INTRODUCTION

Online physician reviews have become more central in the image and growth of medical practice, particularly in competitive locations. In fact, the comments and ratings in these online reviews can become a primary factor in physician selection regardless of the qualifications of the physician. Practices have responded by creating online presences to connect with patients and to potentially improve their experience. Although these reviews can be beneficial or detrimental to practices, each review provides a unique patient perspective of what was most impactful to the patient.

RealSelf (Seattle, Wash.) is an online community founded in 2006 that hosts patient ratings for plastic surgery. Patients may post reviews, updates, before-and-after photographs, the cost of operation, and summaries of their overall satisfaction with RealSelf’s inherent “worth it” ranking system, review text, the number of submitted photographs, and the number of readers who found the review helpful was captured. The content of the review was then independently reviewed by the authors and was categorized with key factors that determined positive or negative reviews.

RESULTS:

A total of 3451 breast reconstruction reviews were collected. After the authors analyzed each review, 3225 (94.33%) were identified as positive reviews. The most common factors associated with positive reviews were physician demeanor (n = 2600, 31.7%), aesthetic outcome (n = 1955, 23.8%), or staff (n = 1543, 18.8%), while negative reviews were associated with unfavorable aesthetic outcome (n = 94, 28.9%), physician demeanor (n = 82, 25.2%), or postoperative complications (n = 75, 23.1%).

Conclusions: Although there are surveys that analyze patient satisfaction for breast reconstruction, there has not been a study that analyzed a large online review database. Predominating factors in both positive and negative reviews were physician demeanor and aesthetic outcome.
in Python and Selenium. Reviews were collected from May 2009 to November 2021. Data points including the review title, review body, RealSelf “worth it” rating system, number of submitted photographs, and number of readers who found the review helpful were included in the extraction. Reviews that were not in English or lacked a description of breast reconstruction were excluded from the analysis.

Reviews were evaluated and dichotomized by the authors as either positive or negative evaluations. Due to the content of each review being polarized, no reviews were categorized as neutral. Key factors underlying the favorable or unfavorable evaluations were identified for each review for quantitative analysis.

Patients made assessments based on a handful of key factors, including physician demeanor or knowledge, thoroughness, office technology or appearance, aesthetic outcome, price, postoperative care, postoperative complications, and staff. Evaluations of physician or staff demeanor included but were not limited to, whether the individual was caring, compassionate, confident, friendly, humorous, kind, professional, patient, impatient, dismissive, rude, or difficult. The patient’s satisfaction with the aesthetic outcome focused on a natural look, postoperative appearance, and scarring. Finally, reviews that mentioned postoperative scarring mentioned infections, wound opening, emergent surgery, pain, or numbness.

### RESULTS

A total of 3451 reviews from RealSelf.com were collected, and 32 were excluded from analysis, as they were written in a non-English language or did not mention breast reconstruction. Approximately 2050 (59.96%) of the reviews listed their experience as worth it, 87 (2.54%) listed their experience as not worth it, and 156 (1.8%) listed their experience as not sure. 96 of the reviews had photographs attached. After author review, 3225 (94.33%) were identified as positive reviews and 194 (5.67%) were negative reviews (Table 1).

Readers could commend a review as being “helpful,” and 1387 reviews or the review’s subsequent updates received this recommendation from at least one reader. Of that total, 1280 were positive reviews and 107 were negative. On average, reviews with photographs were found helpful by 5.97 readers, and reviews lacking photographs were found helpful by 0.69 readers (Table 2).

Author review also labeled specific categories to determine why a review was labeled positive or negative. Positive reviews commonly mentioned physician demeanor (n = 2600, 31.7%), aesthetic outcome (n = 1955, 23.8%), or staff (n = 1543, 18.8%). Negative reviews frequently cited an unfavorable aesthetic outcome (n = 94, 28.9%), physician demeanor (n = 82, 25.2%), or postoperative complications (n = 75, 23.1%) (Table 3).

### DISCUSSION

Patient satisfaction is a complex, multifactorial outcome that physicians can use to measure the quality of care. This is especially important when plastic surgeons are reviewing patient input for breast reconstruction. Current standardized methods to collect this information include BREAST-Q\(^1\) and BRECON-31\(^2\); however, social media and online reviews contain significant amounts of data
on patient satisfaction. Although the association between online reviews and patient satisfaction is unclear, some studies have uncovered some factors correlated to positive reviews. Therefore, this study analyzed reviews from RealSelf.com, which contains a large dataset of patient perspective and satisfaction after procedures, to further understand characteristics associated with positive and negative reviews after breast reconstruction.

Our study found that physician demeanor was paramount to the patient experience and overwhelmingly mentioned in both positive and negative reviews. In fact, many of the negative reviews would exclusively comment on the physician’s demeanor without mention of aesthetic outcome or other factors. Patients frequently commented on how well their interaction with their surgeon went, correlating with other studies and accentuating the significance of the physician–patient relationship. Patients also mentioned postoperative complications frequently, and their physician’s response differentiated between a favorable evaluation and unfavorable evaluation. Positive reviews stated how their physician eased concerns, while negative reviews stated how their physician exacerbated the issue. These findings demonstrate the strong association between the patient–physician relationship and patient satisfaction, which can potentially compensate for other factors.

Aesthetic outcome is understandably one of the top factors for patient satisfaction from our analysis. The most common reasons for unsatisfied reviews were asymmetry, scarring, and unnatural appearance. Similar to physician demeanor, many reviews solely based their experience on the appearance of their reconstruction. Studies using BREAST-Q found that patients opting for breast reconstruction have body image as a significant motivating factor. However, some negative reviews suggested a lack of expectation-based education as found in other studies. By contrast, reviewers who found their physician to be thorough and answered their questions were likely to be satisfied despite unexpected aesthetic outcomes. Additionally, one study found that patients unsatisfied with the aesthetic appearance of their breasts postoperatively found the overall experience positive due to the care from their physician. These indicate how appropriate perioperative care can assist with unfavorable aesthetic outcomes.

Although there were a significant number of positive reviews that referenced staff, a few reviews listed it as a negative factor. Reviews would comment on the availability of staff, welcoming environment, and knowledge when they could otherwise not contact their physician. There were no reviews that listed the staff alone without mentioning the surgeon or aesthetic outcome. These suggest that staff can enhance patient satisfaction, but may not be a significant component that warranted negative reviews.

Each review had the option for patients to upload pre- and postoperative photographs while also permitting readers to designate as helpful. Our study found that when patients voluntarily include photographs with their reviews, there were on average more readers who found the review helpful than if not. A recent study of plastic surgery patients affirmed the importance of before-and-after photographs, noting it was a top-three tool of patient engagement. This demonstrates the importance of patient photographs to both medical professionals and prospective patients as the process allows for a better understanding of potential outcomes.

Although there is hesitation about online reviews as they may undermine a surgeon’s expertise, our study found overwhelmingly positive results. These results were not only found in breast reconstruction, but also for abdominoplasty, blepharoplasty, and rhytidectomy. However, this information differs from available BREAST-Q data as one study demonstrated that women are on average satisfied 78.2% compared with our finding of 94.33%. This reported difference could potentially be from the patient demographic of the RealSelf community not being fully representative of the general community. However, the dataset should not be disregarded due to a large number of reviews and how BREAST-Q focuses on other specific aspects.

This study has several limitations. First, this study is based on an online service that may be biased to those who feel overwhelmingly positive or negative about their experience. Second, this database targets a set of individuals who are comfortable using the internet, online review systems, and social media. Third, reviews could be influenced by specific provider offices by encouraging them to post reviews, which does not encompass all breast reconstruction cases. Fourth, reviews are also variable in length and detail, which may not encompass the entirety of the reviewer’s experience. Despite these limitations, the data provided by RealSelf.com contain valuable information as each review contains direct comments that may have ultimately led to the reviewer’s experience.

CONCLUSIONS
A few studies have analyzed online reviews for breast reconstruction, and our study is the first to analyze a substantial number of reviews that were posted on RealSelf.com. The most common reasons for a positive review were physician demeanor, aesthetic outcome, and staff, while negative reviews were most often due to aesthetic outcome, physician demeanor, and postoperative complications. Our analysis indicates how certain factors, including perioperative care and the patient–physician relationship, can influence patient satisfaction.

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