# Factors Influencing Patient Satisfaction in Plastic Surgery: A Nationwide Analysis

Kevin Chen, M.D.
Susan Congiusta, D.N.P., R.N.
Ira S. Nash, M.D.
Gene F. Coppa, M.D.
Mark L. Smith, M.D.
Armen K. Kasabian, M.D.
Charles Thorne, M.D.
Neil Tanna, M.D., M.B.A.

*New York, N.Y.*


**Background:** Patient satisfaction surveys are an increasingly important part of health care, influencing the practice of physicians. Press Ganey has developed tools to assess physician and department performance that are used by 50 percent of hospitals in the United States and over 10,000 health care organizations. The authors sought to evaluate the factors that influence patient satisfaction in plastic surgery patients both locally and nationally.
**Methods:** A 24-item Press Ganey survey was distributed to patients of 686 participating plastic surgeons nationwide, including those at the authors' home institution. The responses from January to December of 2016 were analyzed retrospectively with Pearson correlation coefficients. The items "likelihood to recommend provider" and "likelihood to recommend practice" were correlated to all other items of the survey, as these items have been shown to be surrogates for overall satisfaction.
**Results:** There were 411 survey responses from patients in the Northwell Health System and 36,836 responses from patients nationally. Items that were not well correlated ($r < 0.5$) with "likelihood to recommend practice" or "provider" were items such as wait time and courtesy of registration staff. The items that were best correlated ($r > 0.8$) with "likelihood to recommend practice" or "provider" were the patient's confidence in the care provider and the provider's concern for questions. All correlations were statistically significant ($p < 0.001$).
**Conclusion:** In an evolving patient centric culture, the patient's confidence and trust of the provider is more important than perception of the provider's office environment to maintaining patient loyalty and market share. (*Plast. Reconstr. Surg.* 142: 820, 2018.)

Patient satisfaction is a health care metric that is gaining credence as a reflection of the quality of care provided to patients. The Affordable Care Act states that one of the priorities for quality measure development and improvement is the assessment of "patient experience and satisfaction."[1] In addition, patients who are more satisfied have better compliance and are more often retained by those providers deemed to be satisfactory.[2,3] As such, patient satisfaction surveys have increasingly been used to assess physician performance in the outpatient and hospital settings.

Previous studies of satisfaction in the plastic surgery patient population have shown that the

*From the Division of Plastic and Reconstructive Surgery, Hofstra Northwell Health School of Medicine, Northwell Health.*
*Received for publication September 23, 2017; accepted March 21, 2018.*
*Presented at the 34th Annual Meeting of Northeastern Society of Plastic Surgeons, in Newport, Rhode Island, September 8 through 10, 2017; and Plastic Surgery The Meeting 2017, Annual Meeting of the American Society of Plastic Surgeons, in Orlando, Florida, October 6 through 10, 2017.*
*Copyright © 2018 by the American Society of Plastic Surgeons*
DOI: 10.1097/PRS.0000000000004658

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

Supplemental digital content is available for this article. A direct URL citation appears in the text; simply type the URL address into any Web browser to access this content. A clickable link to the material is provided in the HTML text of this article on the *Journal*'s website (www.PRSJournal.com).

A Video Discussion by Erika Sears, M.D., accompanies this article. Go to PRSJournal.com and click on "Video Discussions" in the "Digital Media" tab to watch.



Copyright © 2018 American Society of Plastic Surgeons. Unauthorized reproduction of this article is prohibited.

factors most associated with satisfaction were health care provider courtesy and personal manner of the physician.[4,5] They also demonstrated that there was no statistically significant correlation between clinic wait time and overall satisfaction of the patient. The patient response surveys in these studies, however, were all obtained from a single center or clinic. The purpose of this study was to examine the factors throughout the visit that influence a patient's satisfaction both locally at a single institution and nationally. There have been studies examining factors affecting patient satisfaction in patient populations in emergency medicine,[3] ophthalmology,[6] trauma,[7] orthopedic spine,[8] and geriatric care,[9] but to the best of the authors' knowledge, this is the first national study of patient satisfaction in plastic surgery patients, as previous studies in the plastic surgery population have been limited to single-center studies.

## PATIENTS AND METHODS

This study examined patient experience data from patient satisfaction surveys received between January 1, 2016, and December 31, 2016, for plastic surgery physicians. Surveys were delivered to patients seen in the outpatient setting by Press Ganey. Press Ganey is a third-party vendor that administers and analyzes patient satisfaction surveys and is already used by 50 percent of hospitals in the United States and over 10,000 health care organizations.

Patient sampling was taken from plastic surgery medical practices across the United States. For all providers using the services of Press Ganey, the first 25 patients seen in a month were sent paper surveys by mail. All subsequent patients with a valid e-mail address on file with the provider were sent an e-survey. There were no exclusion criteria and all responses were included in the analysis.

The Press Ganey survey is a 24-item questionnaire asking the patients to rate their experience during the visit using a Likert scale ranging from 1 to 5, where 1 = very poor and 5 = very good. Items include access, moving through your visit, nurse/assistant/non-M.D. staff, care provider, personal issues, and overall assessment. (**See Document, Supplemental Digital Content 1**, which shows the 24-item Press Ganey survey, ***http://links.lww.com/PRS/C937***.) There is also room in the survey for free text input from the patients. At the authors' institution, patients that are seen in the outpatient plastic surgery office are randomly selected and contacted to submit the survey. Survey instrument reliability estimates for these five items range from 0.81 to 0.97, with 0.70 being the standard cutoff for a reliable measure, and the Cronbach alpha for the entire questionnaire is 0.97, confirming the instrument's high internal consistency and reliability. In addition, the survey tests at the sixth grade reading level using the Flesch-Kincaid Index.[10]

The primary outcome variables were the response to the items "likelihood of your recommending this care provider to others" and "likelihood of your recommending our practice to others." These items were chosen because they have been shown to be a proxy for overall satisfaction and are the items that practices and providers should use to gauge success and potential for expansion. Certain institutions in the country have even used them as a factor in determining departmental bonuses.[6]

To determine which factors were most correlated with a higher likelihood to recommend, Pearson correlation coefficient matrices were calculated. A matrix was established for responses from patients at the authors' own institution and responses from patients across the country. Given the lack of objectivity and the great variation in responses to the free text portion of the survey, it was not included in analysis. Statistical significance was set at $p < 0.01$ to limit type I error, especially given the large number of our data set. In addition, factor analysis was performed to determine underlying variables and limit collinearity. Subsequent ordinal regression analysis was performed to assess influence of the determined variables on the likelihood to recommend care provider and practice. All data analysis was performed using the Stata 13 software (StataCorp, College Station, Texas).

## RESULTS

We obtained a total of 36,063 responses from 686 providers nationwide. Table 1 displays the gender distribution and average ages of the patients sampled, with the majority of patients being female (72 percent) and the average age being the mid-50s.

Overall, patients' responses showed a poor correlation to "likelihood of your recommending this care provider to others" and "likelihood of your recommending our practice to others" for items in the access, moving through the visit, and nurse/assistant/technician/non-M.D. staff categories. Items that correlated poorly with likelihood to recommend care provider were "ease



Copyright © 2018 American Society of Plastic Surgeons. Unauthorized reproduction of this article is prohibited.

**Table 1. Characteristics of Patients Surveyed**

| Gender | Mean Age (yr) | SD | No. (%) |
|---|---|---|---|
| Female | 53.98 | 17.90 | 25,948 (72) |
| Male | 56.15 | 24.29 | 9694 (27) |
| Unspecified | 59.26 | 15.06 | 421 (1) |
| All | 54.62 | 19.84 | 36,063 (100) |

of getting through to practice on phone," with a Pearson correlation coefficient of 0.314; "courtesy of staff in registration area" was also poorly correlated, with a Pearson correlation coefficient of 0.334. Items that correlated poorly with likelihood to recommend practice were also "ease of getting through to practice on phone," with a Pearson correlation coefficient of 0.350, and "convenience of our office hours," with a Pearson correlation coefficient of 0.381.

Items related to the care provider were the best correlated to "likelihood of your recommending this care provider to others" and "likelihood of your recommending our practice to others." "Your confidence in this care provider" had a Pearson correlation coefficient of 0.909 to "likelihood of your recommending this care provider to others" and a Pearson correlation coefficient of 0.796 to "likelihood of your recommending our practice to others." The item "concern the care provider showed for your questions/worries" was also well correlated, with a Pearson correlation coefficient of 0.815 to "likelihood of your recommending this care provider to others" and a Pearson correlation coefficient of 0.739 to "likelihood of your recommending our practice to others." Table 2 summarizes the correlation matrix for patients nationwide to "likelihood of your recommending this care provider to others." Table 3 demonstrates a correlation matrix for patients nationwide to "likelihood of your recommending our practice to others." All correlations in all matrices had significant values of $p < 0.001$.

For additional analysis of the components contributing to likelihood to recommend care provider and practice, factor analysis was performed to limit collinearity in subsequent regression models. As was previously published by Press Ganey,[10] factor analysis identified five dimensions that corresponded to the survey groupings of "Access," "Moving through your visit," "Nurse/Assistant/Techincian/Non-M.D. staff," "Care Provider," and "Personal Issues."

Tables 4 and 5 display the findings of ordinal logistic regression examining associations of the factor variables determined through factor analysis, age, and gender with the items likelihood to recommend care provider and likelihood to recommend practice. As was suggested by the Pearson correlation matrices, the ordinal logistic regression demonstrated that the items in the "Care

**Table 2. Correlation to "Likelihood of Your Recommending This Care Provider to Others" of National Plastic Surgeons**

| Item | Pearson Correlation | *p* |
|---|---|---|
| Ease of getting clinic on phone | 0.314 | <0.001 |
| Convenience of our office hours | 0.343 | <0.001 |
| Ease of scheduling appointments | 0.362 | <0.001 |
| Courtesy of registration staff | 0.334 | <0.001 |
| Information about delays | 0.391 | <0.001 |
| Wait time at clinic | 0.375 | <0.001 |
| Friendliness/courtesy of nurse/assistant | 0.422 | <0.001 |
| Concern of nurse/assistant for problem | 0.452 | <0.001 |
| Friendliness/courtesy of CP | 0.757 | <0.001 |
| CP explanations of problem/condition | 0.792 | <0.001 |
| CP concern for questions/worries | 0.815 | <0.001 |
| CP efforts to include in decisions | 0.794 | <0.001 |
| CP information about medications | 0.721 | <0.001 |
| CP instructions for follow-up care | 0.734 | <0.001 |
| CP spoke using clear language | 0.686 | <0.001 |
| Time CP spent with patient | 0.729 | <0.001 |
| Patients' confidence in CP | 0.909 | <0.001 |
| Likelihood of recommending CP | 1.000 | <0.001 |
| How well staff protect safety | 0.480 | <0.001 |
| Our sensitivity to patients' needs | 0.692 | <0.001 |
| Our concern for patients' privacy | 0.543 | <0.001 |
| Cleanliness of our practice | 0.480 | <0.001 |
| Staff worked together | 0.660 | <0.001 |
| Likelihood of recommending practice | 0.863 | <0.001 |

CP, care provider.

**Table 3. Correlation to "Likelihood of Your Recommending Our Practice to Others" of National Plastic Surgeons**

| Item | Pearson Correlation | *p* |
|---|---|---|
| Ease of getting clinic on phone | 0.350 | <0.001 |
| Convenience of our office hours | 0.381 | <0.001 |
| Ease of scheduling appointments | 0.402 | <0.001 |
| Courtesy of registration staff | 0.402 | <0.001 |
| Information about delays | 0.432 | <0.001 |
| Wait time at clinic | 0.407 | <0.001 |
| Friendliness/courtesy of nurse/assistant | 0.477 | <0.001 |
| Concern of nurse/assistant for problem | 0.497 | <0.001 |
| Friendliness/courtesy of CP | 0.696 | <0.001 |
| CP explanations of problem/condition | 0.719 | <0.001 |
| CP concern for questions/worries | 0.739 | <0.001 |
| CP efforts to include in decisions | 0.723 | <0.001 |
| CP information about medications | 0.664 | <0.001 |
| CP instructions for follow-up care | 0.677 | <0.001 |
| CP spoke using clear language | 0.628 | <0.001 |
| Time CP spent with patient | 0.664 | <0.001 |
| Patients' confidence in CP | 0.796 | <0.001 |
| Likelihood of recommending CP | 0.863 | <0.001 |
| How well staff protect safety | 0.524 | <0.001 |
| Our sensitivity to patients' needs | 0.731 | <0.001 |
| Our concern for patients' privacy | 0.593 | <0.001 |
| Cleanliness of our practice | 0.540 | <0.001 |
| Staff worked together | 0.770 | <0.001 |
| Likelihood of recommending practice | 1.000 | <0.001 |

CP, care provider.



Copyright © 2018 American Society of Plastic Surgeons. Unauthorized reproduction of this article is prohibited.

**Table 4. Ordinal Regression for "Likelihood of Your Recommending This Care Provider to Others"**

| Variable | Coefficient (99% CI) | SE | *t* | *p* |
|---|---|---|---|---|
| Access | 0.4444 (0.3801–0.5088) | 0.0328 | 13.54 | <0.00001 |
| Moving through the visit | 0.6179 (0.5626–0.6731) | 0.0282 | 21.91 | <0.00001 |
| Nursing, non-M.D. staff | 0.5174 (0.472–0.5628) | 0.0232 | 22.33 | <0.00001 |
| Care provider | 2.3879 (2.3215–2.4544) | 0.0339 | 70.46 | <0.00001 |
| Personal Issues | 0.7177 (0.6713–0.764) | 0.0236 | 30.35 | <0.00001 |
| Age | 0.0015 (–0.0015–0.0046) | 0.0015 | 0.99 | 0.321 |
| Gender | –0.0789 –0.2039–0.046) | 0.0638 | –1.24 | 0.216 |

**Table 5. Ordinal Regression for "Likelihood of Your Recommending Our Practice to Others"**

| Variable | Coefficient (99% CI) | SE | *t* | *p* |
|---|---|---|---|---|
| Access | 0.6101 (0.5523–0.6679) | 0.0295 | 20.69 | <0.00001 |
| Moving through the visit | 0.7303 (0.681–0.7796) | 0.0252 | 29.03 | <0.00001 |
| Nursing, non-M.D. staff | 0.7096 (0.6686–0.7507) | 0.0209 | 33.9 | <0.00001 |
| Care provider | 1.6953 (1.6445–1.7461) | 0.0259 | 65.39 | <0.00001 |
| Personal issues | 0.9903 (0.947–1.0335) | 0.0221 | 44.86 | <0.00001 |
| Age | 0.0023 (–0.0005–0.0052) | 0.0014 | 1.61 | 0.107 |
| Gender | 0.0075 (–0.1113–0.1262) | 0.0606 | 0.12 | 0.902 |

Provider" category had the greatest effect on the odds of increasing both likelihood to recommend care provider (coefficient, 2.388; $p < 0.00001$) and practice (coefficient, 1.695; $p < 0.00001$). All other factors also had statistically significant positive correlations with both likelihood to recommend care provider and practice but were weaker overall. For neither care provider nor practice did age or gender have a statistically significant association.

## DISCUSSION

With the changing environment of health care and uncertain status of the Affordable Care Act, both health care organizations and providers seek to maintain patient loyalty and grow market share. In addition, patients are becoming increasingly discerning and active in choosing from where and whom to receive their care.

Previous studies have demonstrated statistically significant links between patient satisfaction and loyalty.[11] Patient satisfaction surveys are not a perfect measure of the performance of providers, but tools such as the Press Ganey survey provide insight into patients' perceptions of the outpatient experience that are within the control of care providers.

In this study, the authors' sought to examine which items in a 24-question survey about the clinic experience were most associated with the metric "likelihood of your recommending this care provider to others," an item that has been shown to reflect satisfaction and, more importantly, that the provider has met all the needs of the patient. National data were obtained from 686 providers, allowing an evaluation of trends across the country. To the best of the authors' knowledge, this is the first study examining patient satisfaction in plastic surgery patients nationally.

The data analyses through Pearson correlation matrices along with factor and regressional analyses demonstrate that in both sets of patients, there was relatively lower correlation of "likelihood of your recommending this care provider to others" with access to services and experience with the office staff. There was in general much higher correlation to items related to care provider, which was demonstrated by the high correlation coefficient in ordinal regression analysis. "Your confidence in this care provider" had the highest correlation coefficient. "Concern the care provider showed for your questions/worries" and "care provider's efforts to include you in decisions about your treatment" were also well correlated with our metric for overall satisfaction. This was also shown in the ordinal regression, which demonstrated the strongest association between the care provider category with likelihood to recommend care provider and likelihood to recommend practice.

In addition, we examined the items that were associated with the patient's willingness to recommend not only the single provider but also the practice as a whole with the metric "likelihood of your recommending our practice to others." Our theory was that although a patient's willingness to recommend the provider may be more associated with the characteristics of the provider, the willingness to recommend the practice would be more associated with ease and convenience of



Copyright © 2018 American Society of Plastic Surgeons. Unauthorized reproduction of this article is prohibited.

the office and practice, and therefore the item "likelihood of your recommending our practice to others" would be more associated with items in the access, moving through the visit, and nurse/assistant/technician/non-M.D. staff categories. Our findings showed, however, that the items better correlated with likelihood to recommend care provider (i.e., "your confidence in this care provider" and "concern the care provider showed for your questions/worries") were also better correlated with "likelihood of your recommending our practice to others."

The data presented herewith suggest that in the outpatient plastic surgery setting, patients are more satisfied if they feel that their physician provides them with compassionate, coordinated care. Of less importance is that they feel the staff was pleasant, the office was easily accessible by phone, or appointments were easy to schedule. The patients are more likely to recommend the practice based on the characteristics of the individual provider. This finding is consistent with previous studies in plastic surgery patients that have demonstrated that the personal manner of the provider and time spent with the provider were the most powerful predictors of patient satisfaction.[4,6] The fact that included in the highest correlated factors were the "concern the care provider showed for your questions/worries" and the "care provider's efforts to include you in decisions about your treatment" implies that patients are most likely to recommend plastic surgeons and their practices whose care is characterized by empathy and communication. This study represents the first attempt to look at factors affecting patient satisfaction for plastic surgery patients at the national level.

The findings presented in our study are also consistent with previous studies looking at patient satisfaction in other branches of medicine, such as emergency medicine, ophthalmology, and orthopedics, which also highlighted the correlation between patient satisfaction and perceived quality and amount of time spent with the provider. Uniquely inherent in plastic surgery practices, however, is a desire to present a smoothly and efficiently run and aesthetically pleasing practice, be it in office space, waiting room, or website. Our study implies that although these factors are important, to maximize patient satisfaction, resources may be better allocated to improving the time and quality of the time spent with patients. Strategies that clinicians can use to increase efficiency of the encounter and optimize time spent with the patient include pacing the dialogue and "agenda setting" through the use of open-ended questions to actively solicit all of the patient's concerns.[12] In addition, patients not only are not as concerned about the wait time compared to the time spent with the provider, but they have been shown to have an inaccurate perception of wait time and typically underestimate the time they have spent waiting.[13] Thus, a potential strategy is to just spend increased time with each patient at the expense of slightly longer wait periods.

This study was limited by the retrospective nature of the data collection. One of the drawbacks in data collection was that some survey responses were on paper, whereas the majority of responses were by e-survey. It is unclear whether this had an effect on survey responses. In addition, certain demographic data were not available from survey responses. Ethnicity and socioeconomic status were not obtained as part of the survey. However, previous studies have shown that these confounding variables are not associated with overall satisfaction.[4] This was reiterated in our ordinal logistic regression, which demonstrated no association between age and gender with likelihood to recommend. In addition, the Press Ganey survey suffers the same drawbacks as any other survey using Likert scales: respondents may not be entirely honest and they may base their answers on what is expected of them.

Further studies may aim to also stratify these patients by type of procedure performed to examine whether aesthetic or reconstructive patients have different factors associated with their satisfaction. Another direction for future studies of this nature may be to include quantitative data on the amount of time spent by the provider with the patient to determine a per-minute effect of time spent on patient satisfaction.

The ramifications to improving patients' likelihood to recommend are evident. A satisfied patient who recommends the provider to others allows not only preservation of the provider's patient population but also the potential for growth of market share. Beyond this, patients' likelihood to recommend is a reflection of their trust in the provider, as a patient is understandably unlikely to recommend a provider they do not trust. A satisfied patient is one whose expectations have been met, but a trusting patient is one who has had his or her needs met. In earning patients' trust, plastic surgeons can fulfill goals of a practicing provider and the goal of any medical professional: improving patient experience by meeting their needs.



Copyright © 2018 American Society of Plastic Surgeons. Unauthorized reproduction of this article is prohibited.

## CONCLUSIONS

This study suggests a logical conclusion in medical practice: a patients' satisfaction with their care is most directly tied to their perception of their care provider. To grow patient loyalty and market share, plastic surgeons should focus their resources on making time to answer questions and including patients in decision-making.

***Neil Tanna, M.D., M.B.A.***
130 East 77th Street, 10th Floor
New York, N.Y. 11042
ntanna@gmail.com

## REFERENCES

1. 111th Congress. Patient Protection and Affordable Care Act: Public law 111-148. Available at: https://www.congress.gov/111/plaws/publ148/PLAW-111publ148.pdf. Accessed August 23, 2017.
2. Miaoulis G Jr, Gutman J, Snow MM. Closing the gap: The patient-physician disconnect. *Health Mark Q.* 2009;26:56–68.
3. Magaret ND, Clark TA, Warden CR, Magnusson AR, Hedges JR. Patient satisfaction in the emergency department: A survey of pediatric patients and their parents. *Acad Emerg Med.* 2002;9:1379–1388.
4. Chung KC, Hamill JB, Kim HM, Walters MR, Wilkins EG. Predictors of patient satisfaction in an outpatient plastic surgery clinic. *Ann Plast Surg.* 1999;42:56–60.
5. Daniels KM, Yorlets RR, Flath-Sporn SJ, Labow BI, Heald RR, Taghinia AH. Physician courtesy and patient satisfaction in a pediatric plastic and oral surgery department. *J Healthc Manag.* 2017;62:211–219.
6. Long C, Tsay EL, Jacobo SA, Popat R, Singh K, Chang RT. Factors associated with patient Press Ganey satisfaction scores for ophthalmology patients. *Ophthalmology* 2016;123:242–247.
7. Rogers F, Horst M, To T, et al. Factors associated with patient satisfaction scores for physician care in trauma patients. *J Trauma Acute Care Surg.* 2013;75:110–114; discussion 114–115.
8. Etier BE Jr, Orr SP, Antonetti J, Thomas SB, Theiss SM. Factors impacting Press Ganey patient satisfaction scores in orthopedic surgery spine clinic. *Spine J.* 2016;16:1285–1289.
9. Saleem T, Khalid U, Qidwai W. Geriatric patients' expectations of their physicians: Findings from a tertiary care hospital in Pakistan. *BMC Health Serv Res.* 2009;9:205.
10. Press Ganey Associates, Inc. *Medical Practice Survey Psychometrics Report.* South Bend, Ind: Press Ganey Associates; 2010.
11. Kessler DP, Mylod D. Does patient satisfaction affect patient loyalty? *Int J Health Care Qual Assur.* 2011;24:266–273.
12. Braddock CH III, Snyder L. The doctor will see you shortly: The ethical significance of time for the patient-physician relationship. *J Gen Intern Med.* 2005;20:1057–1062.
13. Patterson BM, Eskildsen SM, Clement RC, et al. Patient satisfaction is associated with time with provider but not clinic wait time among orthopedic patients. *Orthopedics* 2017;40:43–48.



Copyright © 2018 American Society of Plastic Surgeons. Unauthorized reproduction of this article is prohibited.