Original Article

# Aesthetic and Functional Outcomes of Reduction Mammoplasty for Gigantomastia: Insights from a Multidimensional Patient-Reported Analysis Using BREAST-Q

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## ABSTRACT

**Background:** Breast hypertrophy significantly impairs quality of life, causing musculoskeletal pain, poor posture, and psychological distress, including reduced self-esteem. Reduction mammoplasty offers a surgical approach to mitigate these challenges. We evaluated patient satisfaction with aesthetic and functional outcomes following the procedure at a specialized referral center.

**Methods:** This retrospective, cross-sectional analysis was conducted on 16 patients who underwent reduction mammoplasty for gigantomastia in the Hospital General "Dr. Manuel Gea González" Mexico City, Mexico from January 1, 2022, to July 31, 2024. Data from medical records included demographics (age, BMI), surgical indications, resected tissue weight, and BREAST-Q responses assessing satisfaction with breast appearance, surgical outcomes, and psychosocial, physical, and sexual well-being.

**Results:** Patients had a mean age of 46.5 years, with 43.7% classified as obese. Physical discomfort was the primary surgical indication (62.5%), and 62.5% had 501–1000 g of tissue resected. High satisfaction was reported for surgical outcomes (87.5%) and physical well-being (93.7%), yet dissatisfaction was notable with breast appearance (56.2%), psychosocial well-being (100%), and sexual well-being (81.2%). Satisfaction with the surgeon was 87.5%, and with other staff, 62.5%.

**Conclusion:** Reduction mammoplasty effectively improves physical health and surgical satisfaction; however, persistent dissatisfaction with aesthetic and psychosocial outcomes highlights the need for enhanced preoperative counseling. Tailored discussions could better align patient expectations with achievable results, improving overall care.

**KEYWORDS**
Gigantomastia; Reduction mammoplasty; BREAST-Q; Patient satisfaction; Quality of life; Aesthetic outcomes

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## INTRODUCTION

Breast hypertrophy, marked by excessive breast tissue growth often triggered by an exaggerated estrogen response, significantly impacts affected women. Common physical complaints include chronic back, neck, and shoulder pain, skin irritation, poor posture, and restricted physical activity[1,2]. These issues are frequently accompanied by psychological challenges such as low self-esteem, body image dissatisfaction, and social discomfort, all of which reduce quality of life[1,2]. Consequently, effective treatments addressing both physical and emotional dimensions are critical.

Reduction mammoplasty remains the cornerstone surgical intervention for alleviating these symptoms. Over time, techniques have advanced from the wise pattern with an inferior pedicle to modern approaches like the superomedial pedicle and vertical scar, which improve breast aesthetics and minimize scarring[3,4]. These developments enhance outcomes by optimizing breast shape, reducing complications, and personalizing procedures to patient needs. Yet, the procedure's success depends on technique selection and patient-specific factors, necessitating continuous evaluation.

Patient-centered outcome measures are vital for assessing surgical success. The BREAST-Q, a validated tool available in Spanish for reduction and mastopexy, evaluates satisfaction with breast appearance, psychosocial, sexual, and physical well-being, offering a holistic perspective on surgical impact [5,6]. Previous studies highlight high satisfaction levels and quality-of-life improvements post-breast reduction surgery, underscoring the tool's value[5,6]. At Hospital "Dr. Manuel Gea González," the T-incision technique is widely utilized, and the BREAST-Q version 2.0 questionnaire is administered postoperatively. However, systematic documentation of patient responses remains absent, revealing a critical gap in tracking local outcomes and emphasizing the need for structured data collection.

Given the importance of patient satisfaction and quality of life, we aimed to address this gap by systematically evaluating patient-reported outcomes at our institution. By contextualizing these findings within the broader literature, we aimed to refine clinical practices and enhance patient care.

## METHODS

This retrospective, cross-sectional study was conducted in the Hospital General "Dr. Manuel Gea González" Mexico City, Mexico to evaluate aesthetic and functional satisfaction in patients who underwent reduction mammoplasty for gigantomastia from January 1, 2022 to July 31, 2024. The study was performed within the Division of Plastic and Reconstructive Surgery and received approval from the institutional ethics committee. Patient confidentiality was ensured through data anonymization.

### *Objective*

The primary objective was to assess postoperative satisfaction using the BREAST-Q reduction/mastopexy module, a validated instrument for measuring patient-reported outcomes.

### *Patient Selection*

Eligible participants were female patients diagnosed with gigantomastia who underwent reduction mammoplasty during the study period and had complete preoperative as well as postoperative records, including BREAST-Q responses. Patients were excluded if they had incomplete documentation, a history of prior breast surgery, or malignant histopathology, ensuring a homogeneous cohort without confounding factors.

### *Data Collection*

Data were retrieved from medical records and included demographic information (age, body mass index [BMI]), surgical indications, weight of resected tissue, and BREAST-Q responses. The BREAST-Q questionnaire assessed satisfaction with breast and nipple appearance, surgical outcomes, interactions with the surgeon and medical staff, and well-being in psychosocial, physical, and sexual domains.

### *Statistical Analysis*

Descriptive statistics were calculated using Epi Info™ version 7.2. Categorical variables were reported as frequencies and percentages, while continuous

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variables were presented as means with standard deviations.

### Ethical Considerations

The study adhered to the ethical standards outlined in the General Health Law for research. Given its retrospective design and use of de-identified data, it was classified as minimal risk, and the requirement for informed consent was waived.

## RESULTS

In that period, 16 patients underwent breast reduction surgery at the Plastic and Reconstructive Surgery Department of Hospital General "Dr. Manuel Gea González." All patients met the study's inclusion criteria, and their medical records were enrolled.

### Epidemiological and Clinical Characteristics

The mean age of the patients was 46.5 years (SD = 14.4). Obesity was the most prevalent body mass index category (43.7%), followed by overweight (31.2%). The primary indication for surgery was physical discomfort (62.5%), with aesthetic reasons accounting for 37.5%. Most patients (62.5%) had 501 to 1000 grams of tissue resected, while 18.7% had less than 500 grams and another 18.7% had 1000 to 1500 grams (Table 1).

### Patient Satisfaction

Patient satisfaction was assessed using the BREAST-Q breast reduction module. Regarding breast and nipple appearance, 56.2% of patients were dissatisfied, while 43.7% were satisfied. Overall, 87.5% of patients expressed satisfaction with the surgical outcome (Table 2).

### Well-Being Outcomes

In terms of well-being, all patients (100%) reported dissatisfaction with their psychological well-being, and 81.2% were dissatisfied with their sexual well-being. In contrast, 93.7% were satisfied with their physical well-being (Table 3).

**Table 1.** Epidemiological and Clinical Characteristics

| Epidemiological and Clinical Characteristics | Frequency (%) |
|---|---|
| Age (yr) Mean Standard Deviation | 46.5 year´s (±14.4) year´s |
| Body Mass Index Low Normal Overweight Obesity | 1 (6.2%) 3 (18.7%) 5 (31.2%) 7 (43.7%) |
| Indications for Breast Reduction Aesthetic Physical discomfort Psychological discomfort Medical pathology | 6 (37.5%) 10 (62.5%) 0 (0.0%) 0 (0.0%) |
| Resected Tissue Weight (grams) Less than 500 gr 501 to 1000 gr 1000 to 1500 gr More than 1500 gr | 3 (18.7%) 10 (62.5%) 3 (18.7%) 0 (0.0%) |

**Table 2.** Satisfaction with Breast, Nipple, and Surgical Outcomes

| Satisfaction Percentage | Overall Score Mean (SD) | Dissatisfied Frequency (%) | Satisfied Frequency (%) |
|---|---|---|---|
| With Breast | 40.6 (5.5) | 9 (56.2) | 7 (43.7) |
| With Nipples | 14.5 (2.4) | 9 (56.2) | 7 (43.7) |
| With Surgical Outcomes | 22.8 (1.5) | 2 (12.5) | 14 (87.5) |

**Table 3.** Psychosocial, Sexual, and Physical Well-Being

| Well-Being Percentage | Overall Score Mean (SD) | Dissatisfied Frequency (%) | Satisfied Frequency (%) |
|---|---|---|---|
| Psychosocial | 30.9 (4.9) | 16 (100.0) | 0 (0.0) |
| Sexual | 17.6 (2.5) | 13 (81.2) | 3 (18.7) |
| Physical | 22.7 (5.8) | 1 (6.2) | 15(93.7) |

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Table 4. Satisfaction with Plastic Surgeon and Other Team Members

| Satisfaction Percentage with: | Overall Score Mean (SD) | Dissatisfied Frequency (%) | Satisfied Frequency (%) |
|---|---|---|---|
| Plastic Surgeon | 39.6 (5.5) | 2 (12.5) | 14 (87.5) |
| Other Team Members | 23.5 (1.8) | 6 (37.5) | 10 (62.5) |

### *Satisfaction with Medical Personnel*

Satisfaction with medical personnel was also evaluated: 87.5% of patients were satisfied with the plastic surgeon, and 62.5% were satisfied with the rest of the surgical staff (Table 4).

## DISCUSSION

The mean age of our cohort was 46.5 years (SD ±14.4), with a range from 16 to 66 years, positioning it as a group with an average age above 40. Liao et al.'s systematic review (n=1,816) found that age did not significantly influence the magnitude of BREAST-Q score improvements post-surgery, suggesting that patients across age groups, including those over 40, experience comparable benefits[7]. This is consistent with our high satisfaction with surgical outcomes, indicating that older age did not diminish overall satisfaction. However, Choong et al., studying therapeutic mammoplasty in breast cancer patients (mean age 59), reported higher satisfaction in psychosocial and sexual domains among older patients compared to younger ones[8]. In contrast, our cohort showed universal dissatisfaction in these domains, possibly due to a broader age range that included younger patients or unmeasured psychological factors.

With 43.7% of our patients classified as obese and 62.5% having 501–1,000 grams of tissue resected, we explored how BMI and resection weight relate to aesthetic satisfaction. Ngaage et al.'s 12-year review found no significant difference in satisfaction across BMI categories, even with varying resection weights[9]. Liao et al. reported a positive correlation between higher BMI and postoperative satisfaction with breast appearance (SRCC: 0.53, $P < 0.05$), as well as between resected weight and satisfaction (SRCC: 0.61, $P < 0.05$).[7] Yet, our study found 56.2% dissatisfaction with aesthetic outcomes despite a significant obese subgroup and moderate resections. This divergence may suggest that factors beyond BMI and tissue volume, such as surgical technique or patient expectations, influenced our results. Even small resections improve outcomes, though larger resections might enhance satisfaction further[10], hinting that our predominantly intermediate resections may not have fully met aesthetic goals for some patients.

Physical discomfort drove 62.5% of our patients to surgery, with 93.7% reporting postoperative satisfaction in this domain. This aligns with Park et al.'s findings in a large cohort (n=661), where high physical well-being persisted despite complications[11]. Liao et al. reported a mean improvement of 27.9 points in physical well-being across studies[7], reinforcing our observation of robust physical outcomes. However, our retrospective design limits our ability to determine if smaller resections (<1,000 grams) optimized symptom relief as effectively as larger ones, a question Yao et al. suggest warrants further exploration[10].

The striking dissatisfaction in psychosocial (100%) and sexual (81.2%) well-being contrasts sharply with literature trends. Liao et al. documented average improvements of 43 points in psychosocial well-being and 38 points in sexual well-being[7], yet our patients reported no such gains. Shammas et al. identified unexpected aesthetic outcomes as a driver of dissatisfaction, impacting self-confidence and sexual well-being[12]. This resonates with our 56.2% aesthetic dissatisfaction rate, suggesting a link between appearance and these domains. Lewis et al. found that preoperative body image issues can exacerbate postoperative distress[13]. Ozbey et al. emphasized the role of preoperative counseling in aligning expectations, noting its correlation with satisfaction ($P < 0.001$)[14]. Our high satisfaction with the surgeon (87.5%) suggests effective communication, yet this did not translate to psychosocial or sexual benefits, highlighting a potential gap in addressing non-physical expectations.

Long-term satisfaction data are absent from our study, but Krucoff et al.'s cohort (median follow-up 21.4 years) showed sustained BREAST-Q

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scores above normative values, with satisfaction with breasts at 66.6 and physical well-being at 81.1[15]. This suggests that our physical well-being gains might persist, though our psychosocial and sexual dissatisfaction could also endure without intervention. Adolescent patients benefit from expectation management[16], a strategy that might mitigate our cohort's dissatisfaction if applied preoperatively.

### *Limitations of the Study*

Our study's small sample size (n=16) limits statistical power and generalizability, unlike larger cohorts such as Liao et al.'s (n=1,816)[7]. The retrospective design risks bias from incomplete records, and the variable timing of BREAST-Q responses may skew satisfaction reports. Baseline body image influences outcomes[17], yet we lack such data. Cultural factors, as Crittenden et al. suggest[18], might also play a role in our Mexican cohort, differing from U.S. or Australian norms, but this remains unexplored due to our study's scope.

### *Future Directions*

Our findings underscore reduction mammoplasty's physical benefits while highlighting persistent psychosocial and sexual challenges. Preoperative psychological screening, as suggested by Lewis et al.[13], and enhanced counseling, per Ozbey et al.[14], could address these gaps. Prospective studies with larger samples, standardized follow-up, and preoperative assessments are needed to validate these trends.

## CONCLUSION

Reduction mammoplasty proves highly effective in relieving physical discomfort and enhancing surgical satisfaction for patients with gigantomastia, underscoring its value as a functional intervention. However, the procedure falls short in meeting aesthetic expectations and improving psychosocial and sexual well-being for many, revealing a critical disconnect between physical benefits and holistic patient satisfaction. These findings suggest that while the surgery addresses musculoskeletal issues successfully, broader patient needs—particularly psychological and emotional—remain unmet, likely due to misaligned expectations or insufficient preoperative support. To enhance outcomes, clinical practice should integrate comprehensive counseling and psychological preparation tailored to individual concerns. The study highlights the urgency of addressing these gaps to ensure patient-centered care. Moving forward, larger prospective studies with consistent follow-up and robust psychological evaluations are essential to refine techniques, optimize expectation management, and elevate overall quality of life for patients undergoing this transformative procedure.

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## CONFLICT OF INTEREST

The authors declare no conflict of interests.

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