The American Journal of Surgery 218 (2019) 175–180

Contents lists available at ScienceDirect

The American Journal of Surgery

journal homepage: www.americanjournalofsurgery.com

Patient-reported experience after outpatient breast surgery

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ARTICLE INFO

Article history:
Received 27 October 2018
Received in revised form
23 November 2018
Accepted 3 December 2018

Keywords:
Patient satisfaction
Breast surgery
Hospital rating

ABSTRACT

Background: Given the growing emphasis on patient-centered care, we determined contributory factors to a positive experience among patients undergoing outpatient breast procedures.
Methods: We retrospectively identified patients ≥18 years-old who underwent a breast operation 7/2015-12/2016 and completed a survey within two weeks. Univariate analyses evaluated associations of factors with top survey composite measures. Key driver analysis identified top-priority survey factors for improving the overall assessment measure.
Results: Of 270 patients, patients who gave a top surgeon score were older (mean 62.5 vs 58.6 years, $p = 0.048$), more likely to report a pain score of 0 before discharge (87% vs 68%, $p < 0.01$), and were 30.8 times more likely to give a top rating overall ($p < 0.01$) than those who gave a lower surgeon score. Key driver analysis identified personal issues as the main target for improvement.
Conclusion: To achieve top outpatient ratings, providers should focus on personal issues, including pain control, especially in younger patients. Surgeons should consider focusing on involving the patient in treatment decisions and emphasizing pain control and overall needs to improve the patient experience.

Summary

Patient surveys were retrospectively reviewed following outpatient breast surgery to determine factors associated with top provider outpatient ratings. To achieve top outpatient ratings, providers should focus on personal issues, including pain control and patient inclusion in treatment decisions, especially in younger patients.

Introduction

With the growing number of healthcare options available and emphasis on patient reported outcomes and individualized patient care, patient satisfaction survey data has become an increasingly important healthcare quality metric. In 2008, the Hospital Consumer Assessment of Healthcare Providers and Systems standardized survey was developed to evaluate patients' assessment of inpatient hospital care.[1] A number of recently-published studies have focused on these surveys, and others, to determine targets for improvement in patient satisfaction in the inpatient setting.[2–11] Tracking the patient experience through surveys is important as it serves as a quality metric to allow for improvement. In the years following inpatient experience reporting, meaningful improvement in patients' hospital care experiences have been noted.[2]

While most existing studies include patients undergoing inpatient breast surgery, the majority of breast-conserving procedures, and some mastectomies, are performed on an outpatient basis. Furthermore, most studies assessing the patient experience following breast surgery are focused on aesthetic outcome.[12–16] Given the limited information available on determinants of a positive patient experience following outpatient breast surgery, we evaluated patient-reported responses from an *Ambulatory Surgery Survey* completed by participating patients who underwent outpatient breast procedures at our tertiary medical centers.

Materials and methods

After institutional review board approval, we identified all

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https://doi.org/10.1016/j.amjsurg.2018.12.004
0002-9610/

patients ≥18 years of age who underwent an outpatient general surgery breast operation for oncologic diagnosis, treatment, or prevention purposes at Mayo Clinic Rochester (MCR), Jacksonville (MCF), and Scottsdale (MCA) from July 2015 to December 2016. Patients were identified using Current Procedural Terminology (CPT) codes. International Classification of Disease (ICD) -9th and 10th Revision diagnosis codes were used to determine diagnoses of benign disease, lobular/ductal carcinoma in situ, or invasive disease. Patients who refused Minnesota research authorization were excluded from the study.

All patients were sent a post-surgery questionnaire, *Ambulatory Surgery Survey* administered by Press Ganey®, between one to two weeks post discharge. The Press Ganey® *Ambulatory Surgery Survey* includes 32 questions, each with 5 available responses (very poor, poor, fair, good, very good) that are aggregated into 7 composite measures: registration, nursing, surgeon, facility, personal issues (pain control, responsiveness to needs, and inclusion in treatment decisions), patient safety, and overall assessment (rating of care, degree to which staff worked together, likelihood of recommending), Supplemental Fig. 1. Patient factors including age, sex, race, and primary language were collected electronically from administrative and clinical data sources. Pain scores were patient reported throughout the hospital experience on a scale of 0–10, where 0 was no pain and 10 was the worst pain of the patient's life.

Univariate logistic regression analyses evaluated associations of patient factors with top box survey (top possible selection, "very good") measures. Key driver analysis identified top priority survey measures for improving the overall assessment measure based on quadrant analysis, as described in previous work.[8–11,17] For example, first quadrant survey items have a lower than average satisfaction level while having a higher than average correlation with the overall assessment composite measure; therefore, they should be a first priority for improvement in overall score.

Results

Of 487 patients, 270 (55.4%) patients, of whom 98.9% were female, responded to the survey. Mean age (±SD) was 61.7 ± 12.3 years. The highest proportion of patients underwent surgery at MCR (n = 125, 46.3%), followed by MCA (n = 86, 31.9%) and MCF (n = 59, 21.9%). Of patients who completed the survey, the majority [147/270 (54.4%)] underwent a unilateral lumpectomy with sentinel lymph node (SLN) operation. The next most common procedure was a unilateral lumpectomy without an axillary operation, 102/270 (37.8%). Four patients underwent outpatient mastectomy. No significant differences in top box scores of any composite measures were observed between patients who underwent a breast procedure alone versus both breast and axillary operations (all $p > 0.05$).

Patients who gave a top box (top possible selection) score for overall assessment composite were older than patients who gave a lower score (mean 62.3 vs 57.4 years, $p = 0.04$). When this score was evaluated by decade, a trend was seen with an increased proportion of top box ratings as the age groups increased; however, this was not statistically significant (percent top box score: age 18–39 70.0%, 40–49 84.2%, 50–59 85.7%, 60–69 90.3%, 70–79 95.7%, and 80 + 90.9%, $p = 0.20$). No other evaluated variables (procedure, sex, race, diagnostic versus therapeutic excision, or primary language spoken) were statistically significantly associated with an overall assessment composite top box score, Table 1. There were no significant differences between pain scores (minimum, maximum, or last pain score before discharge) by overall assessment composite ($p = 0.11$ minimum score, $p = 0.60$ maximum score, $p = 0.77$ last score), Fig. 1.

On evaluating surgeon composite score, patients who gave a top box surgeon score were older (mean 62.5 vs 58.6 years, $p = 0.048$). While the median patient-reported minimum pain score was 0 for both groups, those reporting top box surgeon ratings were more likely to report a minimum pain score of 0 (87.3% vs 67.9%, $p = 0.001$), Fig. 2. There were no statistically significant differences between procedure, sex, race, diagnostic versus therapeutic excision, or language spoken and surgeon rating, Table 1.

In review of the individual questions that compose the overall assessment composite score, on univariate logistic regression, a top box response on the individual question assessing rating of care was significantly more likely among patients who gave a top box surgeon composite response (OR 30.8 vs non-top box surgeon score, 95% CI 10.8–87.5, $p < 0.001$) and among patients who gave a top box facility composite score (OR 55.0 vs non-top box facility score, 95% CI 7.3–413.1, $p < 0.001$). A top box response on the individual question assessing likelihood to recommend was significantly more frequent among patients who gave a top box nursing

Table 1
Patient factors associated with overall assessment and surgeon composite scores.

	Overall Composite				Surgeon Composite		
	Total (N = 270)	Top box (N = 238)	Non-top box (N = 30)	p value	Top box (N = 217)	Non-top box (N = 53)	p value
Procedure group				0.48			0.85
Breast surgery alone	109 (40.7%)	95 (87.2%)	14 (12.8%)		87 (79.8%)	22 (20.2%)	
Breast surgery + axillary surgery	159 (59.3%)	143 (89.9%)	16 (10.1%)		130 (80.7%)	31 (19.3%)	
Age Mean (SD)	61.8 (12.3)	62.3 (11.9)	57.4 (14.3)	0.04	62.5 (11.7)	58.6 (14.1)	0.048
Sex				0.54			0.39
Female	265 (98.9%)	235 (88.7%)	30 (11.3%)		214 (80.1%)	53 (19.9%)	
Male	3 (1.1%)	3 (100.0%)	0 (0.0%)		3 (100.0%)	0 (0.0%)	
Race/ethnicity				0.29			0.28
Non-Hispanic White	234 (87.3%)	206 (88.0%)	28 (12.0%)		192 (81.4%)	44 (18.6%)	
Other/Unknown	34 (12.7%)	32 (94.1%)	2 (5.9%)		25 (73.5%)	9 (26.5%)	
Invasive Cancer				0.61			0.18
Yes	172 (64.2%)	154 (89.5%)	18 (10.5%)		144 (82.8%)	30 (17.2%)	
No	96 (35.8%)	84 (87.5%)	12 (12.5%)		73 (76.0%)	23 (24.0%)	
DCIS				0.46			0.52
Yes	49 (18.3%)	45 (91.8%)	4 (8.2%)		41 (83.7%)	8 (16.3%)	
No	219 (81.7%)	193 (88.1%)	26 (11.9%)		176 (79.6%)	45 (20.4%)	
Language				0.54			0.39
English	265 (98.9%)	235 (88.7%)	30 (11.3%)		214 (80.1%)	53 (19.9%)	
Spanish	3 (1.1%)	3 (100.0%)	0 (0.0%)		3 (100.0%)	0 (0.0%)	

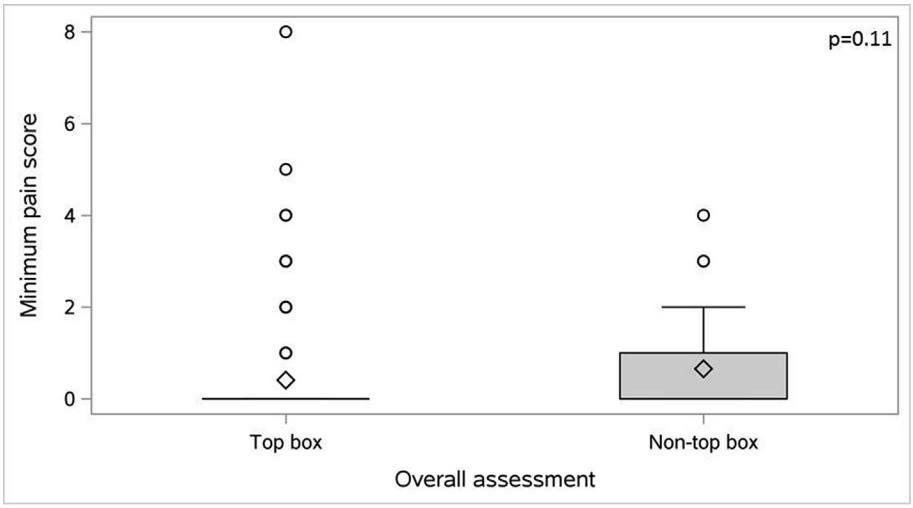

Fig. 1. Association of minimum pain score with top box versus non-top box ratings for overall assessment composite.
Key: Diamond = mean, Whiskers = values within 1.5*IQR of the interquartile range, Circles = Outliers >1.5*IQR above the interquartile range.

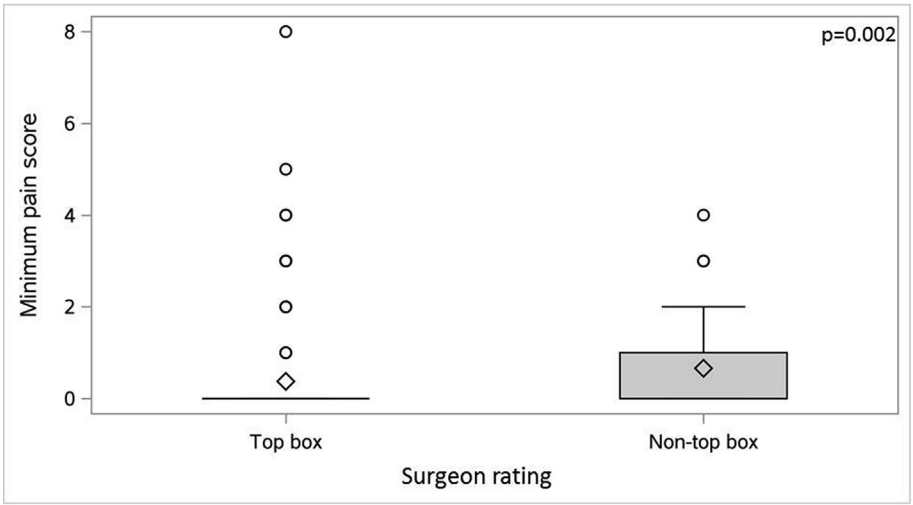

Fig. 2. Association of minimum pain score with top box versus non-top box ratings for surgeon composite rating.
Key: Diamond = mean, Whiskers = values within 1.5*IQR of the interquartile range, Circles = Outliers >1.5*IQR above the interquartile range.

composite core (OR 46.4 vs non-top box nursing score, 95% CI 6.1–353.1, $p < 0.001$) and among patients who gave a top box surgeon composite score (OR 22.9 vs non-top box surgeon score, 95% CI 7.2–72.4, $p < 0.001$), Table 2.

Key driver analysis showed that personal issues, including pain control, responsiveness to needs, and inclusion in treatment decisions, should be top priorities for improvement in overall assessment composite score (Fig. 3).

Discussion

In our evaluation of the patient-reported experience surrounding outpatient breast procedures, we found that both surgeon and nurse interactions with patients, as well as facility variables, greatly contribute to the patient experience. Furthermore, older patient age and lower pain were associated with a higher overall assessment composite score, and therefore better patient

Table 2
Univariate Analysis of Survey Factors Associated with Top box Scores of Individual Questions Assessing Rating of Care and Likelihood to Recommend the Hospital.

Variable (odds of top box)	Overall Rating of Care		Likelihood to Recommend	
	p value	Odds Ratio (95% CI)	p value	Odds Ratio (95% CI)
Registration composite score	<0.001	10.9 (3.9–3.2)	<0.001	12.6 (3.5–45.0)
Nursing composite score	NA	NA	<0.001	46.4 (6.1–353.1)
Surgeon composite score	<0.001	30.8 (10.8–87.5)	<0.001	22.9 (7.2–72.4)
Facility composite score	<0.001	55.0 (7.3–413.1)	<0.001	37.1 (4.9–281.7)
Personal issues composite score	NA	NA	NA	NA
Patient safety composite score	<0.001	10.4 (3.6–30.4)	<0.001	18.8 (5.5–63.9)

NA: Unable to be assessed as no patients with a top box composite reported a non top-box overall rating of care and/or likelihood to recommend.

	N	Registration	Nursing	Physician	Facility	Personal Issues	Patient Safety
Overall	270	○			○	◆	
Procedure group							
Breast surgery alone	109	○			○	◆	
Breast surgery + axillary surgery	161	○			○	◆	

Key: ◆ = Key targets (quadrant 1); ○ = Low rated non-key driver metrics (quadrant 4).

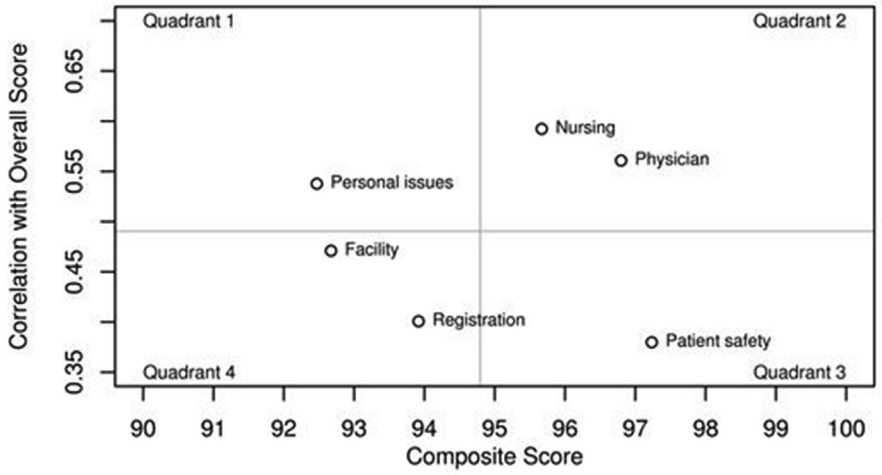

Fig. 3. Key drivers of overall hospital score.
First quadrant survey items have a lower than average satisfaction level while having a higher than average correlation with the overall assessment composite measure.
Second quadrant survey items have a higher than average satisfaction level and are highly correlated with the overall assessment composite measure.
Third quadrant survey items have a higher than average satisfaction level while having a lower than average correlation with the overall assessment composite measure.
Fourth quadrant survey items have a lower than average satisfaction level and have a lower than average correlation with the overall assessment composite measure.

experience. Addressing patient experience following outpatient procedures is essential, as patient opinions regarding their experience are formed during only a few hours of care. Efforts for improvement should focus on staff and patient interactions, facility, and pain control to advance the overall patient experience, and evaluation of progress should be evaluated frequently. The findings from this study can serve as a starting point from which we can strive to improve the patient experience following outpatient breast surgery.

Surgeon rating has been shown to be influenced by preoperative communication and attentiveness on the day of surgery in the inpatient setting.[7] We found that communication is important, as captured by the evaluation of inclusion in treatment decisions measured by satisfaction in personal issues. It is not surprising that open communication and patient attentiveness on the day of surgery contribute to a good patient experience; however, it is interesting that this finding is similar between inpatient and outpatient experiences, highlighting that the operative day is of utmost importance, no matter the duration of the hospital stay. This may be challenging for outpatient procedures, as the surgeon may be in the operating room with another patient while patients are being prepared either for surgery or discharge. This situation may either increase patient waiting time or decrease physician-patient communication, both of which negatively influence patient satisfaction.[18] One way to improve the patient experience in this setting is to appropriately frame patient expectations preoperatively, helping to increase patient knowledge, understanding, and health literacy.[7,19] Clear and interactive communication with patients throughout the treatment process is important, especially when developing the treatment plan. Patient involvement in treatment

decisions, with shared decision making, will help maintain a positive psychosocial attitude for the patient, which has also been shown to be associated with patient satisfaction in women undergoing breast surgery.[15]

We found that age was associated with patient perception of experience. It is unclear why older patients reported having a better experience than younger patients; however, this has been shown in the inpatient setting as well.[7] In our study, our evaluation of top box overall composite by age decade was underpowered to show a statistical difference, but patient experience varied by decade, suggesting generational differences and/or life experience play a role. While it is imperative that we provide clear communication and attentiveness to all patients, it is important to observe that patient-reported experience varies with age so that we can ensure efforts are effective among younger patients.

Our results show that minimum pain scores were more likely to be 0 among patients who were most satisfied with their surgeon (gave top box surgeon scores) compared to those who were not (gave non-top box surgeon scores). This is a similar finding to previous studies that have found an improved inpatient hospital experience with decreased pain.[5,9] One of the challenges presented by outpatient procedures is prescribing adequate, but not too many, pain medications upon discharge without the information provided by of observing pain over a period of hospitalization; appropriate prescribing levels are important for continued pain control after the patient returns home while avoiding the overprescribing of opioid pain medications. Multimodal analgesia with preoperative administration of oral non-opioid pain medications and intraoperative local anesthetic may help decrease postoperative pain.[20,21] As more studies are performed and prescribing recommendations are made, providers should strive to find a balance of optimal pain control and patient satisfaction.[22]

We observed no differences in patient-reported experience following breast procedures alone versus breast procedures with an axillary procedure. The majority of the outpatient breast procedures studied were lumpectomy procedures, and the majority of axillary procedures were sentinel lymph node procedures. These findings contrast with a prior study that found that greater breast excision and axillary procedures affected satisfaction negatively.[13] Reasons for these differences in findings may be our inclusion of mostly patients who underwent sentinel lymph node surgery and not axillary lymph node dissection and our focus on the patient hospital experience rather than cosmetic appearance. Another reason for the variation in findings of the patient experience in other studies is that satisfaction following breast surgery has been found to correlate with patient perceived quality.[16] The perception of quality is multifactorial in nature and cannot be controlled for between studies. This perception corresponds with our findings of the surgeon, nursing staff, and facility all contributing to the patient experience.

Limitations to our study include its retrospective design with modest sample size. Additionally, our survey response rate was moderate, and patients who responded largely gave positive feedback, which limited our power to assess variation in experience scores. Patients who are generally satisfied with their overall experience will likely more easily give all top box scores, whereas patients who are less satisfied overall may think more critically about each survey component. Furthermore, we must be cautious in making broad conclusions as we were unable to assess the experience or characteristics of patients who were surveyed but did not respond. Our findings may not be generalizable to all hospitals as our hospitals are considered high volume surgical centers, which have been shown to be associated with better patient experience.[8] Furthermore, our findings may not be generalizable to patients undergoing procedures other than breast surgery as our evaluation was limited to this specific population of patients, who are typically healthy with minimal comorbidities; studies have shown that increased severity of illness is associated with decreased inpatient hospital experiences.[8] Furthermore, our patient population was composed of largely non-Hispanic white English speaking females and the patient experience may vary in other patient populations. Despite these limitations, our study is one of the first to evaluate the patient experience following outpatient breast surgery.

Conclusions

In order to achieve top hospital outpatient ratings, outpatient breast surgery providers should focus on pain control and personal issues, especially in younger patients. Patients' perceptions of surgeons largely influence their overall assessment of the hospital; therefore, surgeons may consider focusing on involving the patient in treatment decisions and emphasizing pain control and overall needs to improve the overall patient experience.

Funding/support

The Mayo Clinic Robert D. and Patricia E. Kern Center for the Science of Health Care Delivery provides salary support for Dr. Habermann and Ms. Hanson. No external funding was used.

Conflicts of interest

All authors disclose no conflicts.

Acknowledgements

The authors would like to acknowledge the support of the Mayo Clinic Departments of Surgery (Rochester, Florida, and Arizona) and the Robert D. and Patricia E. Kern Center for the Science of Health Care Delivery (Rochester) as substantial contributors of resources to the project.

This work was presented as a poster presentation during the Society of Surgical Oncology Annual Cancer Symposium in Chicago, IL March 2018.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.amjsurg.2018.12.004.

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