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Breast Reconstruction Education: A Patient-Centered Approach

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Breast Reconstruction and Patient Education: A Patient-Centered Approach

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requirements for the degree

Doctor of Nursing Practice

by

Tamala Aguirre Murray

2022

ABSTRACT OF THE DISSERTATION

Breast Reconstruction Education and Patient Satisfaction: A Patient Centered Approach

by

Tamala Aguirre Murray

Doctor of Nursing Practice

University of California, Los Angeles, 2022

Professor Nalo M. Hamilton, Chair

Background: Breast cancer patients undergoing the breast reconstruction process may experience physical and psychological stress related to the amount and delivery of information. A patient-centered educational program by a doctorally prepared nurse practitioner (DNP), allows the patient to engage in peri-operative discussions and increase satisfaction with information, which can aid in decreasing anxiety.

Objective: This quality improvement (QI) project evaluated effects a DNP advanced practice registered nurse (APRN) led breast reconstruction education program has on patient satisfaction and patient anxiety.

Methods: A pre- and post-test intervention design was used in this project and conducted in a large, federally funded, urban, academic hospital. Twenty-one patients were identified as breast reconstruction candidates and 19 participants were recruited for the study. Two patient groups, control (n=8) and intervention (n=11), were queried with the Breast-Q^{TM} patient satisfaction and the General Anxiety Disorder (GAD-7) surveys after preoperative consultation with the plastic surgeon. The intervention group received breast reconstruction education, a drain care educational brochure and hands-on practice and teach-back with a drain equipped mannequin. Control group participants were provided breast reconstruction education and the drain care educational brochure. Approximately 5 weeks post-operatively, or removal of surgical drains, both cohorts were queried using the Breast-Q^{TM} and GAD-7 surveys to assess satisfaction with the education and anxiety level. The data collected from pre-, and post-test were analyzed using Statistical Package for the Social Sciences (SPSS) software.

Results: The mean survey score change in patient satisfaction with information using the Breast-Q^{TM} survey was higher in the intervention group (6.89-point change) than in the control group (0.33-point change) The mean score change in patient anxiety using the GAD-7 survey was slightly increased in the intervention group (3.67 score change). Because our groups were not randomly allocated nor balanced, we cannot generalize our findings or make statistical inferences.

Conclusion: Implementation of QI projects focused on patient education provide the opportunity to improve patient satisfaction and contribute to decreased anxiety. This study's results should encourage plastic surgery services to provide patient-centered education to their breast reconstruction patients.

Keywords: breast cancer, breast reconstruction, patient-centered education, anxiety, patient satisfaction

The dissertation of Tamala Aguirre Murray is approved.

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2022

This dissertation is dedicated to the many brave women who have been diagnosed with breast cancer. Their strength over the course of their treatment has encouraged me to do all I can to make their lives a little easier.

To my daughters, Lily and Emily for your patience and understanding when I needed to focus on my project. I am so proud of the young women you have become. My partner, Caroline. Thank you for your never-ending support. You always encourage and believe in me. You are my biggest fan. Thank you for your continued support. To my dog, Eli, for always showering me with kisses and being around for emotional support. I love you all!

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Chair: Dr. Nalo Hamilton PhD, APRN-BC; Committee members: Dr. Eden R. Brauer, PhD, RN; Dr. Catherine Carpenter, PhD; Dr. Su Yon Jung, PhD

CHAPTER ONE: INTRODUCTION

Breast cancer is the leading cause of cancer in women and the second leading cause of cancer death among women living in the United States (U.S.) (Dieperink et al., 2020; Tedesco & Loerzel, 2020). With approximately 250,000 new breast cancer cases diagnosed each year, it is the most commonly occurring cancer affecting women in the U. S. (Chang et al., 2019). Due to better screening, breast cancer is diagnosed earlier underscoring access to breast reconstructive services as vitally important in improving patient outcomes (Henn & Momeni, 2020). Literature shows survival rates of 91% and an increased overall life expectancy, with 40% of women choosing autologous or implant-based breast reconstruction immediately following mastectomy (American Society of Plastic Surgeons, 2018; Chang et al., 2019; Sousa et al., 2018). Researchers conclude advancement in breast cancer treatment has led to breast reconstruction playing an important role in breast cancer management (Ng et al., 2016). The primary goal of breast reconstruction, according to Mundy et al. (2017), is to improve the breast cancer patient's quality of life while increasing their satisfaction with the surgery process and preoperative education. Breast reconstruction has been found to have psychological benefits for the breast cancer patient yet, deciding whether to have breast reconstruction can be difficult. While many breast and plastic surgeons focus on the medical and surgical plan, addressing the patient's physical and psychological state is of equal importance. Dobke et al. (2019) conclude that the plastic surgeon has the most influence on the patients' decision-making process, so it is imperative that surgeons and their staff provide the most current information regarding surgical care and outcomes. Failure to do so can lead patients to make surgical decisions that do not align with their values resulting in patient regret and dissatisfaction.

When preparing a patient for breast reconstructive surgery, plastic and reconstructive surgeons are tasked with reviewing a large amount of information with the patient in a limited amount of time (Pestana, 2020). According to Delisle et al. (2020), the teaching components of what, who, how, and when to deliver the educational information are paramount in developing an effective patient-centered educational program to improve patient satisfaction. Tarkowski et al. (2017) agree that patients undergoing mastectomy should be educated about the reconstruction options available if there is a desire to have breast reconstruction.

With the focus on patient satisfaction and quality of care in healthcare, attention to patient satisfaction survey responses is key in the health care improvement process. Therefore, educating the patient regarding the medical and surgical plan pertaining to the breast cancer diagnosis and subsequent breast reconstruction surgery while actively incorporating the patient in the decision-making process can be an integral part of increasing patient satisfaction (Cohen et al., 2016).

Problem Statement

According to Pestana (2020), breast and plastic reconstruction surgeons are tasked with providing care to patients in an expeditious manner. Given the time constraints from the medical visit to the time of surgery, relaying of the diagnosis, review of the medical and surgical options and any education given usually occurs during one clinic visit. The magnitude and volume of information provided to the patient can be overwhelming (Webb et al., 2018). Many patients are often left with more questions after the surgical visit. This can lead to patient anxiety, frustration, and a decrease in the level of satisfaction with information received (Cohen et al., 2016). A recent study by Webb et al. (2018) found that breast reconstruction patients cite the method of education delivery, or the lack of education provided as areas of high dissatisfaction. According

to Webb et al, (2018), patients who were provided information voiced the amount was more than they could absorb which decreased opportunity for shared decision making between the patient and provider.

A DNP -led patient-centered breast reconstruction education may be beneficial in bridging the communication between patient and provider. In studies by Causarano et al. (2015) and Zhong et al. (2021), a preoperative breast reconstruction educational intervention with a plastic surgeon was shown to improve shared decision-making and patient satisfaction with information provided.

PICOT Question

The scholarly project proposed was a quality improvement (QI) project which focused on answering the following PICOT question. In females 30 – 70 years of age with breast cancer or the breast cancer gene (BRCA) 1 or 1 mutation who desire breast reconstruction following mastectomy (P), will patient-centered operative education (I), compared to usual care (C), affect patient satisfaction as measured by the Breast-Q^{TM} and generalized anxiety as measured by the General Anxiety Disorder (GAD)7 survey (O) within 3 months of implementation (T)?

Purpose and Objectives

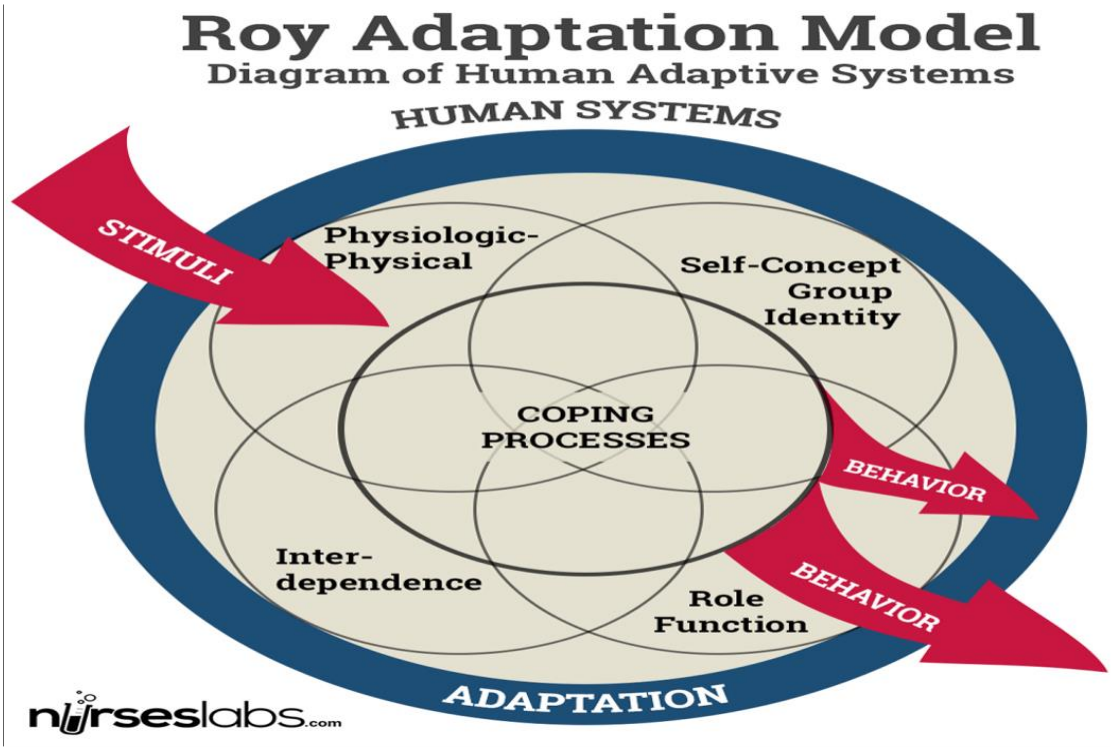
The project aimed to demonstrate that a DNP delivered educational program improved patient satisfaction and decreased general anxiety. With education, it is hypothesized that the patient is better prepared to make an informed decision regarding the surgical course of their care.

CHAPTER TWO: THEORETICAL FRAMEWORK

The Roy Adaptation Model was the theoretical framework selected for this scholarly project. This model promotes the adaptation of patients in areas of physiologic-physical, self-

concept, role function, and interdependence (Roy, 1976; Vicdan & Karabacak, 2016; Whetsell et al., 2018). Patient self-concept, social integrity, and personal perception of themselves both physically and personally are foundational aspects of the Roy Adaptation Model. Based on the concepts of role function and self-concept, this theoretical framework captured the essence of the proposed breast reconstruction educational program. Increasing adaptation to various circumstances during times of good health and disease can improve the interaction between self, aids in coping, and contributes to the quality of life thereby improving overall health (Butts & Rich, 2018). This conceptual model was chosen because research has shown that educational programs are essential to improve patient coping which is beneficial to patient adaptation to their individual circumstance and new life experience (Reshmi et al., 2015).

Figure 1: *The Roy Adaptation Model*



Note. Roy Adaptation Model. Developed by Sister Callista Roy in 1976. This model emphasizes areas to help patients through the coping process. For the purposes of this project, stimuli are the educational information and resources provided to the patient to

help them cope with the breast reconstruction process to allow them to be functional participants in their care. Psychological/physical – assist in patient maintaining a high quality of life/resource adequacy, Self-concept – the feelings and beliefs one has about themselves ie. physical self- body image, role function – Perceived role function in society, and Interdependence – Relationships one has with others that are nurturing and has value. Support system.

Breast cancer patients must endure physical changes that will occur following mastectomy. They are challenged to come to terms with their new physical identity. According to Hui et al. (2015), female gender identity and self-image are key components that contribute to how women adapt to the loss of breasts when undergoing mastectomy and claim breast reconstruction can help decrease these issues by improving physical function, health perception, sexuality vitality, social function, emotional mental health, and self-esteem in patients after mastectomy. Providing informative health education about the treatment process and acknowledging patient concerns and fears aid in their adaptation process (Vicdan & Karavacak, 2016).

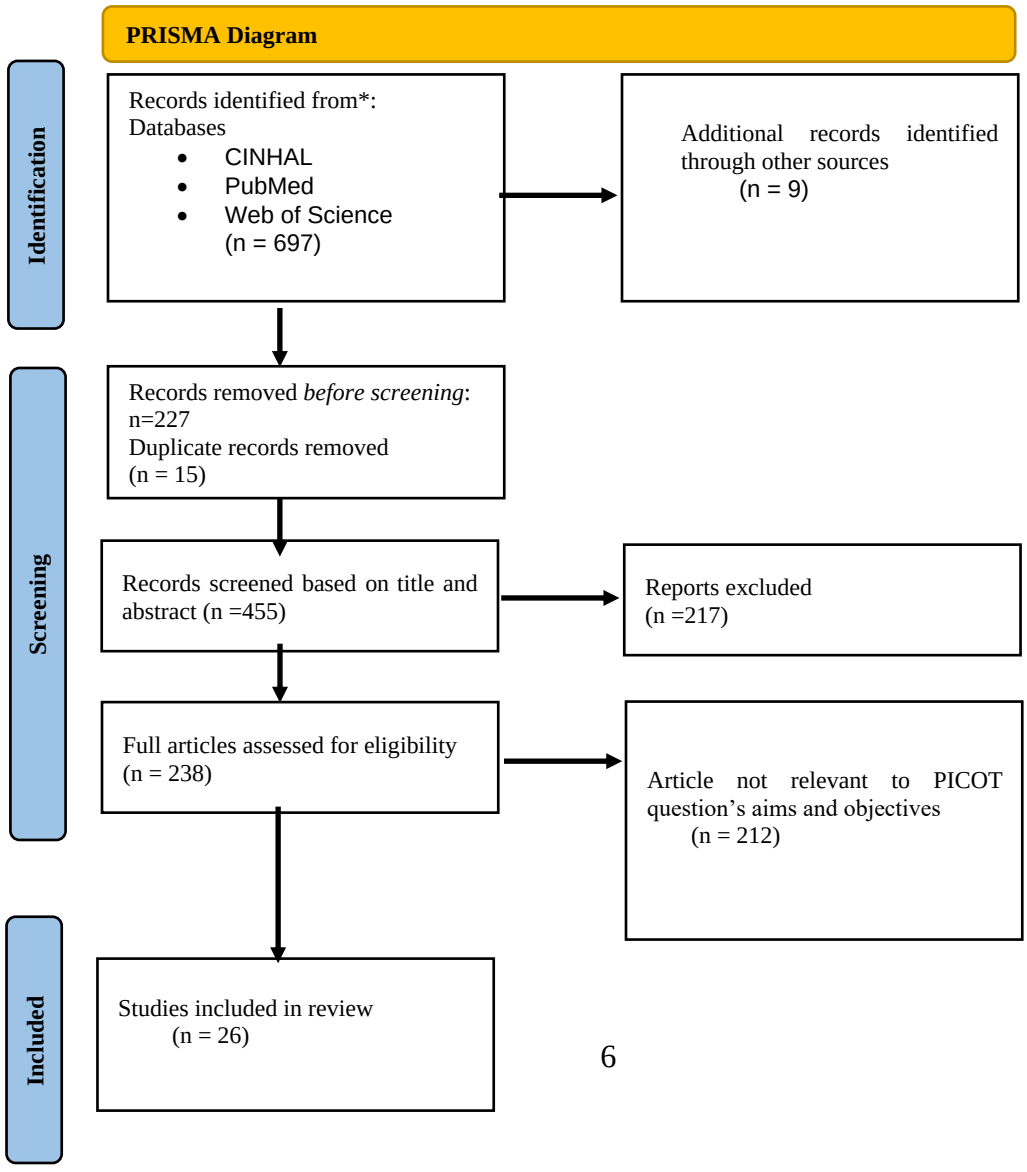
CHAPTER THREE: REVIEW OF LITERATURE

Evidence Search

The database search engines of PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL) Complete, and Web of Science were employed to conduct the literature search for education for breast reconstruction. The key terms used in the search of CINAHL Complete were “breast cancer”, “breast reconstruction”, “patient education”, and “patient satisfaction”. A search of Web of Science utilized the same search terms as well. A search of PubMed utilized the search terms of breast reconstruction, patient education, anxiety, and patient satisfaction. Additionally, a search of PubMed was also performed using the terms: breast

reconstruction and Jackson Pratt (JP) drains. The term mastectomy was not necessary as mastectomy was implied in the articles found when breast reconstruction surgery was performed in women with breast cancer. The time frame used in the article selection process was 2015 – 2021. The PRISMA diagram (See Figure 2) shows 697 articles were found. The inclusion criteria focused on the effectiveness of breast reconstruction education with breast cancer patients and the patient's satisfaction with education provided. Exclusion criteria were articles that pertained to cosmetic breast reconstruction. The final full text review yielded 26 studies.

Figure 2: *PRISMA Diagram of Literature Search*



Note. Diagram of selection of supporting literature. From: Page, M.J., et al. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. British Medical Journal 372:n71. doi: 10.1136/bmj.n71

Literature Review

In a 3-year pre- and post-operative study of women undergoing breast reconstruction (n=150), Pestana (2020) explored whether a surgeon's educational discussion affected the patient's use of educational resources. The preoperative group had 50 participants while the postoperative group had 100. Although no significant differences were observed in the type of educational resources desired or utilized, 35% of patients preferred education by surgeons while 66% of the patients expressed a desire to speak to other patients who had undergone breast reconstruction. Of note, a nurse-led educational intervention was not offered in this study. The most notable finding was that the timing of the educational intervention was the greatest factor in determining its effectiveness. Of the 50 women who were surveyed, 66% preferred receiving breast reconstruction education at the consultation visit with the plastic surgeon.

In a similar study of 1534 breast cancer patients across North America having immediate or delayed breast reconstruction, Cohen et al. (2016) found that 73% of the patients surveyed using the validated Breast-Q^{TM} questionnaire were satisfied with their healthcare team and information provided regarding breast reconstruction. The Breast-Q^{TM}, comprised of questions to assess outcomes with patient satisfaction as well as quality of life, was developed to evaluate the breast surgery patient experience. However, Cohen et al. (2016) also noted that patients scored

the ‘satisfaction with information” lower compared to patient “satisfaction with plastic surgeon” and “patient satisfaction with medical staff”. The researchers concluded that breast reconstruction patients felt there was a need for improvement regarding the route and nature of the information provided prior to breast reconstruction surgery. Further, the more information provided can improve the overall patient experience.

Dobke et al. (2019) studied the influence of exposure to breast reconstruction options prior to having breast reconstruction surgery and the effect this had on patients’ choices in breast cancer treatment. The single-institution, survey-based study was conducted at University of California, San Diego. Five hundred and twenty women newly diagnosed with breast cancer were referred to a plastic surgeon after they were seen by their surgical and medical oncologist. After the plastic surgeon consultation, 90 participants were surveyed to determine if their choice of treatment changed. Thirty-two participants (35.6%) acknowledged a benefit to the educational intervention and 40 (44%) of study participants requested a change in the operative plan. The study concluded that consultation with the plastic surgeon as well as the oncology team influenced the patient’s decision whether to have reconstruction.

In a cross-sectional study in Poland, Tarkowski et al. (2017) also examined the relationship between pre-mastectomy educational sessions and the decision to have reconstructive surgery. Of the women who completed mastectomy surgery (n=50), 72.7% were educated preoperatively. Results showed 51% of these women decided to have breast reconstruction. The study revealed having preoperative education positively influenced the study participants willingness to have reconstructive surgery.

Frisell et al. (2016) highlighted the impact on breast reconstruction rates when breast cancer patients were provided with information and involved in the decision-making process. In

their cross-sectional research study, based in Sweden, two thousand nine hundred and twenty-nine patients were sent questionnaires with a 70% response rate. In this nationwide study, regional differences in immediate breast reconstruction rates were noted. The study included all women in Sweden who had a mastectomy in 2013. The research found that regions with the highest rates of breast reconstruction had plastic surgery services allowing women to participate in the surgical decision-making process. Frisell et al. (2016) conclude that informed decision-making allows women to make individual choices thereby increasing patient satisfaction. The research underscores the connection between education on reconstructive surgery as an important component for informed decision making.

In a prospective cohort study by Henn and Momeni (2020), group educational classes were found to increase access to breast reconstruction consultations by allowing the surgeon to consult with more patients wanting breast reconstruction. In this study, 28 patients revealed that in-person pre breast reconstruction surgery classes promoted positive provider-patient relationships. Results compared patient's perception of shared-decision making and patient satisfaction with information variables using T-test and Chi square (P= 0.052). This indicates the patient's ability to take part in the shared decision-making process with the surgeon most likely improved the overall patient experience.

Webb et al. (2018) reached the same conclusion in their mixed-method study of 19 patients. The purpose of this study was to identify the impact of patient education on feelings of regret and patient satisfaction, while improving education teaching modalities. Of the 19 study participants, 17 completed the Breast-Q survey with the focus on information satisfaction. Results of 74.5, with a mean range of 50 – 100, demonstrated a relatively high patient satisfaction score. Additionally, the study participants scored their satisfaction with the plastic

surgeon at a 95.7 with the mean range of 60-100. Patients were also interviewed to ascertain their perceived experiences with information provided and their responses recorded and analyzed by two independent reviewers. Although patients in this study appreciated being able to access information from multiple sources, a common assessment was too much information was provided. Identifying the deficiencies in the way the educational information is disseminated and presented to the patients is an important part of the teaching process. This study concluded that the ability of the patient to make an informed decision about their reconstruction predicated on the information delivered and the amount of education provided.

Synthesis of Literature Review

With approximately 250,000 newly diagnosed invasive breast cancer patients annually in the U. S. with a survival rate increasing from 75% to 91% between the years of 1976 and 2017, there has been a shift in treatment to include breast reconstruction (Chang et al., 2019; Ng et al., 2016). In 1998, the U. S. passed the Women's Health and Cancer Rights Act mandating health insurance companies cover breast reconstruction of women following mastectomy. Several years later, it was recommended by the National Institute of Clinical Excellence, in London, that breast reconstruction be made available at the time of the initial mastectomy (Ng et al., 2016). Subsequently, in 2016, the U. S. Congress passed the Breast Cancer Patient Education Act legally requiring patients with breast cancer are offered consultations with plastic surgeons for information regarding their reconstructive options (Webb et al., 2018). Despite these legal requirements, gaps in patient education persisted due to the lack of targeted evidenced-based patient education programs that focused on the individual goals and concerns of the patient (Webb et al., 2018).

Implementation of a patient-centered breast reconstruction education program versus standard education geared toward educating the patient on the available pre-and post-operative options benefits the patient by increasing shared decision-making for women desiring breast reconstruction (Causarano et al., 2015; Henn & Momeni, 2020). Having a patient-centered breast reconstruction education session with a nurse practitioner frees up the plastic surgeon, allowing them to consult with more patients thereby increasing access to other women who desire breast reconstruction (Henn & Momeni, 2020). This increase in patient flow can potentially lead to increase revenue for the organization.

The primary goal of this scholarly project was to increase patient satisfaction with the breast reconstruction experience. Several studies reviewed utilized the Breast-Q™ questionnaire. This validated questionnaire, developed in 2009 by researchers at Memorial Sloane-Kettering Cancer Center, was utilized in this study to capture participant satisfaction with the educational information. Lui et al. (2018) explains that the Breast-Q™ is used by researchers to capture the effectiveness of breast reconstruction surgery from the patient's point of view. A patient-centered care approach to breast reconstruction education will address the education surrounding the psychosocial issues encountered. Such issues include setting realistic expectations regarding cosmesis, body image, post-operative care, and how to manage potential postoperative complications or need for surgical revision (Cohen et al., 2016; Pestana, 2020; Webb et al., 2018). Patient education is important, and the articles selected show the benefits a preoperative educational class has on patient satisfaction, quality of care, health outcomes and the patient's overall experience.

The literature reviewed support this scholarly project's claim that breast cancer patients intending to have breast reconstructive surgery, who receive information about the reconstruction

process and are actively involved in the decision-making process, are more comfortable with their decision to have breast reconstructive surgery, less anxious about the surgical process, and more satisfied with cosmesis. In studies by Causarano et al. (2015) and Tedesco et al. (2021), a preoperative breast reconstruction plastic surgery consultation, educational intervention was shown to improve shared decision-making, thereby increasing patient knowledge and improved satisfaction. The educational intervention in Causarano et al. (2015) study was led by a nurse specialist, plastic surgeon, social worker and two patients for peer support. Conversely, in the Tedesco et al. (2021) study, the educational intervention was only led by the nurse practitioner after the initial consultation with their plastic surgeon.

CHAPTER FOUR: METHODS

IRB Statement

The DNP project was submitted to the Institutional Review Board (IRB) for approval at both University of California, Los Angeles (UCLA) and The John F. Wolf, M.D. Human Subjects Committee at The Lundquist Institute for Biomedical Innovation, the IRB governing body for the institutional site where the project was conducted. After a thorough review by both institutions, it was determined that the study protocol was exempt and ongoing IRB approval was not required.

Project Design

In this quality improvement project, two groups received a pre-test and post-test using convenience sampling. Study participant selection was not randomized due to an environmental factor of a crowded waiting room increasing the chance of control and intervention group participants sharing study information.

Procedure

Breast cancer patients interested in breast reconstruction were invited to participate in the DNP student scholarly project based on surgical timing. If the patient agreed to participate, they were consented and divided into an intervention (n = 11) and a control group (n=8). The first 10 patients who fit the inclusion criteria of the study were assigned to the intervention group, n = 11 and the next 10 were assigned to the control group. Due to attrition of two patients, participants assigned to the control group was reduced, n = 8. An additional participant was assigned to the intervention group after discussion with another participant in the clinic waiting area, resulting in 11 intervention participants. During the study, three study participants (one intervention and two control), did not complete the study due to illness. Consequently, they did not receive breast reconstruction surgery at the time this study was conducted. Participants from the two groups were asked to complete the Breast-Q^{TM} patient satisfaction surgery (see Appendix A) and the GAD-7 survey (see Appendix B) after they were seen by the plastic surgeon during the first preoperative consultation. The intervention group were provided a 30-minute patient-centered breast reconstruction education by the plastic surgery NP which emphasized teaching on surgical drain care with the opportunity for hands-on practice and teach-back with a JP/Blake drain equipped mannequin (see Appendix C). The intervention study participants received pre-operative breast reconstruction surgery education, which consisted of education on the types of breast reconstruction recommended by the plastic surgeon/fellow, post-operative care instructions on drain care, and what to expect after surgery. The control group received standard education provided by the plastic surgeons without the patient-centered education provided by the plastic surgery NP. Both cohorts were provided the investigator developed JP/Blake drain care educational brochure produced in English (see Appendix D) and Spanish (see Appendix E).

At post operative weeks 1-3, the intervention group was given the opportunity to receive more surgical drain education if requested. Approximately 5 weeks post operatively, after surgical drain removal, both cohorts were again queried with the Breast-Q™ and GAD-7 surveys to assess their satisfaction with the education provided and to assess their anxiety level. Table 1 shows the intervention sequence of the study.

Table 1: *Intervention Time Sequence*

Intervention Week	Control Group (n = 8)	Intervention Group (n = 11)
1	Patients present to plastics clinic Consent Breast-Q/GAD 7 Brochure	Patients present to plastics clinic Consent Breast-Q/GAD 7 Patient-centered demo & tech back-mannequin education/Brochure
2	Surgery/Drain placement	Surgery/Drain placement
3	1st post op visit Brochure review, Drain check	1st post op visit Brochure review Drain check Patient-centered demo & teach back-mannequin
4	Brochure review Drain check	Brochure review Drain check Patient-centered demo & teach back-mannequin
5	Drain Removal	Drain Removal Education for signs & symptoms of seroma, infection, hematoma
7	Breast-Q GAD 7	Breast-Q GAD 7

Note. This table illustrates the weekly sequence of events of this project from time of initial plastic surgeon consultation to study completion in the control group vs the intervention group.

Sample and Setting

This study was conducted at a large, urban, academic, public hospital operated by the Los Angeles County Department of Health Services. The participants recruited for this scholarly project were referred to the plastic and reconstructive surgical clinic from the breast surgical oncology clinic, medical oncology, or primary care provider for breast reconstruction. Patients were included regardless of self-identified racial or ethnic background. Women receiving breast reconstruction augmentation for cosmetic or gender-affirming surgery were excluded. Study participants who identified as Hispanic and African American women were the most represented ethnic population (see Table 2). McClintock et al. (2021) found that 85% of breast cancer patients at this county hospital were women of color. The researchers also discovered a higher incidence of women of having mastectomy due to breast cancer (63%) were seen in the same county hospital in which this study is being conducted.

In this scholarly project, due to the number of patients identified as breast reconstruction candidates and surgical timing, 19 study participants were identified for participation. Inclusion criteria were women between the age of 30 – 70 with breast cancer or the BRCA 1 or 2 mutation. The study participants were between the ages of 41 – 66 (see Table 3).

Table 2: *Study Participant Demographics-Ethnicity*

Ethnicity n = 19	Control	Intervention	Total
Latino	7 (87.5%)	7 (63.6%)	14 (73.7%)
African American	1 (12.5%)	2 (18.1%)	3 (15.8%)
Asian	0 (0%)	1 (9.1%)	1 (5.3%)
Pacific Islander	0 (0%)	1 (9.1%)	1 (5.3%)

Note. Latinos made up 73.7% of the study population followed by African Americans (15.8%).

Table 3: *Study Participant Demographics-Age*

Age n = 19			
	Control	Intervention	Total
Sample size (n)	8	11	19
Ages (years)	41-64	43-66	41-66
Mean	49.38	54.45	52.32

Note. The table illustrates the age distribution of study participants in the control and intervention study group. The mean age range in the control group was 49.3 and in the intervention group it was slightly higher at 54.45

Instruments/Data Collection

The project investigator utilized the Breast-Q™ survey tool (see Appendix A) to measure the effectiveness of the educational intervention on patient satisfaction and the GAD-7 questionnaire (See Appendix B) to evaluate the effect of the intervention on generalized anxiety level. Both questionnaires are validated assessment tools used in multiple studies including investigations of breast cancer (Lui et al., 2018; Mundy et al., 2017; Sapra et al., 2020). The Breast-Q™ survey tool, developed in 2009, evaluates outcomes in patients with breast cancer who are undergoing breast reconstruction surgery. It has also been shown to be an effective measurement by capturing valued information from the patient's point of view (Lui et al., 2018). This survey tool comprises several modules based on a conceptual framework developed by health care providers working closely with breast surgery patients. The "patient satisfaction with information" module was used in this study. The GAD-7 diagnostic tool is composed of 7 questions based on Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV) to screen for anxiety (Sapra et al., 2020).

Analysis

The data collected from the utilized surveys were calculated using SPSS software. Descriptive statistics were used to notate patient demographics. Statistical analysis was conducted using the hypothesis test of unpaired t-test to identify the difference in the change scores for the Breast-Q™ and GAD-7 survey responses.

CHAPTER FIVE: RESULTS

The Breast Q™ summed scores were converted into one score from 15 (worst) to 60 (best), with higher scores indicating better outcomes (Mundy et al., 2017). The range of GAD-7 scoring is from 0 – 21, with the higher scores representing higher levels of anxiety. Table 4 and Table 5 present participant scores for the Breast-Q ™ and GAD-7 surveys, respectively. When examining the results further, we noticed that many of the study participants were of the Latino ethnicity, n=11. We looked at the change scores from this subset of participants (see Table 4 and Table 5) and discovered that their change scores were consistent with entire study sample. This shows that the results are largely influenced by the Latina population.

Table 4:*Breast-Q™ Survey Scores Pre-test vs Post-test*

	Breast-Q™ Comparison Total Participants vs. Latina Participants							
	Breast-Q™ Pretest				**Breast-Q™ Posttest**			
	Total Participants		***Latina***		**Total Participants**		***Latina***	
	Control	**Intervention**	**Control**	**Intervention**	**Control**	**Intervention**	**Control**	**Intervention**
Sample (n)	7	11	6	5	6	9	6	5
Score Range	28-58	32-60	28-60	45-54	29-60	50-60	29-60	50-60
Mean	48.86	47.64	47.33	**47.66**	47.67	55.33	49.8	**55.80**

Note. The Breast-Q™ Patient Education: Patient satisfaction with information is comprised of 15 questions with a Likert scale of 0-4 for each question. Very dissatisfied = 0 and very satisfied is 4. Breast-Q™ scores ranges from 15-60. The low score of 15 indicates very dissatisfied with the information provided. Conversely, a score of 60 indicates the highest level of patient satisfaction with the information the patient was provided. Total participant intervention two-tailed p = 0.0255* Total participant control two-tailed p= 0.849; Latina intervention p= **0.0347***, Control p= 0.9625

Table 5: *GAD-7 Survey Scores Pre-test vs Post-test*

	GAD-7 Result Comparison: Total Participants vs. Latina Participants							
	GAD-7 Pretest				**GAD-7 Posttest**			
	Total Participants		***Latina***		**Total Participants**		***Latina***	
	Control	**Intervention**	**Control**	**Intervention**	**Control**	**Intervention**	**Control**	**Intervention**
Sample (n)	7	11	6	5	6	9	6	5
Score Range	0-15	0-11	0-15	0-6	1-4	0-3	1-4	0-1
Mean	5.71	**3.72**	6.5	2.2	2.17	**0.90**	1.83	0.80

Note. The GAD-7 is made up of 7 questions addressing patient's anxiety level over a 2-week period. GAD-7 score ranges from 0-21. Total participant intervention two-tailed p = 0.0581 Total participant control two-tailed p = 0.1503; Latina intervention p = 0.2769, Control p = 0.0733

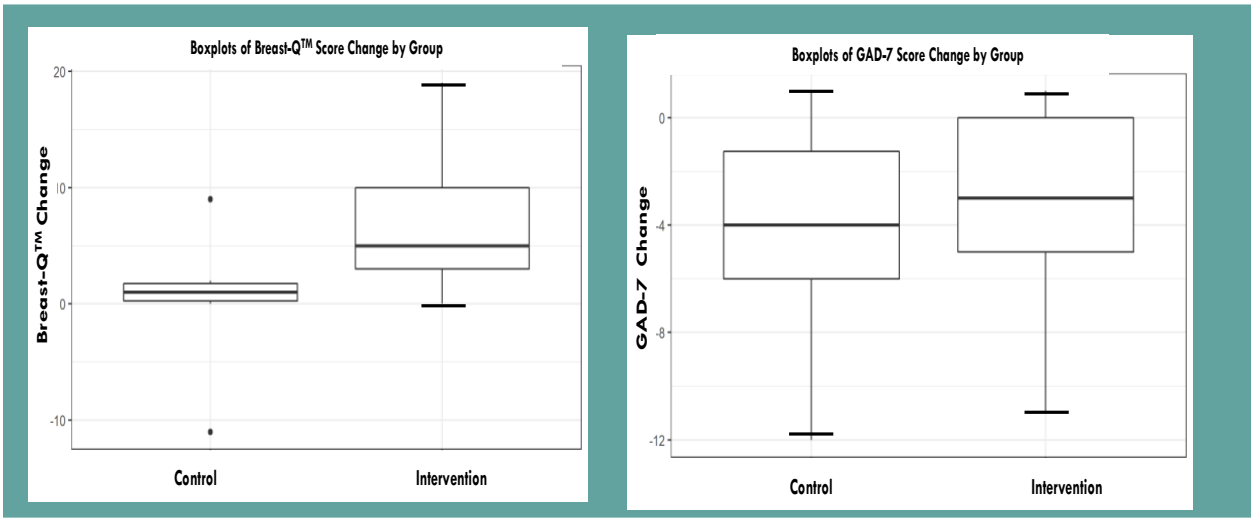
The study revealed the mean change of 7.69 for the Breast-Q™ survey, is higher in the intervention group, proving the intervention influenced patient satisfaction with information provided for the reconstructive process. This is the most important finding, although scores by conventional criteria do not consider this change to be statistically significant (see Table 6). The mean change reduction of 2.82 points, as shown in Table 6, for the GAD-7 scoring in the intervention group indicate reduced patient anxiety. However, since the sample size is small and not randomized, the inference towards a larger, more diverse population is limited.

Table 6: *Pre-test and Post-test Mean Change in Breast-Q™ and GAD-7 Survey Scores*

	Changes from Pretest to Posttest							
	Breast-Q™				GAD-7			
	Total Participants		*Latina*		Total Participants		*Latina*	
	Control	Intervention	Control	Intervention	Control	Intervention	Control	Intervention
Sample (n)	6	5	6	5	6	5	6	5
Change Score Range	-11 to 9	0-10	-11 to 9	2-11	-12 to 1	-11 to 1	-12 to 1	-5 to 1
Mean	0.33	**6.89**	0.3	5.6	-4.33	-3.67	-4.30	-2.60

Note. The unpaired t-test for the difference in BQ change scores of the total participants gives p = **0.059** The unpaired t-test for the difference in GAD-7 change scores gives p = 0.780. Latina population BQ change is p= 0.1369 and GAD-7 change score is p= 0.489

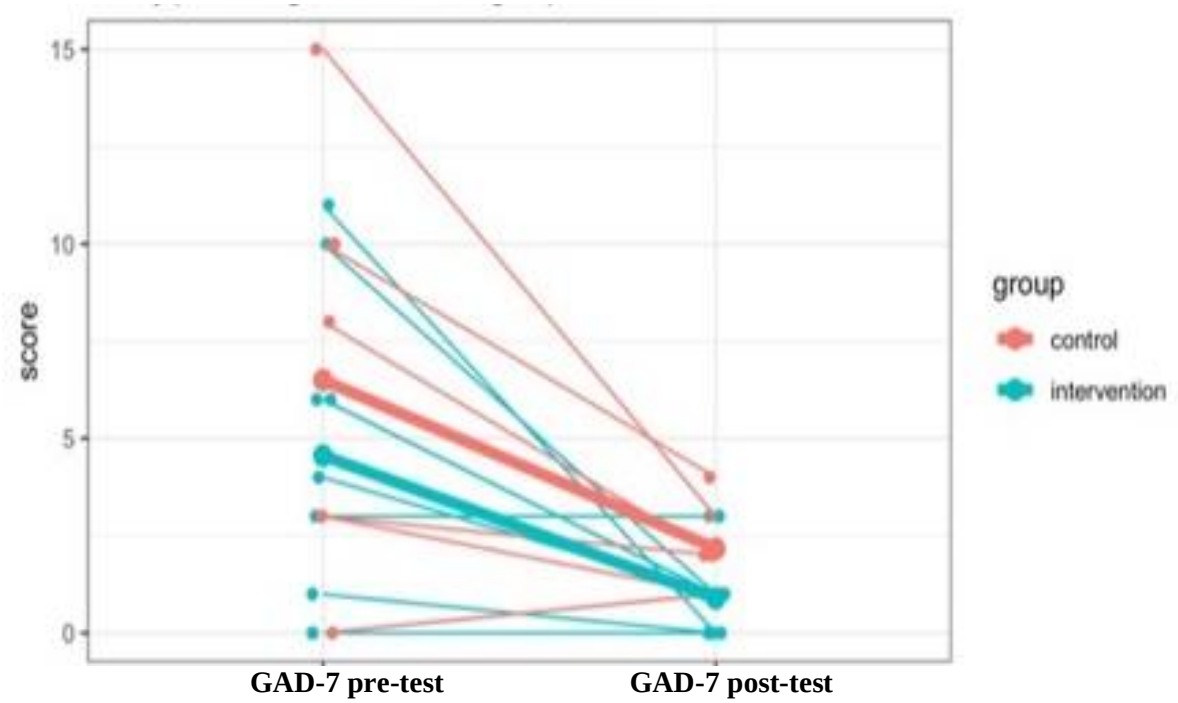
Figure 3: *Breast-Q™ and GAD-7 Boxplots of Group Score Change*



Note. The mean change for the Breast-Q™ is higher in the intervention group (**6.5 points**) than in the control group. The teach-back intervention influenced patient satisfaction as demonstrated by this survey. The mean change for the GAD-7 is slightly higher in the intervention group (**0.66 points**) than in the control group showing the intervention may have decrease patient anxiety in a few participants.

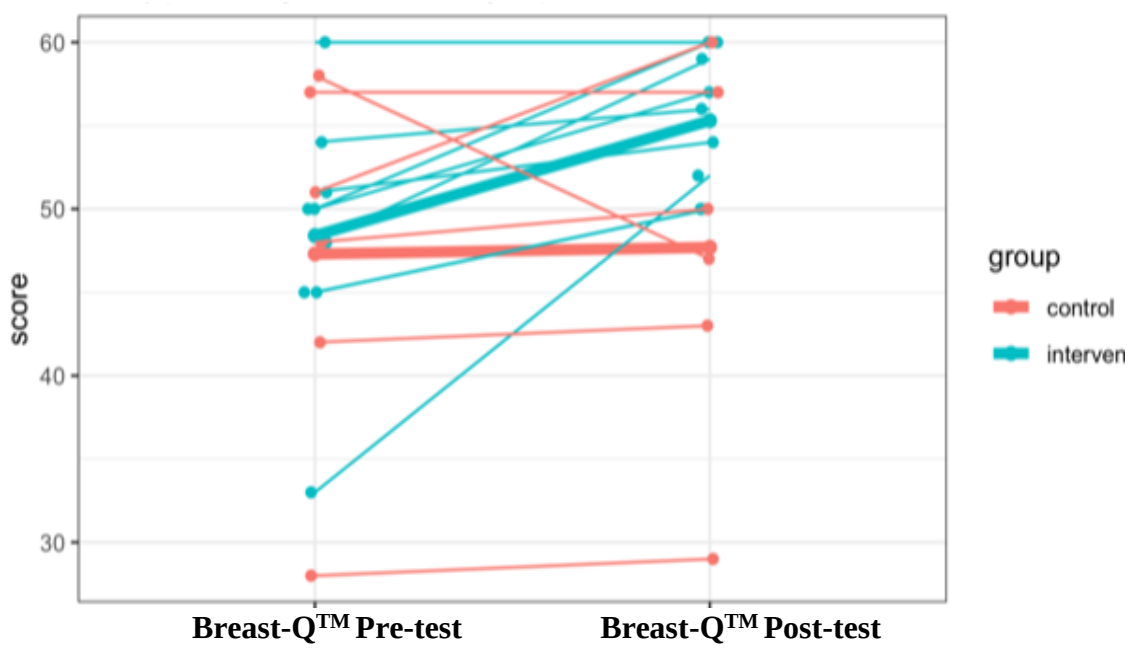
Consequently, the intervention decreased patient anxiety and increased satisfaction as demonstrated by the results of the intervention group (see Figure 3, Figure 4, and Figure 5). However, because of the small sample size, it is not possible to make any inferences about outcomes for a large population.

Figure 4: **<u>Individual and overall Participant</u>** *GAD-7 Pre- and Post-Survey Scores Chart*



Note. Figure 3 illustrates the posttest mean for the GAD-7 is lower in the intervention group than in the control group (0.9 vs. 2.17), additionally both groups had a reduction in patient anxiety. The heavier points/segments indicate group means.

Figure 5: **<u>Individual and overall Participant</u>** *Breast-Q™ Pre- and Post-Survey Scores Chart*



Note. Figure 4 illustrates the posttest mean for the Breast-Q™ is substantially higher in the intervention group than in the control group (55.33 vs. 47.64; ***p = 0.02**). Indicating that the intervention positively influenced patient satisfaction. The heavier points/segments indicate group means.

During the study, three study participants, two in the intervention, group and one in the control group did not complete the study due to illness preventing breast reconstruction surgery to occur. Verbal comments by study participants at exit interview identified participant appreciation for the use of the teach-back mannequin to better understand the process of surgical drain care. Based on these comments, this portion of the teaching intervention was most effective. Providing patients access to the NP to answer questions and address concerns outside of the normal clinic business hours as well as incorporating the teach-back method during surgical drain education, demonstrated the patient-centered focus of the study.

CHAPTER SIX: DISCUSSION

The plastic surgeon is consistently noted as the most valuable stakeholder and source of information in the breast reconstruction process (Webb et al., 2018). Addressing the educational

needs of patients is vital for optimal outcomes. The addition of the DNP-trained APRN as a key contributor in the plastic surgery reconstruction team to disseminate information and patient education was explored in this study because there was limited research conducted studying the effect a doctorally-prepared NP has on patient satisfaction and anxiety. By increasing the information provided and improving the delivery of preoperative information, according to Cohen et al. (2016), plastic surgeons will most likely not just improve the patient experience but will also increase quality of life, improve postoperative compliance, increase patient satisfaction and overall outcome. This is also true with the involvement of all other medical specialties and staff involved in the management and education of the patient (Dobke et al., 2019).

Limitations

Our target sample size of 20 study participants was not reached. Attrition due to active COVID-19 infections and operating scheduling issues contributed to the reduced number of participants. Given the small number of project participants, this study may not be representative of all breast reconstruction programs. Other factors that influenced the strength of the study was the variability of standard education provided by the plastic surgery resident, as some surgeons are very thorough in the education they provide to their patients. A preliminary assessment of resident teaching styles was conducted which revealed a marked difference based on resident teaching style. Some residents explained the breast reconstruction process using detailed medical terminology while others explained the breast reconstruction process in terms the patient could understand. All residents invited patients to ask questions but, patients did not ask. It is likely that this variability in education, especially for the control group, contributed to unremarkable/small differences in patient satisfaction scores between the two study groups. Additionally, a dedicated interpreter for this study was not possible resulting in different

interpreter utilization which also influenced study variability. Despite the noted limitations, statistical significance was reached with Breast- Q^{TM} results (p=0.0255). Proving that this DNP-lead educational intervention increased patient satisfaction with information. However, statistical significance was not reached with GAD-7 survey (p= 0.0581). Additionally, data did not meet the assumptions for these tests (e.g. normality, random sampling, group balance) so statistical inference was not possible. Therefore, although statistical significance was not attained regarding lowering patient anxiety, patients who participated in the NP-led breast reconstruction education intervention reported an increase in patient satisfaction with information.

Implications for practice and research

Under the leadership of an effective DNP APRN specializing in plastic and reconstructive surgery to facilitate the patient-centered educational intervention process using evidence-based practices. The patients should be well prepared for the reconstructive experience both peri-operatively and post-operatively using educational interventions. According to Shammas et al. (2021), to prevent dissatisfaction in care, breast reconstruction education is needed to prepare and educate the patient. Being armed with the knowledge of the breast reconstruction process allowed the patient to engage in shared decision-making which potentially contributed to an increased level of patient satisfaction. Additionally, the healthcare institution benefits financially with the decrease in emergency department visits and patient readmissions due to patient concerns regarding JP drain care that may have been averted with proper patient education. In addition, more cost-effective educational methods such as video/web-based module intervention can be designed and utilized for a long-term and for patients living in remote areas. The department of surgery staff recognized the benefits of this educational intervention and have

expressed interest in utilizing the surgical drain brochure for all breast patients discharged home postoperatively with drains.

CONCLUSION

According to Tucker (2019), using implementation science to improve healthcare is the goal of all Quality improvement (QI) projects. QI programs in healthcare institutions allow practitioners to focus on opportunities to improve patient access and effectiveness of interventions while promoting patient-centered care (Kryzanowski et al., 2019). In conclusion, implementation of QI projects focused on breast cancer patient education programs provide the opportunity to improve patient satisfaction and decrease patient anxiety, which may influence the patient's perceived quality of care in the perioperative cycle. Incorporating the breast teach-back mannequin and JP educational brochure as part of the breast reconstruction education process is an inexpensive and easy way to educate patients undergoing breast reconstruction due to breast cancer. These results should encourage plastic surgery services to provide patient-centered education about the breast reconstructive process to patients.

APPENDICES

Appendix A Breast-Q™ -Reconstruction Module Postoperative Version 2.0: Patient Experience: Satisfaction with Information

How satisfied or dissatisfied were you with the information you received from your surgeon about:

	Very Dissatisfied	Somewhat Dissatisfied	Somewhat Satisfied	Very Satisfied
a. How the breast reconstruction surgery was to be done?	**1**	**2**	**3**	**4**
b. Healing and recovery time?	**1**	**2**	**3**	**4**
c. Possible complications?	**1**	**2**	**3**	**4**
d. The options you were given regarding types of breast reconstruction?	**1**	**2**	**3**	**4**
e. The options you were given regarding timing of your breast reconstruction (i.e., same time as your mastectomy versus later)?	**1**	**2**	**3**	**4**
f. The pros and cons of the timing of your breast reconstruction?	**1**	**2**	**3**	**4**
g. How long the process of breast reconstruction would take from start to finish?	**1**	**2**	**3**	**4**
h. What size you could expect your breasts to be after reconstructive surgery?	**1**	**2**	**3**	**4**
i. How much pain to expect during recovery?	**1**	**2**	**3**	**4**
j. What you could expect your breasts to look like after surgery?	**1**	**2**	**3**	**4**

k. How long after reconstruction surgery it would take to feel like yourself/feel normal again?	**1**	**2**	**3**	**4**
l. How the surgery could affect future breast cancer screening (e.g., mammogram, self-examinations)?	**1**	**2**	**3**	**4**
m. Lack of sensation in your reconstructed breast(s) and nipple(s)?	**1**	**2**	**3**	**4**
n. What other women experience with their breast reconstruction surgery?	**1**	**2**	**3**	**4**
o. What the scars would look like?	**1**	**2**	**3**	**4**

Appendix B Generalized Anxiety Disorder Questionnaire

GAD-7

Over the last 2 weeks, how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3

Total Score ____ = Add Columns ____ + ____ + ____

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
☐	☐	☐	☐

Appendix C JP/Blake Drain Practice Mannequin

Front View

Side View

Appendix D JP/Blake Drain Brochure (English)

Caring for your Drain after Surgery

Drains are placed in wounds during surgery to drain fluid from the surgical area.

One end is placed inside your body, in the wound.

The tubing is stitched in place to your skin where it enters your body. This helps prevent it from being pulled out.

The bulb creates a gentle suction to draw out the fluid from your wound.

Drains help to:

- ✓ Prevent swelling
- ✓ Reduce risk for infection.
- ✓ Help you heal by keeping pressure off the surgical site and incision.

SCAN ME

Scan QR Code

Call your doctor if:

- Temperature above 100.4º F.
- Bulb does not stay compressed
- Foul odor
- Fluid is green or yellow
- Swelling, redness or severe pain at incision site
- Tubing comes out

If you have any questions, please call the specialty clinic.

(424) 306-4390

3/4/2022

JP/Blake Drain Care

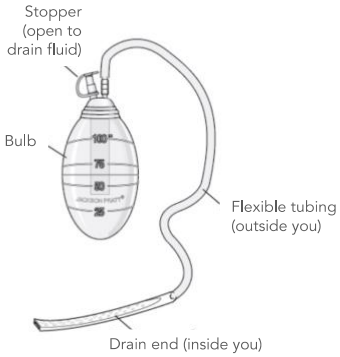
Harbor-UCLA Medical Center

Department of Surgery
Division of Plastic & Reconstructive Surgery

Phone: (424) 306-8310

Tamala Murray, MSN, FNP-BC, DNP(c)

Get to know your Drain



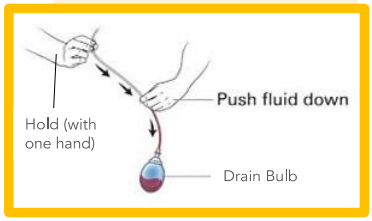
Supplies needed:

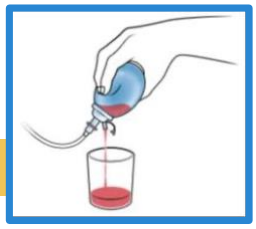
- ❑ Handwashing – soap and water
- ❑ Alcohol wipes
- ❑ Measuring cup
- ❑ Wash cloth
- ❑ Large safety pin
- ❑ Pencil or Pen
- ❑ Drain log form

✓ Empty your drain at least 2 times each day or before it is ½ full – this helps keep your wound healing

Steps – First "Milk" the tubing

1. Wash your hands
2. "Milk" the flexible tubing
   - Hold tubing above site with one hand close to your body; pinch tubing to hold it in place
   - With the other hand, slowly and firmly pull your pinched fingers down tubing use an alcohol wipe (helps it slide)
   - Continue until clots and liquid move into bulb.
   - Now you are ready to empty the bulb!





How to Empty the Drain Bulb

1. Hold bulb upright
2. Unpin drain from clothing.
3. Open stopper plug from bulb. Do not touch inside stopper or the opening
4. Hold bulb upside down over measuring cup. Keep bulb lower than wound to prevent backflow of draining into wound.
5. Squeeze bulb until it is empty.
6. Press center of bulb and compress bulb to remove air.

   Close the stopper while you keep bulb compressed, to restart suction.
7. Re-pin drain to your clothing
8. Measure liquid and note color
9. Flush fluid down toilet
10. Rinse out the measuring cup; do not rinse out the drain bulb
11. Wash and dry hands
12. Write date , time, color & amount of fluid on drain log each time you empty your drain.
13. Empty 2-3 times a day – or if the bulb is close to ½ full?
14. **Don't forget to measure and document on your drain log!**

Appendix E JP/Blake Drain (Spanish)

Cuidado de su drenaje después de la cirugía

Los drenajes se colocan en las heridas durante la cirugía para drenar el líquido del área quirúrgica.

Un extremo se coloca dentro de su cuerpo, en la herida.

El tubo se cose en su lugar a la piel donde entra en su cuerpo. Esto ayuda a evitar que se extraiga.

El bulbo crea una succión suave para extraer el líquido de la herida.

Los drenajes ayudan a:

- ✓ Prevenir la hinchazón
- ✓ Reducir el riesgo de infección.
- ✓ Ayudarle a sanar manteniendo la presión fuera del sitio quirúrgico y de la incisión.

SCAN ME

Scan QR Code

Llame a su médico si:

- La temperatura es superior a 100.4º F.
- La bombilla no permanece comprimida
- Hay mal olor
- El líquido es verde o amarillo
- Tiene hinchazón, dolor intenso o enrojecimiento en el sitio de la incisión
- Se sale el tubo

Si tiene alguna pregunta, llame a la clínica especializada.

(424) 306-4390

3/4/2022

Cuidado del drenaje JP/BLAKE

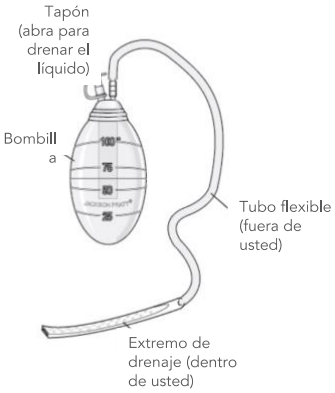
Centro Médico Harbor-UCLA

Departamento de Cirugía
División de Cirugía Plástica y Reconstructiva

Teléfono: (424) 306-8310

Tamala Murray, MSN, FNP-BC, DNP(c)

Conozca su drenaje



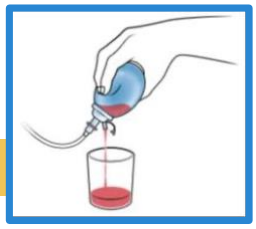
Suministros necesarios:

- ❑ Lavado de manos – agua y jabón
- ❑ Toallitas con alcohol
- ❑ Taza medidora
- ❑ Toallita para lavar
- ❑ Pasador de seguridad grande
- ❑ Lápiz o bolígrafo
- ❑ Registro de anotaciones del drenaje

✓ Vacíe su drenaje al menos 2 veces al día o antes de que esté medio lleno, esto ayuda a que su herida continúe sanando

Pasos – Primero "exprima" el tubo

1. Lávese las manos
2. "Exprima" el tubo flexible
   - Sostenga el tubo sobre el sitio con una mano cerca de su cuerpo; apriete el tubo para mantenerlo en su lugar
   - Con la otra mano, deslice lenta y firmemente apretando sus dedos hacia abajo del tubo use una toallita con alcohol (para ayudar a deslizar)
   - Continúe hasta que los coágulos y el líquido se deslicen hacia la bombilla.
   - ¡Ya está listo para vaciar la



Cómo vaciar la bombilla de drenaje

1. Sostenga la bombilla en posición vertical
2. Desprenda el drenaje de la ropa.
3. Quite el tapón de la bombilla. No toque el interior ni la boca del tapón
4. Sostenga la bombilla boca abajo sobre la taza medidora. Mantenga la bombilla más bajo que la herida para evitar el reflujo de drenaje hacia la herida.
5. Apriete la bombilla hasta que se vacíe.
6. Presione el centro de la bombilla y comprima la bombilla para sacar el aire.

   Cierre el tapón mientras mantiene la bombilla comprimida, para reiniciar la succión.
7. Vuelva a fijar el drenaje en su ropa
8. Mida el líquido y anote el color
9. Tire el líquido por el inodoro
10. Enjuague la taza medidora; no enjuague la bombilla del drenaje
11. Lávese y séquese las manos
12. Anota la fecha, hora, color y cantidad de líquido en el registro de drenaje cada vez que vacíe su drenaje JP

13. Vacíe 2-3 veces al día, o si la bombilla está casi medio llena

TABLE OF EVIDENCE

CITATION	PURPOSE	SAMPLE/SETTING	METHODS (Design, Interventions, Measures)	RESULTS	DISCUSSION, INTERPRETATION, LIMITATION OF FINDINGS
Tarkowski, R., Szmigiel, K., Rubin, A., Borowiec, G., Szelachowska, J., Jagodziński, W., Bębenek, M., Jagodziński, W., & Bębenek, M. (2017). Patient's Education Before Mastectomy Influences the Rate of Reconstructive Surgery. *Journal of Cancer Education*, *32*(3), 537–542. https://doi.org/10.1007/s13187-016-0982-9	To identify reasons for the low rate of breast reconstruction and to understand the reasons why women declined breast reconstruction after mastectomy.	Sample: Fifty women ages 29-83 with a mean age of 53. *22.4% had breast reconstruction * 24.5% expressed interest to have breast reconstruction in the future * 53.1% were not interested in breast reconstruction Setting: Wrowclaw Medical University, Lower Silesian Comprehensive Cancer Center in Wroclaw, Poland.	Design: Cross-sectional, retrospective study. Procedures: Survey of 20 closed, open and semi-open questions given to a sample of 50 women with breast cancer who received mastectomy between year 2000- 2012 Measures/Instruments used: Questions came from patients, support groups and investigators. Patients asked about the ability to obtain information on breast reconstruction surgery and financial assistance. Pearson's chi^2 nonparametric tests used to verify if there is a relationship between variables as to reasons.	Statistically significant impact on performing reconstruction or interest in reconstructive surgery in the women who obtained information before their mastectomy. 51.1% of the 72.7% of women who were educated on breast reconstruction prior to mastectomy decided to have BR. 27.3% of women who were not informed of their breast reconstruction options decided to have BR afterwards	* Nurses and surgeons play a vital role in the educating of breast cancer patients regarding the reconstruction options. * Financial barriers, fear of complications and body image played a role in decision to have breast reconstruction. * Varying factors affect decision but 34% of patients say lack of information was a contributing factor. Interpretation: Patients undergoing mastectomy should be educated on her reconstruction options available to her. When educated about breast reconstruction options, more women were amenable to undergoing reconstruction. Limitations: *Not prospective study *Length of time past between breast reconstruction decision and initiation of study *Small sample size.

CITATION	PURPOSE	SAMPLE/ SETTING	METHODS (Design, Interventions, Measures)	RESULTS	DISCUSSION, INTERPRETATION, LIMITATION OF FINDINGS
Henn, D., & Momeni, A. (2020). A standardized patient education class as a vehicle to improving shared decision-making and increasing access to breast reconstruction. *Journal of Plastic, Reconstructive & Aesthetic Surgery*, *73*(8), 1534–1539. https://doi.org/10.1016/j.bjps.2020.02.032	To analyze impact patient education classes prior to breast reconstruction on 1.Number of new patient consultations. 2.Duration of patient consultations. 3.Information quality 4.Decision autonomy	Sample: 50 selected for study 28 women responded *2 Groups: Study group n=13 (class & control group n=15 (no class) Setting: Stanford University Hospital-Woman's Cancer Center	Design: Prospective cohort study Survey instruments: -9-item Shared Decision-Making Questionnaire - Breast-Q Reconstruction Questionnaire both sent via email -Introduction education class 2 groups compared *Group 1-Thirty patients sent questionnaire - 9-item Shared Decision-Making Questionnaire & Breast-Q Reconstruction Questionnaire-respondents also had introduction education class Compared to *Group 2-Twenty patients who had standard care with no study intervention * Standard care was provider consultation After reconstruction surgery, groups sent both questionnaire results compared Measures: Scores form Breast-Q questionnaire & Shared Decision-Making questionnaire	Statistical analysis performed using Prism 8 to score questionnaire responses Variables compared using T-test and Chi square or Fisher test. SD<0.05 considered statistically significant P=0.52 Duration of new consultation significantly less in Group 1 n=13 Improved ability to add more patients on the schedule with equated to increased patient access to reconstructive services *No statistical significance in patient satisfaction group 1 vs group 2	*Patient satisfaction and quality of life are improved when care is patient centered. Key component is shared decision making. *Breast reconstruction education is beneficial to improving patient outcomes but no statistical difference as to method education is provided ie Class vs provider consultation Limitations of Findings: Weakness: Small sample size in both groups. Strengths: Prospective study Interpretation/Implications for future: Providing an introductory education class before a patient has the plastic surgery pre reconstruction visit is beneficial in decreasing surgeon consultation time. Allows improved access to care and maintained patient's perceived shared decision-making ability Preoperative education class in busy breast cancer surgery centers adopting this approach can increase patient's access to care by increasing patient volume which can increase revenue

CITATION	PURPOSE	SAMPLE/SETTING	METHODS (Design, Interventions, Measures)	RESULTS	DISCUSSION, INTERPRETATION, LIMITATION OF FINDINGS
Cohen, W. A., Ballard, T. N., Hamill, J. B., Kim, H. M., Chen, X., Klassen, A., Wilkins, E. G., & Pusic, A. L. (2016). Understanding and Optimizing the Patient Experience in Breast Reconstruction. *Annals of Plastic Surgery*, *77*(2), 237–241. https://.doi.org/10.1097/-SAP.0000000000000550	To evaluate the level of patient satisfaction amongst breast reconstruction patients based on their experience of care to identify areas for quality improvement	Sample: 2093 recruited with 1534 active participants from a multicenter cohort of patients ages 18 and older who are having immediate or delayed mastectomy reconstruction for the first time for the prophylactic and active treatment of breast cancer. Setting: Eleven healthcare centers across North America	Prospective, multicenter cohort study · non-randomized · non-controlled BREAST-Q satisfaction with Care questionnaire survey regarding: · Information received · Surgeon · Medical team · Office staff Study participants surveyed at 3 months post mastectomy Measures: Breast -Q satisfaction score	73% (1534) of recruited participants (2093) completed BREAST-Q satisfaction questionnaire Satisfaction scores across the 11 sites were significantly different Lowest questionnaire satisfaction score was regarding information received prior to surgery · 72.8 with SD of 17.7 · Non-black and non-white patients least satisfied Immediate breast reconstruction patients less satisfied vs delayed reconstruction patients	Discussion: Patient education very important to the overall patient breast reconstruction experience and perceived satisfaction Interpretation: Most study participants satisfied with healthcare interaction but identified room for improvement regarding the information provided regarding breast reconstruction Limitations: · Questionnaire does not allow for free text so patient can expand on their answers · Unable to ascertain why patient was dissatisfied · Study participant selection bias may occur Implications for future: Findings can be used as guide health care workers in how they practice improving the patient's experience as to improve the quality of care.

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Pestana I. A. (2020). Patient-Guided Breast Reconstruction Education. *Cureus*, *12*(7), e9070. https://doi.org/10.7759/cureus.9070	To determine if surgeon educational discussion or style affected the patient's use of educational resources	Sample: Breast reconstruction patients 150 women 2 groups *50 preoperative *100 postoperative Age: Preoperative group 52.7 (±9.5) years Postopertive group: 52.8 (±10.4) years Diverse racial population Setting: Wake Forest Baptist Medical Center, Winston-Salem, North Carolina	Methods: Two IRB reviewed questionnaires administered Focused on ranking educational resources utilized Design: 3-year study Preoperative and postoperative survey Questions asked pertaining to: Timing of information · Desired educational content · Peer educational support Measures: Scores from questionnaires	*No significant difference noted between resources desired vs resources utilized *Surgeons utilized as the educational resource postoperatively more than preoperatively ($p < 0.05$) *Resource utilization ranking 1. Surgeon 2. Internet 3. Pamphlet 4. Interactive compact disc *66% of patients voice desire to speak other patients who have had breast reconstruction	Discussion: How, what, when and in what format to provide breast reconstruction patient information continues to be challenging for plastic surgeons. *The timing of educational intervention is the greatest factor in determining the effectiveness Interpretation: Patients undergoing breast reconstruction surgery following mastectomy desire education regarding: · Surgical procedure performed · What to expect postoperatively Receiving this information from a reliable source: the plastic surgeon is preferred but other available resources also desired Limitations: · Single center study population limited to patients at Wake Forest Baptist Medical Center · Limited resources preoperatively · Lack of inclusion of alternative methods of disseminating breast reconstruction information · Disparity in number of preoperative groups vs postoperative groups · Specifics regarding questionnaires used not given Implications for future: The better informed the patient is, the higher the perceived quality of care which will lead to better patient outcomes.

CITATION	PURPOSE	SAMPLE/SETTING	METHODS (Design, Interventions, Measures)	RESULTS	DISCUSSION, INTERPRETATION, LIMITATION OF FINDINGS
Webb, C., Sharma, V., & Temple-Oberle, C. (2018). Delivering Breast Reconstruction Information to Patients: Women Report on Preferred Information Delivery Styles and Options. *Plastic Surgery*, *26*(1), 26–32. https://doi.org/10.1177/22925503177501739	To decrease the feeling of regret and improve: -patient education -teaching modalities -patient satisfaction by identifying ways to provide the patient undergoing breast reconstruction with vital information.	Sample: -19 patients qualified Age range: *38-69 years *mean age=54 years old -17 patients completed BREAST-Q questionnaire Setting: Department of Surgery & Oncology, University of Calgary, Calgary, Alberta, Canada	Methods: Qualitative study using face-to-face structured interview BREAST-Q questionnaire utilized 2 independent researchers analyzed questionnaire results Measures: BREAST-Q-score	Patients appreciated accessing information from multiple sources Mean Breast-Q score 74.7 (range 50-100) Low information satisfaction scores were significant both -Clinically & -Statistically High satisfaction with plastic surgeon Score: 95.7 (range 60-100) Patient expressed: Information overload led to: · Decreased willingness and desire to utilize information	Discussion: To improve patient satisfaction and achieve expected patient outcomes, it is important to focus on the educational needs of women undergoing breast reconstruction. Identifying the deficiencies in the way this information is disseminated and presented to the patients will enable them to make informed decisions. Interpretation: -There is a lack of information given to women who will be undergoing breast reconstruction surgery. - Delivery style of information should be considered. - Patient satisfaction level is directly related to any feeling of regret they may experience following surgery Limitations: · Nurse navigator used for study had limited breast reconstruction knowledge Small sample size

CITATION	PURPOSE	SAMPLE/SETTING	METHODS (Design, Interventions, Measures)	RESULTS	DISCUSSION, INTERPRETATION, LIMITATION OF FINDINGS
Dobke, M. K., Yee, B., Mackert, G. A., Zhu, W. Y., & Blair, S. L. (2019). The Influence of Patient Exposure to Breast Reconstruction Approaches and Education on Patient Choices in Breast Cancer Treatment. *Annals of Plastic Surgery*, *83*(2), 206–210. https://doi.org/10.1097/SAP.0000000000001661	To investigate how the exposure to breast reconstruction options impacts diverse patient choices pertaining to the management of the cancer itself without care access bias.	Sample: 90 patients with the primary diagnosis of breast cancer admitted for plastic surgery consultation and treatment between 2012 and 2016. Ages: 23-88 years Mean age: 53.5 years Setting: Comprehensive Breast Health Care Program at The University of California, San Diego	Methods: Single-institution survey-based analysis Design: Patients surveyed regarding any modification of their original personal choices and requests following plastic surgery consultation and prior to finalization of the overall oncological management plan Measures: Scores from survey	32 patients [35.6%]) indicated that they benefited from the plastic surgeon's guidance regarding implications of variations in the definition of "safe" 40 patients (44%) returned to their surgical or medical oncologist considering or requesting changes of the preliminary breast cancer management plan. None of the patients indicated that the plastic surgeon provided different information related to outcomes and risks. Education provided by the plastic surgeon was perceived as affirmation or expansion of earlier information within the final expected aesthetic outcome perspective.	Discussion: Comprehensive management of breast cancer must include modern and personalized and effective treatment. Providers must have diverse expertise and skills. Interpretation: Different providers impact each other, sometimes providing contradictory messages, recommendations, and management. Patient education before the commencement of cancer treatment influences the rate of reconstructive procedures Reconstructive surgeons should provide unbiased education Limitations: Small sample size Single institution study

CITATION	PURPOSE	SAMPLE/SETTING	METHODS (Design, Interventions, Measures)	RESULTS	DISCUSSION, INTERPRETATION, LIMITATION OF FINDINGS
Frisell, A., Lagergren, J., & de Boniface, J. (2016), National study of the impact of patient information and involvement in decision-making on immediate breast reconstruction rates. *British Journal of Surgery*, 103(12), 1640-1648. https://doi.org/10.1002/bjs.10286	To analyze reasons for the disparity between women choosing whether to have immediate reconstruction.	Sample: All women with a newly diagnosed primary breast cancer who were registered as having had a mastectomy as the final surgical intervention in Sweden in 2013. Setting: Sweden- Swedish National Breast Cancer Registry	Methods: -Data were retrieved from the Swedish National Breast Cancer Registry -Questionnaires regarding patient information and involvement in preoperative decision-making sent to women still alive in 2015. Response rate was 76·3 per cent (2217 of 2906) after one postal reminder Design: cross-sectional retrospective audit, covering all women with a newly diagnosed primary breast cancer who were registered as having had a mastectomy as the final surgical intervention in Sweden in 2013.	Immediate Breast Reconstruction was performed in 270 (9·0 per cent) of 2996 mastectomies. The differences in reconstruction rates between regions were marked ($P <$ 0·001) Region with highest rates of immediate breast reconstruction had in-house plastic surgery services where women participated in the decision-making process.	Discussion: Regional differences in Immediate Breast Reconstruction (IBR) rates were thus caused mainly by a lack of patient information and participation in the decision-making process, as well as a lack of in-house plastic surgery services. Older women were significantly less likely to receive information on IBR, and age was an independent predictor of not receiving IBR. Interpretation: Women who reported no participation in the preoperative decision-making process and those not informed about immediate reconstructive options had a low likelihood of IBR. Availability of in-house plastic surgery services increased the chance of patients being informed about IBR options Informed decision-making and the availability of individual choices positively affect quality of life and levels of satisfaction, underlining the need for evidence-based, shared patient education in the face of mastectomy planning. Limitations of Findings: National study in Sweden. May not be able to apply results/findings to patients in the United States

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