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Satisfaction With Expectations-Based Education in Women Undergoing Breast Reconstruction

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Women undergoing breast reconstruction sometimes have unrealistic or unformed expectations regarding the reconstructive process and outcomes. The objectives of this study were to assess preoperative expectations in women undergoing mastectomy and initial breast reconstruction, provide expectations-based education, and evaluate satisfaction with education. Fifty-one women undergoing mastectomy and breast tissue expander placement participated in this study. At a preoperative education appointment, participants completed a questionnaire to determine whether their expectations were realistic, unrealistic, or unformed. A nurse practitioner reviewed the results and provided patient-centered, expectations-based education to modify expectations from unrealistic to realistic or to set expectations from unformed to realistic. Four to 6 weeks after surgery, a second questionnaire was provided to assess perceived satisfaction with education. Unrealistic and unformed expectations were identified related to complications, pain, scarring, sensation, symmetry, and aesthetic results. After receiving patient-centered, expectations-based preoperative education, participants agreed they had received the appropriate amount of information and felt well prepared for their surgery and recovery. Most participants reported they were aware of possible complications, had effective tools to manage their pain, and had received adequate information about scarring and sensation changes. Some participants continued to have unrealistic or unformed expectations related to aesthetic results. Women undergoing breast reconstruction often have unrealistic or unformed expectations before surgery. Identifying these expectations and proving expectations-based education resulted in satisfaction with information provided.

Breast cancer is the most common form of cancer in women (excluding skin cancers) (Centers for Disease Control and Prevention, 2020). A woman's lifetime risk of breast cancer is 13%, and more than 270,000 cases are expected to be diagnosed in 2020 alone (American Cancer Society [ACS], 2019a). Surgical intervention is one of the treatments for breast cancer. Depending on the cancer characteristics, a woman may choose to undergo either breast conservation surgery (BCS) or mastectomy (ACS, 2019b). Many women choose mastectomy, and approximately 21.9% of women undergo breast reconstruction with breast tissue expanders at the time of mastectomy (Sergesketter et al., 2019).

Women choose breast reconstruction after mastectomy for many reasons, including an attempt at restoration of the body (Cheng et al., 2018), the belief that a mastectomy scar without breasts would be distressing, and the desire to see breasts upon waking after a mastectomy (Manne et al., 2016). Women who undergo breast reconstruction may have higher satisfaction with their breasts than those undergoing BCS or mastectomy without reconstruction (Howes et al., 2016). Many women who undergo breast reconstruction after mastectomy report more confidence, more attractiveness, and feelings of "wholeness" and more "closure" of their breast cancer diagnosis and treatment than women who undergo mastectomy without immediate reconstruction (Spector et al., 2011). Although some researchers have reported that reconstruction provides a positive psychological

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impact with improved emotional adjustment (Spector et al., 2011) and a decrease in depression and anxiety (Chen et al., 2018), others report women may view their reconstruction only as a visual replication (Litvin & Jacoby, 2020). Some women experience dissatisfaction or worse results than they expected (Steffen et al., 2017).

To prevent dissatisfaction with breast reconstruction surgery results, women need to have realistic expectations (Steffen et al., 2017). Expectations are the beliefs an individual develops about something that will happen or how successful something may be (Merriam-Webster, n.d.). Establishing realistic expectations is vital in women undergoing breast reconstruction because women who have unrealistic expectations are more likely to be dissatisfied with their reconstructed breasts (Glassey et al., 2016). Women with unrealistic expectations are also more likely to experience decision regret, a negative feeling that involves distress regarding a decision after the decision has been made (Becerra Pérez et al., 2016). Decision regret in women undergoing breast reconstruction is related to negative body image and psychological distress. Clinicians should provide patients with complete information that is realistic and communicated skillfully to prevent unrealistic expectations (Sheehan et al., 2008).

In the service industry, expectations are the customer's prediction of what a transaction will deliver (Habel et al., 2016). Expectations play a large role in consumerism, and health care organizations are paying more attention to the expectations of the patient as a consumer (Clarin et al., 2016). Organizations are paying more attention because of the relationship of expectations to satisfaction and quality of life (Auer et al., 2016). Patient dissatisfaction can result from unmet or unfulfilled expectations. Satisfaction can be described as the difference between an individual's expectations and their perception of the outcome (Thompson & Sunol, 1995). Consumers, or patients, choosing to undergo surgery expect to have postoperative outcomes that meet their expectations (Chan, 2017) whether they are undergoing orthopedic surgery (Swarup et al., 2019), cardiac surgery (Kube et al., 2020), or breast surgery (Flitcroft et al., 2017b). Patients develop beliefs about the surgical experience and outcomes and when these expectations are not met, there is the risk of dissatisfaction with the service provided (Ghomrawi et al., 2020). Preoperative education can help inform the patient and convey realistic expectations (Flitcroft et al., 2017a). Assessing and managing expectations can improve education and satisfaction (Pusic et al., 2012). Modifying unrealistic expectations to realistic is important because expectations are related to satisfaction (Flitcroft et al., 2017b).

Information provided before surgery is associated with both expectations and satisfaction. When women do not receive enough information or do not understand information, they are less likely to be satisfied (Contant et al., 2000; Nissen et al., 2002; Spector et al., 2011). Before reconstructive surgery, women often research the topic and obtain information from multiple sources such as friends and the internet (Spector et al., 2011). However, the most important source of information is the reconstructive surgeon (Pestana, 2020) and the surgical team. The information provided during the surgeon's initial consultation and complemented by education provided by nurses and other disciplines is likely to improve knowledge and decrease anxiety in women undergoing breast surgery (Ibrahim et al., 2018). Information provided needs to be complete and unambiguous (Carr et al., 2019) because information that is incomplete or poorly understood may result in unmet expectations and dissatisfaction (Abu-Nab & Grunfeld, 2007) while patient-centered education positively affects satisfaction (Temple-Oberle et al., 2014).

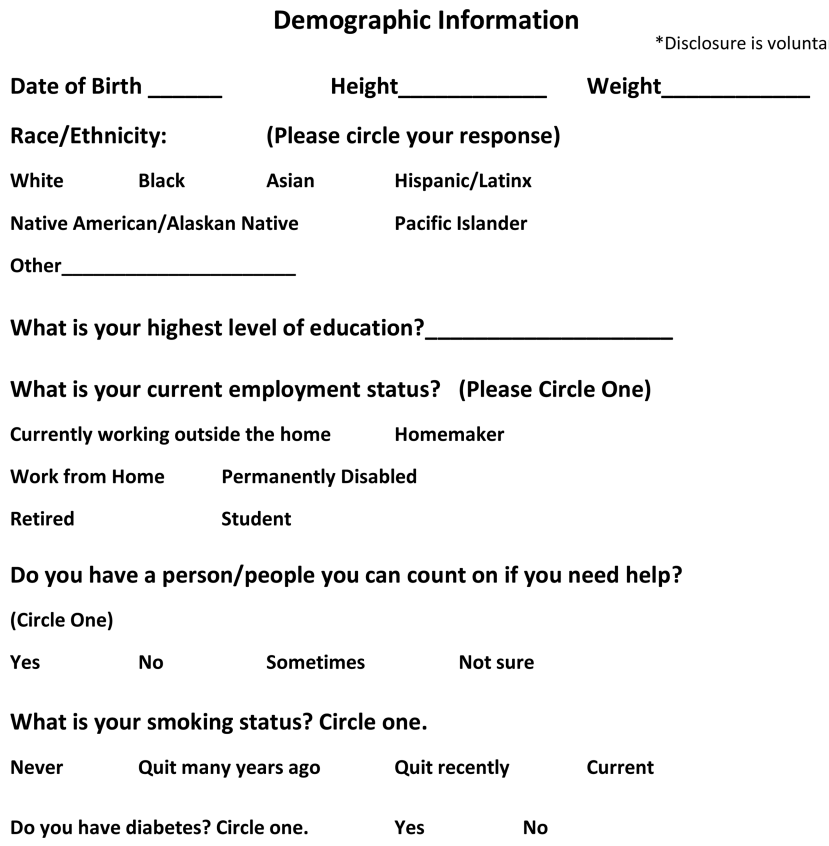
A woman's expectations about postoperative outcomes should be assessed early in the preoperative course (Carr et al., 2019). Although expectations may be classified in different manners such as clear, vague, unarticulated (Mazza, 2013), unfulfilled, unrecognized (Snell et al., 2010), or realistic, unrealistic, or unformed (Tedesco & Loerzel, 2020), the goal should be to evaluate presurgical expectations and provide clear education to correct expectations that are not realistic. Therefore, the objectives of this study were to assess preoperative expectations in women undergoing mastectomy and initial breast reconstruction, provide expectations-based education, and evaluate the impact of education on those presurgical expectations.

METHODS

Participants and Procedures

This study was conducted at a reconstructive surgery practice specializing in cancer reconstruction in Orlando, FL. Participants included English-speaking women, aged 18 years or older, electing to undergo immediate breast tissue expander reconstruction after mastectomy due to breast cancer, who had already had a surgical consultation with their breast surgeon and their reconstructive surgeon. Patients undergoing autologous or implant-based reconstruction immediately after mastectomy were excluded. The study was submitted to the institutional review board at Orlando Health and determined to be exempt from review. Verbal consent was obtained from each participant at the preoperative visit prior to any data being collected.

Data were collected twice. At the preoperative visit, the patient was provided a copy of the demographics sheet (Figure 1) and a survey (Preoperative Expectations Questionnaire [PEQ]) about their surgical expectations (Figure 2). The patient completed both forms and then these were collected before the preoperative education began. Next, one of three nurse practitioners provided standard preoperative education, which included information



Demographic Information

*Disclosure is voluntary

Date of Birth _____ Height_____ Weight_____

Race/Ethnicity: (Please circle your response)

White Black Asian Hispanic/Latinx

Native American/Alaskan Native Pacific Islander

Other_____

What is your highest level of education?_____

What is your current employment status? (Please Circle One)

Currently working outside the home Homemaker

Work from Home Permanently Disabled

Retired Student

Do you have a person/people you can count on if you need help?

(Circle One)

Yes No Sometimes Not sure

What is your smoking status? Circle one.

Never Quit many years ago Quit recently Current

Do you have diabetes? Circle one. Yes No

FIGURE 1. Demographic information.

about the surgical process, incision care, drain care, activity restrictions, approved exercises, pain management, and surgery risks. In addition, the PEQ was reviewed and used to provide patient-centered education based on PEQ responses provided. For example, if the patient expressed unrealistic expectations related to scarring, realistic expectations related to scarring were discussed. If the patient had unformed expectations related to pain with breast tissue expander placement, education was provided to help develop realistic expectations. The nurse practitioners ensured that all free responses written on the PEQ were addressed during the education session.

At a postoperative visit 4–6 weeks following surgery, participants completed an education and expectations follow-up form (Postoperative Evaluation of Breast Reconstruction Education Provided Preoperatively [PEBREPP]) to assess the effectiveness of the patient-centered education (Figure 3). Upon completion, the PEBREPP was collected and all data were entered into an Excel spreadsheet and analyzed using descriptive statistics.

Instruments

Preoperative Expectations Questionnaire

The PEQ was developed for this study and used to assess a woman's presurgical expectations related to mastectomy and tissue expander placement. The PEQ is based on the PEBREPP, which postoperatively assesses satisfaction with information provided at the preoperative visit. The PEQ was designed to be used with the PEBREPP. The PEQ is a 17-item questionnaire with 16 Likert-type responses and one free response. The PEQ assesses a woman's expectations regarding education needs, complications, pain, appearance of the reconstructed breast, sensation, expansion, scarring, support, and aesthetics by asking whether they agree, disagree, or are unsure about aspects of the surgical experience. For example: "I am at a very low risk for complication due to surgery." In addition, an open-ended question "What else would you like to discuss?" is included to provide the opportunity for additional education.

Answers to the PEQ allow the provider to determine whether the expectations are realistic (likely to occur or be present after surgery), unrealistic (unlikely to occur or be present after surgery), or unformed (the participant does not know what to expect) and provides the basis for patient-centered education at the preoperative visit. The PEQ was tested for face and content validity by patients who have undergone reconstructive surgery, patients yet to undergo surgery, and experts in patient education and breast reconstruction. The PEQ has not been tested for reliability.

Questions	Please Circle One Response.
1. I want to know as much as possible about my upcoming breast reconstruction surgery so I will feel prepared.	Strongly Agree • Agree • Disagree • Strongly Disagree Not Sure
2. I want to be involved with all decisions about my breast reconstruction.	Strongly Agree • Agree • Disagree • Strongly Disagree Not Sure
3. I am at a very low risk of complications undergoing breast reconstruction.	Strongly Agree • Agree • Disagree • Strongly Disagree Not Sure
4. I believe pain that is well controlled means pain is absent.	Strongly Agree • Agree • Disagree • Strongly Disagree Not Sure
5. My breasts will look completely formed after my breast tissue expander placement.	Strongly Agree • Agree • Disagree • Strongly Disagree Not Sure
6. My chest will feel tight while I have breast tissue expanders in place.	Strongly Agree • Agree • Disagree • Strongly Disagree Not Sure
7. I will experience discomfort with each breast tissue expander fill.	Strongly Agree • Agree • Disagree • Strongly Disagree Not Sure
8. I will have full sensation to my breast following mastectomy and breast tissue expander placement.	Strongly Agree • Agree • Disagree • Strongly Disagree Not Sure
9. I will need someone to help me in my physical recovery at home.	Strongly Agree • Agree • Disagree • Strongly Disagree Not Sure
10. I believe my scars will not be visible one year after surgery.	Strongly Agree • Agree • Disagree • Strongly Disagree Not Sure
11. I have a good support system to help me cope with my emotional needs throughout my reconstruction process.	Strongly Agree • Agree • Disagree • Strongly Disagree Not Sure
12. My breasts will look like my pre-surgery, natural breasts after my breast reconstruction surgeries are complete.	Strongly Agree • Agree • Disagree • Strongly Disagree Not Sure

FIGURE 2. Presurgical Expectations Questionnaire. This figure is available in color online (www.psnjournalonline.com).

13. My breasts will look identical in size and shape after reconstruction surgery.	**Strongly Agree ● Agree ● Disagree ● Strongly Disagree Not Sure**
14. I will have sensation in my reconstructed nipples.	**Strongly Agree ● Agree ● Disagree ● Strongly Disagree Not Sure**
15. I believe my breast reconstruction is very similar to cosmetic breast surgery.	**Strongly Agree ● Agree ● Disagree ● Strongly Disagree Not Sure**
16. My breast reconstruction will include a process of several surgeries-- not just one surgery.	**Strongly Agree ● Agree ● Disagree ● Strongly Disagree Not Sure**
17. What else would you like to discuss?	

FIGURE 2. Continued.

Postoperative Evaluation of Breast Reconstruction Education Provided Preoperatively

The PEBREPP is a questionnaire that evaluates the participant's perceived satisfaction with preoperative education and assesses whether surgical expectations were met on the basis of the preoperative education they received. This instrument was developed by the principal investigator and has established content and face validity (Tedesco & Loerzel, 2020). The instrument includes 21 items, with 17 responses provided on a 5-point Likert scale and four free-response questions. The PEBREPP assesses whether the participant received enough preoperative information and felt prepared for the surgery, hospital, and recovery experience as a result of the information provided before surgery. It also evaluates whether they received enough information regarding pain, complications, and scarring and whether expectations were met regarding looking at the chest after surgery, the expansion process, and aesthetic results.

Data Analysis

All data were entered into an Excel spreadsheet. After data were entered, they were verified for accuracy with a second check. Excel was used to calculate frequencies and percentages of demographic data and results of the PEQ and the PEBREPP. Before analyzing the PEBREPP data, the 5-point Likert-type responses were collapsed into three categories, including "agree," "neutral," and "disagree" for ease of analysis.

RESULTS

A total of 67 patients were enrolled in the study. Of these patients, 12 were disenrolled from the study because of postoperative follow-up outside the 4-week parameter due to COVID-19-restricted clinic visits. In addition, one participant declined to complete the postoperative survey, one participant did not adhere to follow-up appointments postoperatively, and another canceled her surgery. A total of 51 participants completed the study (Table 1).

Preoperative Expectations Questionnaire

Based on the results of the PEQ, most women (96.1%) wanted to know as much as possible about their breast reconstruction so they would feel prepared and wanted to be a part of the decision-making process (98%). Most women (96.1%) had either unrealistic or unformed expectations related to the risk of complications when undergoing mastectomy and breast tissue expander placement. Most women (58%) also had unrealistic or unformed expectations that their reconstructed breasts would be identical in appearance and that their breasts would look completely formed after the placement of tissue expanders (51%).

Questions	Please Circle One				
1. I received an appropriate amount of preoperative education.	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
	Additional Comments:				
2. Based on my preoperative education, I felt well-prepared for my surgery.	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
	Additional Comments:				
3. I believe the preoperative education that was provided increased my knowledge related to my surgery.	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
	Additional Comments:				
4. Based on the information I received at my preoperative education appointment, I was well-prepared for the hospital experience.	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
	Additional Comments:				
5. Based on my preoperative education I knew what to expect in my recovery period during the first 4-6 weeks after surgery.	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
	Additional Comments:				
6. Based on my preoperative education, I had knowledge of methods to help manage my postoperative pain.	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
	Additional Comments:				
7. Based on my preoperative education, I knew what to expect during my expansion process.	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
	Additional Comments:				
8. Based on my preoperative education, I was aware of the possibility of complications after my surgery.	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
	Additional Comments:				

FIGURE 3. Postoperative Evaluation of Breast Reconstruction Education Provided Preoperatively. This figure is available in color online (www.psnjournalonline.com).

8a. I experienced complications after surgery	Yes	No			
	If Yes, please specify type of complication.				
9. Based on my preoperative education, I knew what to expect when I looked at my chest after surgery.	**Strongly Agree**	**Agree**	**Neither**	**Disagree**	**Strongly Disagree**
	Additional Comments:				
10. Based on my preoperative I was provided with adequate information about scars that may be present.	**Strongly Agree**	**Agree**	**Neither**	**Disagree**	**Strongly Disagree**
	Additional Comments:				
11. Based on my preoperative education, I understood I would have a change in the sensation to my chest area.	**Strongly Agree**	**Agree**	**Neither**	**Disagree**	**Strongly Disagree**
	Additional Comments:				
12. I believe the provided preoperative education decreased my anxiety in the days LEADING UP TO my surgery.	**Strongly Agree**	**Agree**	**Neither**	**Disagree**	**Strongly Disagree**
	Additional Comments:				
13. I believe the provided preoperative education decreased my anxiety AFTER surgery.	**Strongly Agree**	**Agree**	**Neither**	**Disagree**	**Strongly Disagree**
	Additional Comments:				
14. Based on my preoperative education, I have further understanding of my future reconstruction options.	**Strongly Agree**	**Agree**	**Neither**	**Disagree**	**Strongly Disagree**
	Additional Comments:				
15. I believe my reconstructed breasts will have the same appearance as my natural breasts.	**Strongly Agree**	**Agree**	**Neither**	**Disagree**	**Strongly Disagree**
	Additional Comments:				
16. Following reconstruction, I believe my reconstructed right breast will appear identical to my left breast.	**Strongly Agree**	**Agree**	**Neither**	**Disagree**	**Strongly Disagree**
	Additional Comments:				

FIGURE 3. Continued.

17. What other information could have been provided to better prepare you for your surgery? Please specify.					
18. In what ways do you believe your preoperative education increased your knowledge of your procedure? Please specify.					
19. What did you experience that you did not expect despite the education you received before surgery? Please specify.					
20. What do you recommend we tell other women before surgery? Please specify.					
21. Understanding that each woman's experience is different, based on my preoperative education, this phase of my reconstruction experience was as I was told it would be.	**Strongly Agree**	**Agree**	**Neither**	**Disagree**	**Strongly Disagree**
	Additional Comments:				

FIGURE 3. Continued.

A large number of women had unrealistic or unformed expectations regarding postoperative pain (47.1%), discomfort with each expansion (47.1%), scarring (43.1%), breasts appearing like their presurgical, natural breasts (45.1%), the aesthetic appearance of the breast reconstruction similar to cosmetic breast surgery (43.1%), and chest sensation after surgery (35.3%) (Table 2). Based on the free-response question, the most common questions a woman had after surgical consultation but before preoperative education involved the expansion process ($n = 6$), the time between surgeries ($n = 6$), recovery time ($n = 4$), and restrictions following surgery ($n = 3$).

Postoperative Evaluation of Breast Reconstruction Education Provided Preoperatively

Overall, participants were satisfied with the patient-centered, expectations-based education. All participants (100%) reported that they felt well prepared for surgery, the hospital experience, and the recovery period based on their preoperative education. Most participants agreed that they were aware of the possible complications following mastectomy and breast tissue expander placement (98%) based on their preoperative education. They had methods to help manage their postoperative pain (94.1%). Most women reported they were provided with adequate information regarding postoperative scarring (92.2%), and they knew to expect changes in sensation to the chest area (96.1%) (Table 3).

Expectations regarding the aesthetic appearance of the breast resulted in little change. Following preoperative education, 49.1% ($n = 24$) still had unrealistic or unformed expectations that their final reconstructed breast would have the same appearance as their presurgical natural breasts. Also, 49.1% ($n = 24$) had unrealistic or unformed expectations that their final reconstructed breasts would appear identical in symmetry and shape. Overall, 82.4% ($n = 42$) of participants agreed that this phase of the reconstruction experience was as they expected it would be, based upon their preoperative education.

DISCUSSION

The results of this study highlight the importance of preoperative education. Although the participants had

TABLE 1 Baseline Demographic Characteristics for the Sample ($N = 51$)

Variable	n (%)
Race	
Caucasian	33 (64.7)
Black	6 (11.8)
Hispanic/Latinx	10 (19.6)
Hispanic/White	2 (3.9)
Education	
High school	8 (15.7)
Some college/trade school	26 (51)
Bachelor's degree	12 (23.5)
Graduate level	5 (9.8)
Employment	
Currently working	37 (72.5)
Homemaker	5 (9.8)
Works at home	4 (7.8)
Retired	0
Student	4 (7.8)
Permanently disabled	0
Other	1 (2)
Social support	
Yes	49 (96.1)
No	0
Sometimes	1 (1.9)
Not sure	1 (1.9)
Smoking status	
Never	32 (62.7)
Quit many years ago	18 (35.3)
Quit recently	1 (2)
Current smoker	0
Diabetes	
Yes	3 (5.9)
No	48 (94.1)
Body mass index	
<19	1 (1.9)
19.1–24.9	20 (39.2)
25–29.9	14 (27.5)
30–39.9	15 (29.4)
≥40	1 (1.9)

received an in-depth consultation with their surgeon, they still had unrealistic or unformed expectations at the time of the preoperative education appointment. Although this information may have been provided, the information was not retained, whether due to information overload, anxiety, or lack of understanding (McNair et al., 2016). The most frequent unanswered questions identified by the patient following surgical consultation but before preoperative education involved recovery time, the time between surgeries, restrictions after surgeries, and pain management, consistent with previous research (Pestana, 2020). Other studies have shown that women want to receive information about what to expect before they undergo breast reconstruction (Carr et al., 2019; Contant et al., 2000; Spector et al., 2011). When women do not receive clear information, they do not know what to expect and do not feel prepared for outcomes, contributing to dissatisfaction (Zhong et al., 2013). Participants in this study reported receiving an appropriate amount of education, and as a result, their knowledge was increased and they felt well prepared for surgery and recovery.

This study accentuates the impact that expectations-based education makes when a woman undergoes mastectomy and reconstruction. Assessing a woman's expectations before mastectomy and breast tissue expander placement and providing expectations-based education are effective. Using the PEQ, the nurse practitioner identified the type of expectations a participant had before education was provided and then successfully modified or formed realistic expectations by tailoring the education. Expectations regarding complications, pain, and scarring were modified from unrealistic or unformed to realistic through patient-centered education. The most significant change was seen regarding expectations related to surgical complications with mastectomy and breast tissue expander placement. Preoperatively, minimal participants had realistic expectations regarding their risk for complications. After receiving expectations-based education guided by the PEQ, 98% of participants reported they were aware of the possibility of complications following surgery. This change is significant because the ability to identify complications early means a patient can be treated sooner, resulting in fewer rehospitalizations or emergency department visits and leading to improved outcomes. With the overall 2-year complication rate as high as 32% or more, women undergoing breast reconstruction need to know about the risk for complications (Bennett et al., 2018). The PEBREPP responses indicate that almost all participants knew there was a risk of surgical complications, and expectations were successfully modified using the PEQ and expectations-based education. These results are similar to the authors' previous results (Tedesco & Loerzel, 2020) that preoperative education about complications will modify expectations from unrealistic or unformed to realistic.

Before receiving preoperative education, almost half of the study participants either were unsure or believed if pain was well controlled, pain was absent. Following surgery, most participants reported that they were knowledgeable of methods to control their pain because of their preoperative education. When education is provided about pain management and individuals know what to expect, their pain is more likely to be better controlled (Khorfan et al., 2020) and patients need fewer opioids (Egan et al., 2020). Also, when patient expectations related to pain management are assessed and education is provided, fewer opioid pain medications are prescribed (Long et al., 2020). Lower opioid prescriptions are essential because when more opioids are prescribed, the risk of persistent opioid use after surgery or opioid use disorder increases, and women undergoing breast reconstruction

TABLE 2 PEQ Results

Questions	Agree, *n* (%)	Disagree, *n* (%)	Not sure, *n* (%)	Unformed and unrealistic, *n* (%)
1. I want to know as much as possible about my upcoming breast reconstruction surgery so I will feel prepared.	49 (96.1)	0	2 (3.9)	–
2. I want to be involved with all decisions about my breast reconstruction.	50 (98)	0	1 (2)	–
3. I am at a very low risk of complications undergoing breast reconstruction.	32 (62.7) Unrealistic	2 (3.9) Realistic	17 (33.3) Unformed	49 (96.1)
4. I believe pain that is well controlled means pain is absent.	14 (27.5) Unrealistic	27 (52.9) Realistic	10 (19.6) Unformed	24 (47.1)
5. My breasts will look completely formed after my breast tissue expander placement.	8 (15.7) Unrealistic	25 (49) Realistic	18 (35.3) Unformed	26 (51)
6. My chest will feel tight while I have breast tissue expanders in place.	31 (60.8) Realistic	0 Unrealistic	20 (39.2) Unformed	20 (39.2)
7. I will experience discomfort with each breast tissue expander fill.	27 (52.9) Realistic	0 Unrealistic	24 (47.1) Unformed	24 (47.1)
8. I will have full sensation to my breast following mastectomy and breast tissue expander placement.	2 (3.9) Unrealistic	33 (64.7) Realistic	16 (31.4) Unformed	18 (35.3)
9. I will need someone to help me in my physical recovery at home.	41 (80.4)	4 (7.8)	6 (11.8) Unformed	–
10. I believe my scars will not be visible 1 year after surgery.	3 (5.9) Unrealistic	29 (56.9) Realistic	19 (37.3) Unformed	22 (43.1)
11. I have a good support system to help me cope with my emotional needs throughout my reconstruction process.	50 (98)	1 (2)	0	
12. My breasts will look like my presurgery, natural breasts after my breast reconstruction surgeries are complete.	6 (11.8)	28 (55) Realistic	17 (33.3) Unformed	23 (45.1)
13. My breasts will look identical in size and shape after reconstruction surgery.	10 (19.6) Unrealistic	21 (41.2) Realistic	20 (39.2) Unformed	30 (58.8)
14. I will have sensation in my reconstructed nipples.	0 Unrealistic	32 (62.7) Realistic	17 (33.3) Unformed	17 (33.3)
15. I believe my breast reconstruction is very similar to cosmetic breast surgery.	7 (13.7) Unrealistic	29 (56.9) Realistic	15 (29.4) Unformed	22 (43.1)
16. My breast reconstruction will include a process of several surgeries—not just one surgery.	37 (72.5) Realistic	3 (5.9) Unrealistic	11 (21.6) Unformed	14 (27.5)

Note. PEQ = Presurgical Expectations Questionnaire.

are at a higher risk of persistent opioid use (Olds et al., 2019). Without preoperative education related to pain, patients may have the unrealistic expectation that pain will be absent or have an unformed expectation and no knowledge about what to expect. Education about pain control and setting realistic expectations lets a patient know what to expect, and with a realistic expectation, the chances of satisfaction with postoperative pain management are improved.

Following preoperative education, most participants agreed they were provided with adequate information about scars present after their surgery. Realistic expectations about scarring are essential because this is a frequent area where women express dissatisfaction after breast reconstruction (Abu-Nab & Grunfeld, 2007; Everaars et al., 2020). In a study exploring body image perceptions of women undergoing mastectomy with or without reconstruction, Menon and O'Mahony (2019) similarly reported that women wished they had more information related to scarring before surgery. In another study, Shakespeare and Hobby (2001) found that 18% of women who had undergone breast reconstruction viewed their scars as worse than expected. In this study, women received education about scarring and based on PEBREPP responses, they were satisfied with the information they received. However, satisfaction with the long term appearance of scars was not assessed as the PEBREPP was provided 4–6 weeks after surgery.

Before education, individuals had unrealistic or unformed expectations related to their chest appearance after surgery (expander appearance, scarring, symmetry, aesthetic appearance). Education was provided, and

TABLE 3 PEBREPP Results

Questions	Agree, *n* (%)	Neither, *n* (%)	*Disagree, n (%)*	No response, *n* (%)
1. I received an appropriate amount of education.	51 (100)	–	–	–
Based on the preoperative education I received…				
2. I was well prepared for my surgery.	51 (100)	–	–	–
3. My knowledge was increased.	51 (100)	–	–	–
4. I was well prepared for the hospital experience.	51 (100)	–	–	–
5. I knew what to expect in my recovery.	51 (100)	–	–	–
6. I had knowledge of methods to manage my pain after surgery	48 (94.1)	–	–	3 (5.9)
7. I knew what to expect during my expansion process.	47 (92.2)	3 (5.9)	–	1 (2)
8. I was aware of the possibility of complications.	50 (98)	1 (2)	–	–
9. I knew what to expect when I looked at my chest after surgery.	41 (80.4)	6 (11.8)	2 (3.9)	2 (3.9)
10. I was provided with adequate information about scarring.	47 (92.2)	1 (5.9)	1 (5.9)	1 (2)
11. I understood I would have a change in the sensation to my chest area	49 (96.1)	–	1 (2)	–
12. My anxiety was lower in the days **LEADING UP TO** my surgery.	43 (84.3)	4 (7.8)	3 (5.9)	1 (2)
13. My anxiety was lower education **AFTER** surgery.	45 (88.2)	2 (3.9)	1 (2)	3 (5.9)
14. I have further understanding of my future reconstruction options	46 (90.2)	3 (5.9)	–	2 (3.9)
15. I believe my reconstructed breasts will have the same appearance as my natural breasts.	14 (27.5)	10 (19.6)	26 (51)	1 (2)
16. Following reconstruction, I believe my reconstructed right breast will appear identical to my left breast	13 (25.5)	11 (21.6)	21 (41.2)	6 (11.8)
21. Understanding that each woman's experience is different, based on my preoperative education, this phase of my reconstruction experience was as I was told it would be.	42 (82.4)	2 (3.9)	–	7 (13.7)

Note. PEBREPP = Postoperative Evaluation of Breast Reconstruction Education Provided Preoperatively.

based on PEBREPP responses, most women knew what to expect because of their preoperative education. However, six participants responded neutrally to the question despite the education and two disagreed that they did not know what to expect. This finding is consistent with the findings of Herring et al. (2019) in their qualitative study. There is a wide range of experiences for women viewing their postsurgical chest immediately after surgery. As performed in the current study, the authors recommend that information about the appearance of the reconstructed breast is provided preoperatively to ensure women are informed. Although information is provided preoperatively about the appearance of incisions, surgical glue, partially filled expanders, and photographs are shown demonstrating scars and reconstruction results, it may be unlikely that a woman can completely understand the new appearance her chest will have. This finding is consistent with the findings of a phenomenological study (de Boer et al., 2015) about women's expectations related to reconstruction; a woman's reconstruction is unlikely to be understood by just the "gazed" appearance of the reconstructed breast. In theory, a patient may believe she understands what the breast will look like but the appearance may differ in reality.

Preoperative education did not increase realistic expectations related to the aesthetic appearance of the reconstructed breast. Preoperative education did not modify expectations related to the symmetry of the reconstructed breasts and that the reconstructed breast would not look like their natural prereconstruction breast. Participants still had unformed or unrealistic expectations in response to the questions "My breasts will look identical in size and shape after reconstruction surgery," "I believe my reconstructed breasts will have the same appearance

as natural breasts," and "I believe my reconstructed right breast will look identical to my left breast." Despite providing patient-centered education and showing photographs, expectations were unchanged. This finding was unexpected but is similar to the results of unmet expectations in patients with breast reconstruction, reported by Steffen (2017); 42.3% of surveyed individuals reported their breast reconstruction was worse than expected, citing appearance as one of the main reasons. de Boer et al. (2015) suggested that women undergoing reconstruction may frequently, if not always, face unexpected results in their breast reconstruction process. From this result, it appears that cosmetic or appearance results are more challenging to convey to women before surgery; it is more personal and subjective. Information about pain, postoperative care, complications, and the expansion process was more "concrete" and much easier to convey.

Implications

Evaluating a woman's expectations before providing preoperative education is essential and makes a difference in a woman's satisfaction with the information provided. Identifying expectations before surgery should become a part of standard practice before breast reconstruction. By eliciting a woman's expectations about surgery and reconstruction outcomes during the preoperative education appointment, the educator can further discuss expectations that are noted to be unrealistic or unformed, allowing for patient-centered education to modify expectations. Also, open-ended questions allow comments to be listed by the patient, and further discussion can be provided, ensuring all questions are answered and that education is truly patient-centered. The PEQ or its component questions may be used to identify unrealistic or unformed expectations. Focusing on expectations regarding complications, pain, expander appearance, symmetry, pain, sensation, and scarring and ensuring realistic expectations are vital in ensuring patients receive appropriate information. Verbal and written information is essential, but visual props should be used to facilitate the patients' understanding. For example, show the patient the expander, the drains, pictures of reconstruction at various stages, and pictures of possible scars, so she is more likely to know what to expect after surgery.

Preoperative education is a necessary step in preparing a woman to undergo mastectomy and breast reconstruction. Information provided at an initial consultation is not always comprehended or retained. Individuals often present to their preoperative education appointment with unformed or unrealistic expectations. Reconstructive surgery clinics should ensure they provide a second appointment after consultation with the surgeon so that all questions can be answered by a nurse or other member of the multidisciplinary team. Assessing expectations about reconstruction and surgery and then providing patient-centered, expectations-based education are necessary to provide the best care and prevent dissatisfaction. In the postoperative period, the surgery team staff should evaluate the patient's perception of the provided education. The PEBREPP or similar questions may be used. If respondents are not satisfied with the information they received, a change in practice should be considered.

This study's findings highlight the need to thoroughly convey the range of expected aesthetic results of the reconstructed breast to women undergoing mastectomy and breast reconstruction. First, assessing a woman's expectations about the aesthetic appearance is recommended. Next, explicitly informing women that their two breasts will never be identical or look just like their natural breasts is vital. Allowing women to view photographs of multiple different patients who have undergone breast reconstruction is recommended. Finally, consider matching patients with another patient who has already experienced surgery and can function as a peer counselor to answer questions from another perspective.

Study Limitations

There are several limitations to this study. The sample size of this study was small. Although it was expected there would be nearly 100 participants, the study was affected by the COVID-19 pandemic in several ways. First, for women to social distance, clinic visits were canceled and rescheduled, resulting in an inability to follow up with some participants. These participants were lost to attrition. Second, the team felt that participating in a research study may cause additional stress to participants and would confound any further results, so a decision was made to stop the study at the beginning of the pandemic. Finally, elective surgeries within the organization were put on hold, which impacted the number of women eligible for the study.

An additional limitation is the lack of diversity in the sample. However, this is consistent with other findings that although the rate of breast reconstruction in minority women has increased, non-Latinx Black or Latinx women still have a decreased likelihood of reconstruction compared with non-Latinx White women (Sergesketter et al., 2019). These results are also consistent with the results of Soni et al. (2017), who examined racial disparities among women undergoing breast reconstruction. Although access may be improving, further efforts need to be made to improve breast reconstruction access for all groups of women.

CONCLUSION

This study's objectives were to assess preoperative expectations in women undergoing mastectomy and initial breast reconstruction, provide expectations-based

education, and evaluate the effectiveness and impact of education on those presurgical expectations.

Expectations were successfully identified, and unrealistic and unformed expectations were successfully modified to realistic. Participants reported they were pleased with the information that was provided. The PEQ or its component questions are recommended for individuals providing preoperative education to women undergoing mastectomy and immediate reconstruction with breast tissue expanders. Finally, assessing satisfaction with the information provided is essential. Future research is recommended on innovative education methods and effectively communicating aesthetic results of breast reconstruction after mastectomy.

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