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Characteristics of cataract surgery patients influencing patient satisfaction scores

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Abstract

Purpose: To determine factors that influence patient satisfaction scores in individuals who have recently had cataract surgery.

Setting: Byers Eye Institute, Palo Alto, California, USA.

Design: Prospective case series.

Methods: Selected questions from the Press Ganey survey and the National Eye Institute Visual Function Questionnaire-25 were administered to each patient immediately after completion of a clinic visit. The correlation between patient-specific variables and the answer to the survey

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question “likelihood of recommending our practice to others,” a surrogate for overall patient satisfaction, was assessed using the Student *t* test. A logistical regression model was used to adjust for potentially confounding variables.

Results: One hundred forty-three patients were recruited from 4 providers; 57 (39.8%) were men, and the mean age was 70.0 years ± 11.6 (SD). The main outcome was the proportion of scores less than 5, or “very good,” for the likelihood of recommending the practice to others. There was a statistically significant association between a non-5 patient satisfaction score and self-reported ethnicity of Asian or Pacific Islander compared with other ethnicities (odds ratio [OR], 2.3; 95% confidence interval [CI], 1.0-5.1; $P = .049$); other possible correlates were not statistically significant. The relationship persisted after adjustment for potential confounding variables (OR, 2.6; 95% CI, 1.1-6.3; $P = .027$).

Conclusion: In postoperative cataract patients, Asian or Pacific Islander ethnicity, a factor out of the control of the provider and clinic staff, was associated with a lower overall Press Ganey patient satisfaction score compared with patients of all other ethnicities.

Press Ganey Associates, Inc. monitors patient satisfaction using a Hospital Consumer Assessment of Healthcare Providers and Systems survey within 26 000 health care organizations and more than 60% of hospitals in the United States.[A] The expressed goal of the Press Ganey patient satisfaction survey is to “improve the safety, quality, and experience of care” for patients by assessing the quality of care delivered by physicians. Institutions that have adopted the Press Ganey patient satisfaction surveys use the data to compare themselves with other institutions on the same third-party scale. In this survey, patients are asked to rate their encounter from 1 to 5 based on a standard Likert scale for 25 items regarding their experience with ancillary staff, the provider, and the practice to reflect the overall patient experience.

At Stanford Hospital and Clinics, Press Ganey patient satisfaction surveys are sent out each month to 25 randomly selected patients per practitioner. In addition, all individuals who have an online MyHealth account (Epic Systems Corp.) are sent the same survey online. The survey can be administered in English or Spanish. Patients cannot receive a second survey within a 7-day window of their previous visit. From July 2015 to June 2016, the combined mail and online surveys had a 16% response rate within the Department of Ophthalmology. The most important metric for interdepartmental comparison at Stanford Hospital and Clinics is the proportion of patients who choose a score of 5 (very good) for the survey question “likelihood of recommending our practice to others.” The rating for this question has been designated as a surrogate for overall patient satisfaction. During the third quarter of 2016 for the Department of Ophthalmology, 93.6% of respondents gave a score of 5 for this question, which measured at the 61st percentile among all departments in all specialties within all national facilities. In many practices throughout the U.S., including at Stanford Hospital and Clinics, incentives and disincentives are used to motivate physicians to achieve higher patient satisfaction scores. For example, physician compensation might be increased or reduced based on above or below average Press Ganey scores.

Patient satisfaction survey scores can become a source of anxiety for practitioners. A survey of 717 medical professionals found that 16% of employers threatened the job

security of providers based on low patient satisfaction scores and 27% reported that their income was partially dependent on such measures.[1] In addition, there is growing evidence it might be harmful to tailor patient care to increase patient satisfaction scores. In patients who recently had orthopedic surgery, higher subjective pain scores and less prescription pain medication were associated with lower Press Ganey patient satisfaction survey scores.[2] Furthermore, a neurosurgical study[3] showed that advising patients with back pain against spinal surgery, deemed good medical practice by many, was found to significantly correlate with lower patient satisfaction scores. Most important, a large cohort study[4] found that higher satisfaction rates were associated with an increased number of medication prescriptions, higher medical costs, and mortality.

Within ophthalmology, only been 2 peer-reviewed studies have assessed factors influencing validated patient satisfaction tools. A study by McMullen and Netland[5] found that there was a statistically significant association between increased wait time and lower patient satisfaction scores at an outpatient eye clinic, although the study group acknowledged that they did not account for potential confounding factors. Another study by Long et al.[6] in which the Press Ganey patient satisfaction survey was administered to 196 patients in the clinic found that ease of scheduling an appointment and time spent with the physician were the most important factors determining whether a patient will give a score of 5 for "likelihood of recommending our practice to others." However, the authors did not look into potential associative factors that would influence such scores. This is an important consideration given the small sample of patients who fill out Press Ganey surveys and the heavily weighted distribution of high scores. Moreover, the study did not differentiate between medical care and surgical care; outcomes from surgery might directly affect patient satisfaction with the clinic encounter, institution, and physician.

Cataract surgery is a common procedure, with more than 3.6 million surgeries performed each year in the U.S. alone.[B] Because in general, the surgery yields excellent visual and safety outcomes, patient satisfaction has emerged as an important postoperative metric for success.[7-10] We hypothesize that exogenous factors out of the control of the provider or practice play a meaningful role in patient satisfaction scores. If true, it is important to acknowledge that patient satisfaction scores are playing an increasingly important role in how hospitals and providers are evaluated.

PATIENTS AND METHODS

In this prospective cross-sectional study, patients were recruited from the practices of 4 anterior segment surgeons at Byers Eye Institute, Stanford University Hospital and Clinics, Palo Alto, California, USA. Three surgeons are glaucoma-trained, and 1 is cornea-trained; all 4 providers perform cataract surgery routinely, with annual cataract case numbers in 2016 ranging from 55 to 334 (mean 201.2). All 4 practitioners have been practicing for more than 5 years and supervise the training of residents and fellows who are involved in every aspect of care. One physician was on leave for a portion of the 2016 calendar year, accounting for a relatively low case volume. All 4 physicians are of Asian or part-Asian descent.

Patients were recruited within a 5-month period from November 2016 to March 2017. They were identified as potential candidates for the study if they had cataract surgery 3 weeks (21 days) to 1 year (365 days) before their scheduled appointment.

This study was compliant with the U.S. Health Insurance Portability and Accountability Act and adhered to the tenets of the Declaration of Helsinki. Approval of Stanford University's Institutional Review Board/Ethics Committee was obtained before the study began.

The administered questionnaire included basic demographic questions such as ethnicity and employment status, a question on patient preference to see a doctor-in-training such as a resident or fellow, 2 questions about subjective vision and subjective eye pain taken verbatim from the National Eye Institute Visual Function Questionnaire-25,[11] and an abridged version of the original Press Ganey patient satisfaction survey of 5 questions that included "likelihood of recommending our practice to others."[A]

Patients identified as potential study participants were approached by research personnel at the end of the visit after the treating physician had left the room. Each patient was asked to participate and sign an informed consent form. The survey was administered on an iPad (Apple, Inc.) in the examination room. Data were securely stored using Research Electronic Data Capture (REDCap) software.[12] Patients who had difficulty using the iPad were given the option of completing a paper copy of the questionnaire; these data were entered into REDCap by research personnel. The treating physicians did not have access to any survey information and did not have any further same-day contact with patients after completion of the survey. Patients were made aware that all collected information was anonymous and confidential. Using this methodology, all patients who agreed to participate went on to complete the survey.

After recruitment, a chart review was performed on each patient to obtain patient-specific information. Table 1 shows all acquired variables. Intraoperative and postoperative complications in the operated eye included zonular dehiscence, posterior capsule rupture, postoperative cystoid macular edema, and development of posterior capsule opacity. The last provider notes prior to surgery, the operative report, and/or the postoperative visit note written for the date the patient was recruited were used to determine whether the patient suffered from complications.

Visual acuity measurements from the last preoperative visit and from the postoperative visit on the day of survey administration were recorded using the logarithm of the minimum angle of resolution (logMAR) notation. For patients who had a recorded acuity of counting fingers or worse, a notation adapted from Lee et al.[13]; acuity of counting fingers was equivalent to 1.7 logMAR units, hands motion was equivalent to 2.0 units, light perception was equivalent to 2.3 units, and no light perception was equivalent to 3.0 units.

To evaluate association with low likelihood to recommend score, a logistic regression framework was used. First, univariate logistic regression was performed to model the probability of reporting a low likelihood to recommend practice score of less than 5. Next, variables with a P value less than 0.2 in the univariable models were added to a multivariable model. Six variables were selected for inclusion in the multivariable analysis based on a

priori hypotheses that they might correlate with a low likelihood to recommend. These variables were patient sex, patient ethnicity, self-reported vision, complications resulting from surgery, subjective eye pain, and provider. Next, a stepwise inclusion strategy was used to select predictors for a full model; if a variable changed the effect estimate by 10% or more, it was kept in the full model. All analyses were performed using SAS software (University Edition, SAS Institute, Inc.).

RESULTS

Out of 254 patients identified as candidates for the study, 143 (56.2%) were successfully recruited. Table 2 shows the patients' demographics. Twenty-one patients cancelled or did not show up to their appointments, and 9 patients declined participation in the study. Two patients were unable to consent to the study because of a lack of mental capacity. The remaining nonparticipants could not be enrolled for logistical reasons, such as the patient and/or study personnel were not available to complete the survey immediately after the postoperative examination.

Of female and male patients, respectively, 64 (74.4%) of 86 patients and 48 (84.2%) of 57 patients gave a score of 5 for low likelihood to recommend practice. Sixty-four of 78 patients (82.1%) who selected "none" for "how much pain or discomfort have you had in and around your eyes?" gave a score of 5 (mean 4.79) for low likelihood to recommend practice, while 48 out of 65 patients (73.8%) who selected "mild," "moderate," "severe," or "very severe" gave a score of 5 (mean 4.65). Twenty (76.9%) of 26 patients who had intraoperative or postoperative complications gave a score of 5 compared with 92 (78.6%) of 117 of all other patients.

Table 3 shows survey results for patients who self-identified as an Asian or Pacific Islander race. A lower percentage of Asian or Pacific Islander patients gave a score of 5 for likelihood to recommend practice and reported that their preferred language is English. The percentage of Asian or Pacific Islander patients and non-Asian patients who scored likelihood to recommend practice as 4 or 5 was similar.

One hundred twelve (78.3%) of 143 patients selected a score of 5 from a Likert scale of 1 to 5 for low likelihood to recommend practice. In the first step of the analysis, Asian ethnicity and female sex were the only 2 variables to correlate with a score less than 5 score for low likelihood to recommend practice ($P < .2$). Table 4 shows the results of the multivariate logistic regression using the possible predictors for decreased patient satisfaction.

DISCUSSION

When comparing patients who gave a score of 5 for "likelihood ofrecommending our practice to others" versus those who gave a score of less than 5, we found a statistically significant association between self-reported ethnicity of Asian or Pacific Islander and lower patient satisfaction using a multivariate analysis, which accounted for potentially confounding variables. No other patient-specific factors were correlated with a recommendation or non-recommendation using this survey instrument.

There have been multiple examples describing ethnicity as a factor in patient satisfaction survey scores. A study of 2034 emergency room patients evaluating patient and operational variables associated with Press Ganey survey scores[14] found that white and older patients reported higher levels of satisfaction. Ethnicity has also been incidentally shown to be an independent predictor of satisfaction in post-mastectomy patients; African American and white women were more likely to report high patient satisfaction than patients who identified as Asian or other.[15] Similarly, a large study of 537 patients from a multispecialty medical group and 7 small primary care groups[C] identified racial and ethnic differences in patient satisfaction using the Visit-Specific Satisfaction Instrument (VSQ-9) questionnaire. In particular, patients who were of nonwhite race/ethnicity had lower satisfaction scores, and these differences spanned the socioeconomic spectrum.[16] Another study at an academic primary care group clinic[10] found that patients who identified as Asian American rated physician primary care overall performance as well as every dimension of care significantly lower than their white counterparts.

Within the ethnic group of Asian or Pacific Islander, there are many variations in cultural background, time spent in the U.S., English proficiency, expectations of medicine, belief in modern Western medicine, and socioeconomic status. These differences might affect the expectations of patients and result in significantly different care experiences compared with non-Asian patients. Focus groups to determine factors contributing to quality of care in patients of Chinese and Vietnamese descent with limited English proficiency showed that patients viewed knowledge and acceptance of traditional non-Western medical beliefs, quality of interpreter services, the use of professional inter-preters rather than family members, and gender-concordant translators as significant determinants of quality patient care.[17] It is possible that unrecognized bias or inherent prejudice in the hospital system could lead to disparate outcomes with Asian patients; patient ethnicity has been shown to influence access to medicine, treatments, and outcomes, which might confound patient satisfaction scores.[9,18,19]

Although Asian or Pacific Islander patients gave a lower percentage of 5 scores for “likelihood of recommending our practice to others,” they gave a higher percentage of scores of 4 (good) compared with non-Asian patients, which may suggest score miscalibration. This behavior of avoiding extreme responses has been described in previous studies[20,21] that found Asian-Americans were more likely to select midpoints on Likert scales. The reason for the middling response style is unclear, although it appears to be culturally rooted. In some cultures, the highest score might be reserved for perfection rather than complete satisfaction. Because the Press Ganey survey heavily weighs a score of 5, the results of the survey might not entirely reflect overall patient satisfaction in the Asian community.

In a culture of grade inflation, a few outliers can significantly affect the overall results of a survey. A small decrease in the percentages of 5 scores for “likelihood of recommending our practice to others” (92.4% to 91.7%) from the years 2014 to 2015 resulted in a disproportionate drop from the 70th percentile to the 25th percentile among all departments at all national facilities, perhaps because of an inadequate sample size and high clustering of results. A seemingly insignificant factor, such as a difference in ethnic distribution, might nonetheless have a significant effect when percentiles are compared against national

standards. However, we do not know the underlying factors confounding race/ethnicity as a contributable factor to patient satisfaction scores; thus, further studies are needed to determine whether patient satisfaction scores should be adjusted.

We also found that trainee (resident or fellow) involvement in the clinic encounter or surgery did not significantly affect the percentage of below-5 scores for likelihood to recommend practice. Although this might be reassuring to those at teaching institutions, patients who come to our institution are made aware at the beginning of their encounters that their care might involve a doctor in training. According to our survey, only 11.9% of patients preferred not to see a resident or fellow during their clinic visit, perhaps indicating that most who come to such institutions expect physicians-in-training to be involved in their care. Moreover, factors typically associated with the success of cataract surgery, such as an improvement in postoperative visual acuity, a postoperative visual acuity of 20/20 or better, subjective vision of excellent, absence of eye pain or discomfort, and absence of complications from surgery, did not appear to significantly influence patient satisfaction scores.

Although we used validated survey instruments in our study, there are limitations inherent to survey-based experiments, such as self-selection bias, a small sample size, and variations in interpretations of questions and answer choices. However, all administered surveys have such limitations. Unlike official surveys in which a minority of those asked to participate will usually respond, we recruited the majority of patients we screened (56.2%); thus, our data might not represent the typical population of patients who respond to patient satisfaction surveys in our department or elsewhere. Compared with more broadly administered surveys in which responses are commonly skewed toward those who are extremely satisfied or extremely unsatisfied, our survey might have captured a greater proportion of those who did not fall in these extreme groups. In addition, our method of administering the survey, although controlled for provider influence using personnel not involved in the clinic encounter and a mechanism to fill out the survey privately and anonymously, is different from the practice of having patients provide feedback a few days later rather than immediately after their encounter. The impact of this temporal difference in administration remains unknown and requires further study.

In prior work,[7] we described an association between a score of 5 for “likelihood of recommending our practice to others” and the amount of time spent by the care provider with the patient using a methodology similar to one used in the present study. “Ease of scheduling your appointment,” a factor that can be influenced by clinic staff, was also found to correlate with likelihood to recommend practice in this previous study. In contrast, in the present study, the only measured variable found to correlate with likelihood to recommend the practice—the patient’s ethnicity—is one over which neither the practitioner nor clinic staff have control.

Further work should assess whether a correlation between surgeon and patient ethnicity affects patient satisfaction scores. Given the increasing importance of Press Ganey and other patient survey instruments in determining physician assessment, these results are alarming, especially when the association between the results of the survey and the quality of care

is overestimated and tied to financial incentives. We encourage further scientific inquiry of the tools we currently use to assess the quality of patient care and the level of patient satisfaction.

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Biography

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WHAT WAS KNOWN

- Patient satisfaction is an increasingly important metric for measuring excellence of care because scores influence Medicare payments to the hospital and might be incentivized within departments.

WHAT THIS PAPER ADDS

- Press Ganey patient satisfaction scores after cataract surgery were not significantly dependent on complications, subjective vision, or measurable outcomes.
- The only variable associated with lower patient satisfaction scores was a factor over which the practitioner, clinic staff, and facility have no control.
- These results create concern regarding how robust such instruments are in terms of assessing physician and staff performance.

Table 1.

Variables acquired from patient survey and chart review.

Variable	Source
Ethnicity	Survey question
Primary language	Survey question
Preference for trainee physicians	Survey question
Employment status	Survey question
Subjective vision Subjective eye pain	Survey question (adapted from NEI VFQ-25)
Age	Survey question (adapted from NEI VFQ-25)
Insurance Status	Chart review
Time from check-in to check-out *	Chart review Chart review
Time with provider Resident and/or fellow	 Chart review
physician involvement in surgery †	Chart review
Resident and/or fellow	
physician involvement in clinic encounter	Chart review
Preoperative acuity	Chart review
Postoperative acuity (at time of clinic visit)	Chart review
Preoperative intraocular pressure	Chart review
Postoperative intraocular pressure (at time of clinic visit)	Chart review
Preoperative pathology	Chart review
Complications	Chart review
Likelihood of recommending our practice to others	Survey question (adapted from Press Ganey HCAHPS survey)[2]

HCAHPS = Hospital Consumer Assessment of Healthcare Providers and Systems Survey administered by Press Ganey, Inc.; NEI VFQ-25 = National Eye Institute Visual Function Questionnaire 25

* Total time of the clinic visit from front desk check in until end of clinic visit

† As assistant surgeon

Table 2.

Characteristics and demographics of recruited participants.

Demographic/Characteristic	
Age (y)	
Mean ± SD	70.0 ± 11.6
Range	23, 90
Sex, n (%)	
Male	57 (39.8)
Female	86 (60.2)
Race/ethnicity, n (%)	
Caucasian	57 (40.1)
Hispanic	20 (14.1)
African American	2 (0.7)
Asian or Pacific Islander	52 (36.6)
Other	9 (6.3)
Prefer not to say	4 (2.8)
Preference for trainees, n (%)	
“I don’t mind”	126 (88.1)
“I’d rather not”	17 (11.9)
Insurance status, n (%)	
Medicare	65 (45.4)
Public insurance	40 (28.0)
Private insurance	38 (26.6)
Eye pain, n (%)	
None	78 (54.5)
Mild	48 (33.6)
Moderate	13 (9.1)
Severe	4 (2.8)
Surgeon, n (%)	
Surgeon 1	47 (32.9)
Surgeon 2	18 (12.6)
Surgeon 3	43 (30.1)
Surgeon 4	35 (24.5)
Days after encounter (n)	
Mean ± SD	92.0 ± 86.3
Range	22, 352
Encounter time (min)	
Mean ± SD	84.5 ± 35.7
Range	31, 344
Preoperative CDVA (logMAR)	
Mean ± SD	0.67 ± 0.50
Range	0.0, 2.0

Demographic/Characteristic	
Postoperative UDVA (logMAR)	
Mean ± SD	0.313 ± 0.33
Range	0.0, 1.7
Intraoperative complications, n (%)	12 (8.4)
Postoperative complications, n (%)	18 (12.7)

Table 3.

Characteristics of patients who self-identified as Asian or Pacific Islander (Asian patients).

Characteristic	Asian Patients (n = 52)	Non-Asian Patients (n = 91)
Mean score for likelihood to recommend practice*	4.61	4.75
Score of 5 for likelihood to recommend practice*, n (%)	36 (69.2)	76 (83.5)
Score of 4 or 5 for likelihood to recommend practice* n (%)	50 (96.2)	87 (95.6)
Self-reported preferred language is English, n (%)	25 (41.1)	51 (64.5)

* "Likelihood of your recommending our practice to others" from the Press Ganey patient satisfaction survey

Table 4.

Results of multivariate logistic regression using possible predictors for decreased patient satisfaction (less than a score of 5 for "likelihood of recommending our practice to others."

	Unadjusted Model			Full Model		
Variable	**OR**	**95% CI**	***P* Value**	**OR**	**95% CI**	***P* Value**
Asian or Pacific Islander race *	2.3	1.0, 5.1	.049	2.6	1.1, 6.3	.027
Female sex †	1.8	0.8, 4.3	.168	2.1	0.8, 5.2	.117
Presence of eye pain ‡	1.6	0.7, 3.6	.238	2.0	0.8, 4.7	.127

CI = confidence interval; OR = odds ratio

* Self-reported by patient; reference group is non-Asian patients

† Reference group is male

‡ Question 25 taken verbatim from the National Eye Institute Visual Function Questionnaire 25. Reference group reported no pain