

Beyond Physical Well-being: Exploring Demographic Variances in Psychosocial Well-being before Breast Reconstruction

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Background: A patient's preoperative satisfaction with their breasts and baseline psychosocial, sexual, and physical well-being are important considerations when planning breast reconstruction. We sought to elucidate variances in preoperative responses among patients undergoing postmastectomy breast reconstruction.

Methods: Preoperative BREAST-Q responses and demographic data, including race, generation, median household income, institutional review board and body mass index (BMI) were collected from breast cancer patients scheduled for mastectomy. Associations between demographic group and survey response were analyzed by chi-square or independent *t*-tests.

Results: In total, 646 of 826 patients identified had complete data and were included in the final analysis. Patients in BMI group 1 (16–24.9) were more likely to report feeling “very satisfied” with how they looked unclothed compared with patients in other BMI groups ($P = 0.031$). Conversely, patients in groups 3 and 4 (35+), reported lower satisfaction ($P = 0.037$) and felt less attractive without clothes ($P = 0.034$). Asian women were less likely to feel attractive ($P = 0.007$), and Black patients were less likely to feel of equal worth to other women ($P < 0.001$). Finally, patients were less likely to report confidence in social settings if they were Black ($P < 0.001$), Asian ($P < 0.001$), from the millennial generation ($P = 0.017$), or living in zip codes with median household income less than \$55,000 ($P = 0.042$).

Conclusions: Breast cancer patients' feelings toward their natural breasts vary widely between demographic groups. Understanding baseline psychosocial factors in this population is key to informing preoperative discussions and interpreting postoperative satisfaction. (*Plast Reconstr Surg Glob Open* 2023; 11:e5124; doi: 10.1097/GOX.00000000000005124; Published online 17 July 2023.)

INTRODUCTION

The psychological impact of having a mastectomy in patients with breast cancer has been well described, with patients commonly reporting negative feelings about their body image, sexuality, and overall quality of life after the removal of one or both breasts.^{1–4} It is no surprise that the field of breast reconstruction emerged in part as a way to combat these negative effects and has served for decades as an important adjunct to surgical

management of breast cancer. Breast reconstruction has proven to be an extremely safe and effective option leading to improved outcomes regarding patients' quality of life post mastectomy.^{5–7} Despite the known benefits of this intervention, the prevalence of breast reconstruction after mastectomy is not evenly distributed across patient demographics. Healthcare disparities exist among patients of differing race, age, socioeconomic status, and insurance type, and play a major role in determining the likelihood that a patient will pursue reconstruction.^{8–12} Additionally, thorough preoperative counseling regarding breast reconstructive options before mastectomy plays an essential role in patients' decisions to ultimately undergo breast reconstruction. The delivery of such preoperative counseling, however, is not consistent across all

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patients, with surgeons more likely to thoroughly discuss the options with younger, more educated patients.¹³ To that end, the need for an optimal approach to preoperative counseling also varies among patients and is difficult to anticipate preoperatively. If baseline psychosocial trends indeed exist among various demographic groups, knowledge and appreciation of such differences can help guide strategies for preoperative counseling and shared decision making.

Understanding the true benefit of breast reconstruction relies heavily on patient-reported outcome measures (PROMs) as opposed to traditional morbidity and mortality metrics.¹ PROMs typically use questionnaires to gather patients' subjective assessments of their care to aid in the improvement of quality-of-life outcomes resulting from medical or surgical interventions.^{14,15} The BREAST-Q is a validated tool for assessing PROMs related to a wide array of breast-related procedures. It contains both pre- and postoperative questionnaires and includes domains for psychosocial, physical, and sexual well-being as well as satisfaction with breasts, process of care, and overall outcome. Each scale within the BREAST-Q is rated as a score from 0 to 100, and there is no overall score generated.^{1,16,17} The primary objective of this study was to identify differences in patients' baseline feelings toward their natural breasts based on various demographic metrics using preoperative BREAST-Q data. Elucidating differences in baseline responses will aid in the development of more holistic approaches to preoperative breast reconstruction counseling. Not only will this result in better understanding of expectations and improved postoperative satisfaction, it will also allow for more equitable delivery of care to patients from diverse backgrounds.

METHODS

IRB approval was obtained for all surveys, study material, and analytical tools. Consecutive patients presenting for breast reconstruction by the senior author (A.L.) were administered a preoperative BREAST-Q survey at their initial consultation. A database containing the BREAST-Q survey results was prospectively maintained and updated to include patient demographics following review of the electronic medical record. All patients assigned female gender at birth, over the age of 18 with breast cancer between the years of 2014 and 2020 who underwent implant-based breast reconstruction by the senior author within one hospital system were included in this study. Patients who failed to complete the survey did not choose to undergo breast reconstruction, or underwent reconstruction by an alternative surgeon were excluded. Patients with unavailable or incomplete demographic data were similarly excluded.

Demographic data analyzed included median household income (MHI), which was calculated using the zip code associated with a patient's home address and current income statistics available from the US Census Bureau.¹⁸ Patients were subsequently stratified by MHI as a surrogate for socioeconomic status. All patients with MHI falling below the cohort median of \$54,575 were

Takeaways

Question: How does preoperative psychosocial well-being vary across demographic factors in patients undergoing postmastectomy breast reconstruction?

Findings: Patients with a lower body mass index were more likely to report satisfaction with their appearance unclothed, whereas those with a higher body mass index reported lower feelings of satisfaction and attractiveness. Additionally, Black/African American patients, those from the millennial generation, or living in zip codes with lower median household incomes were less likely to report confidence in social settings.

Meaning: Tailored preoperative counseling is necessary because there are significant demographic variances in baseline views among patients, highlighting the inadequacy of a one-size-fits-all approach.

grouped into the lower income group, and those with MHI greater than or equal to the median were grouped into the higher income group. Date of birth was used to calculate age as a continuous variable and stratify patients based on generation. Patients born before January 1, 1946 were assigned to the silent generation, patients born between January 1, 1946 and December 31, 1964 were assigned to the baby boomer generation, patients born between January 1, 1965 and December 31, 1980 were assigned to Generation X, and patients born between January 1, 1981 and December 31, 1996 were assigned to the millennial generation. Patients were also grouped by body mass index (BMI) where BMI between 16 and 24.9 was assigned to group 1, BMI between 25 and 34.9 to group 2, BMI between 35 and 44.9 to group 3, and BMI 45 or greater to group 4. Additional demographic data captured included age, insurance type, smoking status, comorbidities, unilateral versus bilateral intervention, reconstruction type, and complications. Patients' race (recorded as either White, Black/African American, Asian, or other/unknown) was also analyzed. Ethnicity was not reliably captured in the electronic medical record and, therefore, not included.

Patients were stratified into socioeconomic groups, which were then compared with other demographics, generation, survey response, and BMI for statistical significance. The influences of demographics factors on survey responses were analyzed by chi-square (categorical variables) or independent *t* tests (categorical and continuous) with significance set at *P* less than 0.05. All statistical analysis was conducted using the IBM SPSS Statistics 27.0 (IBM Corp., Armonk, N.Y.).

RESULTS

Baseline Patient Demographics

A total of 826 patients were identified during this prospective study. Of these patients, 22 were excluded due to unavailable or incomplete demographic data, and 158 were excluded due to incomplete survey responses. The

demographic characteristics of the 646 patients included in our final analysis are listed in **Table 1**. For all patients included, the average age was 59.9 years (SD 11.3), average BMI was 30.6 (SD 7.4), and average MHI was \$60,560.51 (SD \$20,162.07). A total of 477 patients (59.3%) identified as Black/African American, 282 (35.1%) identified as White, 20 (2.5%) identified as Asian, and 25 (3.1%) identified as other/unknown. Fifty-six patients (7%) had birthdays placing them in the silent generation, 460 (57.2%) were from the baby boomer generation, 244 (30.3%) were from Generation X, and 44 (5.5%) were from the millennial generation. MHI ranged from \$25,030 to \$154,738 with a median of \$54,575. Four hundred one patients (49.8%) lived in zip codes with MHI below the cohort median, and 403 patients (50%) lived in zip codes with MHI greater than or equal to the cohort median. Approximately a quarter of the cohort, 197 (24.5%) were in BMI group 1 and about half of the cohort, 399 (49.6%) in BMI group 2. The remaining patients fell into either BMI group 3, 175 (21.8%), or BMI group 4, 33 (4.1%).

When demographic strata were compared, White patients were more likely to live in zip codes with significantly higher MHI when compared with Black/African American patients ($P < 0.001$). Black/African American patients were significantly more likely to have a BMI more than 35 when compared with patients of other races ($P < 0.001$). Patients with a BMI less than 25 (group 1) lived in zip codes with significantly lower incomes ($P = 0.022$).

Baseline Survey Responses

The BREAST-Q survey was administered to all patients during their initial consultation. (See table, **Supplemental Digital Content 1**, which displays the survey responses by demographic characteristics. <http://links.lww.com/>

Table 1. Patient Demographics

Age (y)		
Mean (SD)	59.4	(11.2)
Median [min, max]	60.0	[30.0, 89.0]
MHI group		
Low (<\$54,575)	332	(51.4%)
High (≥\$54,575)	314	(48.6%)
Race		
Black/African American	370	(57.3%)
White	238	(36.8%)
Other/unknown	20	(3.1%)
Asian	18	(2.8%)
BMI group		
Group 1 (<25)	161	(24.9%)
Group 2 (25–34.9)	319	(49.4%)
Group 3 (35–44.9)	140	(21.7%)
Group 4 (45+)	25	(4%)
Generation		
Silent	37	(5.7%)
Baby boomer	366	(56.7%)
Generation X	206	(31.9%)
Millennial	37	(5.7%)
Total	646	

PRSGO/C664.) Over half of the study population, 463 patients (58%), reported feeling “somewhat dissatisfied” or “very dissatisfied” with how they look in the mirror unclothed. When asked how often they feel confident sexually about their breasts unclothed, over a third of the population, 291 patients (36%) reported “none of the time” or “a little of the time.” Overall, 101 patients (13%) reported feeling attractive “none of the time” or “a little of the time.” Similarly, when asked how often they felt confident about their breasts in a social setting, 88 patients (11%) reported “none of the time” or “a little of the time.” Finally, 56 patients (7%), reported feeling of equal worth to other women “none of the time” or “a little of the time.”

Survey Responses by Demographics

Multivariate analysis was performed for all preoperative survey responses. Patients in BMI group 1 (16–24.9) were significantly more likely to report feeling “very satisfied” with how they look in the mirror unclothed when compared with other BMI groups ($P = 0.031$). Patients in BMI groups 3 and 4 (35+), on the other hand, reported significantly lower satisfaction with how they look unclothed ($P = 0.037$) and felt less attractive with clothes off ($P = 0.034$). Patients living in zip codes with MHI between \$55,000 and \$70,000 were significantly more likely to report feeling equal worth to other women ($P = 0.004$). Asian women were significantly less likely to report feeling confident in social settings ($P < 0.001$) and reported significantly lower scores in “attractiveness” compared with patients from other racial groups ($P = 0.007$). Black/African American patients were significantly more likely to report lower feelings of equal worth to women in other racial groups ($P < 0.001$). Finally, patients were significantly less likely to report confidence in social settings if they were Black/African American ($P < 0.001$), from the millennial generation ($P = 0.017$), or living in zip codes with MHI less than \$55,000 ($P = 0.042$).

DISCUSSION

It is evident from our findings that patients who undergo consultation for breast reconstruction have significant differences in their baseline responses to questions regarding general self-esteem and satisfaction. Furthermore, our findings indicate an association between survey responses and various socioeconomic factors and patient demographics. Preoperative counseling regarding breast reconstruction options is standard practice for patients undergoing mastectomy. These conversations are known to impact a patient’s likelihood of pursuing breast reconstruction, a decision that is subsequently known to impact quality-of-life outcomes.^{6–8,14} As such, the quality and content of these preoperative discussions is of particular importance in this patient population. Although standardized tools like the BREAST-Q exist to facilitate conversations related to psychosocial factors, preoperative consultation often tends to center around technical components of patients’ care. One study of Canadian

surgeons analyzed the content of preoperative counseling and found that on average, biomedical issues comprised 88% of the discussion, whereas psychosocial factors only made up 6% of the conversation.¹⁹ Of surgeons who rely on the BREAST-Q questionnaire to facilitate psychosocial conversations, 72% report using it exclusively in the postoperative setting.¹⁶ Knowledge of a patient's preoperative perceptions is needed to determine the direction and magnitude of any postoperative changes in satisfaction. Such findings suggest an underutilization of BREAST-Q as a component of tailored preoperative counseling and highlight an opportunity to improve shared decision making and more reliably achieve a patient-preference concordant decision.

Optimizing the quality of preoperative counseling necessitates a surgeon appreciate each patient's baseline psychosocial factors and relationship with their body. Previous studies have described the impact of socioeconomic and demographic characteristics on patients' risk for surgical complications after implant-based reconstruction²⁰; however, none have described the varying levels of preoperative self-confidence and satisfaction across demographic characteristics. In this study, we demonstrated differences in bodily satisfaction and perception depending on various socioeconomic and demographic factors. We found significant differences in patients' confidence in social settings based on their race, age, and MHI. Patients who were Black/African American, from the millennial generation, or lived in zip codes associated with lower MHI were less likely to report confidence in such settings. Black/African American patients were also significantly more likely to report lower feelings of equal worth compared with women in other racial groups. We also found a significant difference in satisfaction with one's unclothed body depending on the BMI group into which a patient fell. Patients with lower BMIs were more likely to report feeling "very satisfied" with how they looked unclothed, whereas those with higher BMI were more likely to report lower feelings of satisfaction and attractiveness. These results seem to comport with typical western beauty standards, which have a propensity for valuing thinner bodies while admonishing larger ones. In looking at BMI alone, we not only see the influence of such beauty standards on satisfaction but also the imbalance in self-image before any interventions. Patients with higher BMIs who feel less satisfied at baseline require different counseling regarding perceptions and expectations than their lower BMI counterparts. Similarly, the cultural influences stemming from a patient's race, age, and socioeconomic status undoubtedly impact their perceptions, expectations, and experiences. Although our findings highlight differences based on various demographic factors, it is important to emphasize that these differences should not be used as grounds to apply blanket assumptions or stereotypes to patients. Instead, our results highlight the importance of tailored preoperative counseling that takes into account each patient's unique psychosocial factors, values, and expectations.

To address the demographic and psychosocial variability identified in this study, several specific strategies can

be incorporated into the preoperative discussion to optimize postoperative satisfaction. For example, integrating the BREAST-Q survey into the standard intake process for patients referred for reconstruction can provide valuable insights into a patient's baseline feelings about their body, which can help inform the direction of conversations during preoperative counseling sessions. The survey can serve as a starting point to discuss patients' current perceptions of their bodies and how they may change after surgery. This approach can result in increased patient satisfaction and more realistic expectations for the postoperative outcome. Additionally, survey responses can identify patients who may benefit from additional social support during the reconstructive process. By utilizing these strategies, surgeons can improve the quality of preoperative counseling, achieve patient-preference concordant decisions, and better support patients throughout their breast reconstruction journey.

Although our findings suggest an opportunity to improve patient care, it is important to note the study's limitations. Despite our large overall sample size, the subgroups across demographic characteristics were not evenly distributed. Specifically, our study included relatively few patients who identified as Asian or other/unknown compared with patients who identified as Black/African American or White. Similarly, we had relatively few millennial patients and patients in BMI group 4. The small sample sizes within these subgroups may limit the generalizability of our results. Additional limitations include the absence of comparative postoperative survey results and the exclusion of patients who chose not to undergo reconstruction following their mastectomy; both of which reflect opportunities for future research. Although our study only included individuals who underwent implant-based reconstruction, it may also be beneficial to assess possible correlations between type of breast reconstruction and baseline psychological responses in future studies.

CONCLUSIONS

Preoperative discussions play a significant role in a patient's decision to undergo postmastectomy reconstruction, an intervention known to improve postoperative quality-of-life outcomes.⁵⁻⁷ Understanding a patient's feelings toward their body and breasts is therefore critical to delivering quality preoperative counseling. Our study highlights the breadth of baseline levels of satisfaction across patients from various demographic groups. We found a significant relationship between patients' satisfaction with their bodies and their BMI as well as between a patients' confidence in social settings and their race, age, and socioeconomic status. These findings underscore the need for preoperative discussions to extend beyond the technical aspects of breast reconstruction and to be tailored to the unique needs and expectations of each patient. By incorporating the BREAST-Q survey into the preoperative consultation process, surgeons may better understand their patients' baseline psychosocial factors, values, and expectations, achieve patient

preference–concordant decisions, and better interpret postoperative satisfaction.

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DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

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All study materials, surveys, and analytical tools were approved by the Emory University institutional review board. The study was performed in accordance with the guidelines of the Declaration of Helsinki.

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