast cancer worry encourages women to get mammography .

According to **Carnahan et al. (2022),** mammography-related anxiety and breast cancer anxiety may just be on the rise as breast cancer awareness increases.

According to **Roux et al.'s study (2022)** of women's attitudes toward breast cancer, while patient anxiety reduction strategies have been proposed, they do not address the fear of breast cancer, which we found to be the main source of anxiety .

In addition to demonstrating a statistically significant difference between the study and control groups on all satisfaction-related post-test items, the current study also revealed that following the use of nursing guidance satisfaction levels improved.

Koç, et al. (2022) conducted a study to assess the usefulness and satisfaction of a web-based educational program for breast cancer patients in order to assess the efficacy of a web-based breast cancer educational programme that includes unique features like online counselling and flash animations .

According to **Dorri et al. (2020),** the educational programme, usefulness of the information, system effectiveness, sufficiency of the material, and ease of use were all given high marks.

Age, religion, wealth, illness stage at diagnosis, source of health information, length of internet usage, and if the patient does breast self-examination were all mentioned by **Binarelli et al., (2021)**. These characteristics all had an impact on how satisfied the patient was with the program**.**

In order to determine the efficacy of a web-based breast cancer educational program that includes unique features like flash animations and online counselling, **Koç, et al., (2022)** conducted a study on the evaluation of the satisfaction and usefulness of a web-based educational program for breast cancer patients

The instructional program, usefulness of the information, system efficiency, sufficiency of the material, and ease of use all earned favorable evaluations in this line, according to **Dorri et al.'s (2020)** research.

Age, religion, income, illness stage at diagnosis, source of health information, time spent online, and if the patient does breast self-examination were all mentioned by **Binarelli et al. (2021)** as factors influencing program satisfaction.

A prospective research on evaluating the standard of nursing care in medical and surgical wards was carried out by **Ghanbari et al., (2021)**. This study's goal was to evaluate how satisfied helpless people were with the standard of treatment they received from hospitals. According to the findings, helpless patients were happy with their medical and psychological care, but their pleasure with their spiritual care was only moderate.

In terms of patient satisfaction and anxiety level, the current study showed a positive correlation between the study and control. According to **Yuli et al. (2019)**, the friendliness of medical staff was associated with a higher risk of anxiety and a higher likelihood of discontent with the hospital environment.

According to **Acar & Aygin (2019),** a patient's degree of anxiety was correlated with their level of dissatisfaction with each of the three healthcare-related factors they looked at**.**

From the researcher`s point of view anxiety and satisfaction score improved due to designing nursing guidance provided patients with sufficient knowledge about mammography (definition, purpose, duration, preparation, steps and instructions before, during and after procedure) that improved satisfaction and reflected on decreased anxiety.

Ideally, nurses would look for ways to raise awareness of breast cancer and the need of mammography through lowering patients' fear and raising their level of satisfaction with nursing care.

Conclusion:

Based on the results of the present study. It can be concluded that level of satisfaction for patients who took nursing guidance was higher than who didn't take any guidance, and level of anxiety was lower in patients who took nursing guidance about mammography.

Recommendations:

1. Because mammography patients are important patients, they require the assistance of trained nursing personnel.
2. Nurses in all hospitals should be expected to provide pre-procedure instructions and nursing guidance.

3. A brochure with instructions on how to prepare for, during, and after the mammography process is supplied to each patient.
4. To stay up to date on the most recent developments and expertise in the industry, nurses should be encouraged to attend particular events such as workshops and seminars offered for mammography.

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