



Patient Satisfaction of General Dermatology Providers: A Quantitative and Qualitative Analysis of 38,008 Online Reviews

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Measuring patient satisfaction of general dermatology providers is an important goal because it can lead to improved clinical outcomes. Online reviews are emerging as the newest forum for evaluating physicians in real time and provide a valuable tool for measuring patient satisfaction. We analyzed both quantitative and qualitative online reviews of general dermatology providers at 121 Accreditation Council for Graduate Medical Education–accredited dermatology programs across the country to determine which elements are most discussed in online ratings using the online platforms Vitals, US News, WebMD, Google Reviews, and Healthgrades. There were 38,008 online reviews included from general dermatology providers at Accreditation Council for Graduate Medical Education–accredited programs. The median average overall quantitative rating of providers was 4.35 of 5. There were more positive (77%) than negative (23%) comments. The overall ratings of general dermatology providers were favorable. The most influential factors in both positive and negative comments were patient's perceived experience and physician's bedside manner (26% and 17%, respectively). Less important factors included office space, treatment by auxiliary staff, wait time, costs, and time spent with patients. This suggests that a provider's personality, expressed compassion, empathy, and kindness may overcome other issues and create an overall positive experience.

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INTRODUCTION

Patient satisfaction is a measure of the perceived quality of care received from a provider. Maximizing patient satisfaction is an important goal because it impacts clinical outcomes, patient retention, and medical malpractice claims (Prakash, 2010). Attempts have been made to capture this measure through both quantitative and qualitative approaches, but patient satisfaction remains an elusive concept because quantitative measures may fail to capture the full spectrum of perception and qualitative measures are difficult to assess statistically.

Previous studies have attempted to determine the leading factors affecting patient satisfaction in dermatology but have been limited in scope. Many studies have relied on post appointment surveys and identified potential factors, including confidence in the provider's diagnosis, quality of communication, physician's level of concern, bedside

manner, comfort of the waiting room, and performance of skin biopsies (De Salins et al., 2016; Gibbons et al., 2018). However, because technology has become more intertwined with practice, a new evaluation in the form of voluntary online patient reviews has emerged as the latest way for patients to provide detailed feedback of their providers in real time. Controversy exists over the utility of these reviews, with some providers lauding online reviews as valuable feedback and priceless advertising (Hill and Feldman, 2016), whereas others argue that reviews lack transparency, may be monetarily influenced, and allow people to hide behind their reviews (Ruan et al., 2016). However, as online reviews become a more exigent force, they have evolved to serve as both the first and last interface for interactions with a provider and thus provide a dynamic tool for assessing patient satisfaction.

In this study, we present an analysis of 38,008 online reviews of general dermatology providers from 121 Accreditation Council for Graduate Medical Education–accredited academic dermatology programs across the country. Expanding on previous studies (Smith and Lipoff, 2016), we have included both qualitative (9,792 written reviews) and quantitative measures (28,216 scores) to corroborate these methods and have attempted to capture the full spectrum of the patient experience.

RESULTS

Online reviews of 352 general dermatology providers gathered from five popular rating websites totaled 38,008 online reviews, with 9,792 qualitative written reviews and 28,216 quantitative measures. Of the online quantitative reviews, 4,466 were from Vitals, 13,899 were from US News, 4,044

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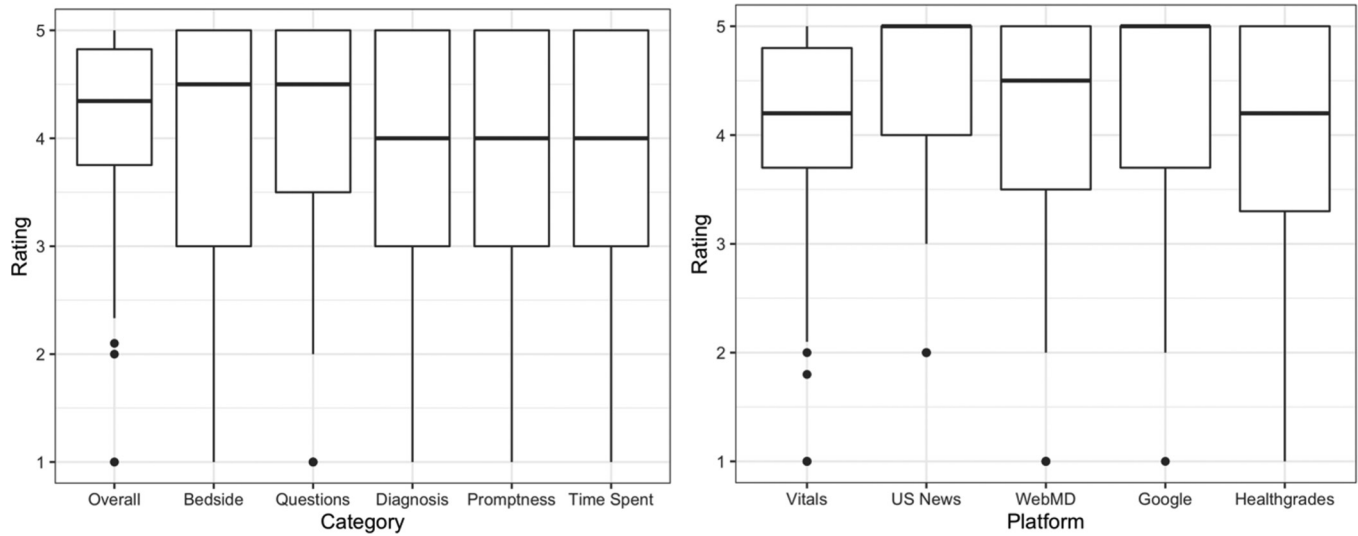


Figure 1. Boxplot comparisons of the quantitative ratings. Left: Comparison of scores across the quantitative category. Overall rating was higher than promptness, time spent with patients, and bedside manner. Bedside manner was rated higher than time spent with patients and lower than answered questions. Answered questions were rated higher than promptness and time spent with patients. Average diagnosis was rated higher than time with patients and promptness. Right: Comparison of overall ratings between online platforms. Overall ratings on Vitals were lower than those on US News, WebMD, and Google. US News was higher than WebMD and Healthgrades. Google was higher than Healthgrades.

were from WebMD, 1,392 were from Google Reviews, and 4,415 were from Healthgrades. One average score for each quantitative category across five websites was calculated for each provider. The mean overall quantitative rating of general dermatologists was 4.18 with a SD of 0.75. Answered questions (mean = 4.18, SD = 0.98), diagnosis (mean = 4.04, SD = 0.98), and bedside manner (mean = 4.04, SD = 1.04) were also rated higher than the time spent with patients (mean = 3.90, SD = 1.03) and promptness (mean = 3.93, SD = 0.97) (Figure 1). Pairwise comparison showed that the average overall rating was higher than promptness (n = 275, 4.15 vs. 3.93, $P < 0.001$), time spent with patients (n = 276, 4.14 vs. 3.90, $P < 0.001$), and average bedside manner (n = 294, 4.17 vs. 4.04, $P = 0.016$). Average bedside manner was higher than time spent with patients (n = 275, 4.03 vs. 3.91, $P = 0.003$) and lower than answered questions (n = 263, 4.02 vs. 4.20, $P = 0.004$). Answered questions was rated higher than promptness (n = 247, 4.18 vs. 3.89, $P < 0.001$) and time spent with patients (n = 249, 4.16 vs. 3.86, $P < 0.001$); average diagnosis was rated higher than time spent with patients (n = 276, 4.05 vs. 3.90, $P < 0.001$) and promptness (n = 275, 4.05 vs. 3.93, $P = 0.043$) (Table 1). The mean overall ratings by platforms were reported in Table 2. Pairwise comparison showed that the mean overall ratings on Vitals was lower than those on US News (n = 215, 4.05 vs. 4.35, $P < 0.001$), WebMD (n = 250, 4.05 vs. 4.17, $P = 0.008$), and Google (n = 128, 4.04 vs. 4.33, $P = 0.003$). US News overall rating was also higher than those of WebMD (n = 197, 4.37 vs. 4.2, $P = 0.013$) and Healthgrades (n = 202, 4.35 vs. 3.94, $P < 0.001$). Google overall rating was higher than that of Healthgrades (n = 125, 4.39 vs. 3.96, $P < 0.001$).

There were 7,557 (77%) total positive comments and 2,257 (23%) total negative comments (Table 3). There were a greater number of positive than negative comments for each category. The majority of comments discussed patient's

perceived experience and physician's bedside manner (42.5% and 17%, respectively). The majority of patients' perceived experience comments were regarding the physician rather than the staff or were not specified (26% vs. 8.5% vs. 8.4%). This held true for both positive (21% vs. 7.0% vs. 6.0%) and negative comments (5.0% vs. 1.6% vs. 2.5%) (Table 4). A greater proportion of comments addressed patients' perceived experience and physician's bedside manner than competence/knowledge (13%), communication (10.2%), time spent with patient (9.4%), wait time (5.9%), and finance (2.3%).

DISCUSSION

Online reviews are becoming an increasingly powerful tool, guiding the patient choice of physicians and providing a forum from which providers can learn and adjust their care. In this study, we examined reviews on a large scale while corroborating quantitative scores with qualitative assessments. There exists concern that reviews may be biased toward dissatisfied patients, but 77% of the ratings included in this sample were positive (Kadry et al., 2011; Lagasse, 2019; Lagu et al., 2010). However, we cannot exclude the possibility that bias toward dissatisfied patients exists because these patients may be strongly motivated to write reviews about a negative experience.

This study identified patient's perceived experience and physician's bedside manner as the two most important factors affecting positive ratings (27% and 18% of total positive comments, respectively). Likewise, patient's perceived experience and physician's bedside manner were the two most important factors impacting negative experience ratings (22% and 14% of total negative comments, respectively). These categories are related, with provider personality likely affecting patient willingness to return to or recommend the provider in the future. Patient's perceived experience may also encompass aspects of other qualitative categories, such

Table 1. Quantitative Reviews

| Category | n | Mean (SD) |
|--------------------|-----|-------------|
| Overall rating | 350 | 4.18 (0.75) |
| Bedside manner | 294 | 4.04 (1.04) |
| Answered questions | 285 | 4.18 (0.98) |
| Diagnosis | 277 | 4.04 (0.98) |
| Promptness | 275 | 3.93 (0.97) |
| Time with patients | 276 | 3.90 (1.03) |

n represents the number of dermatologists with available ratings in each category. Quantitative scores were recorded from six categories, including overall rating, bedside manner, answered questions, diagnosis, promptness, and time spent with patients. Mean and SD are reported for each of the quantitative categories.

as competence and promptness, which can also influence the patient’s overall impression of the physician. These findings are consistent with those of a previous study we conducted looking at 17,527 online ratings of Mohs surgeons (Trager et al., 2020). Other factors, including office space, treatment by auxiliary staff, wait time, and costs, were less important. Similar to our analysis of Mohs surgeons, time spent with patients was the least frequently commented on quantitative category. This is an encouraging observation for providers working in busy, rushed, or understaffed spaces because it suggests that a provider’s personality, expressed compassion, empathy, and kindness may overcome other issues and ultimately steer the patient experience in a positive direction.

Limitations of this study include the inability to confirm reviewer identity, the inherent bias of which patients choose to write reviews, and patients posting multiple reviews on different sites. Although the majority of reviews were positive, 23% of the comments were negative. Inherent selection bias toward writing negative reviews on online sites may play a role. It is expected that people motivated to write reviews would often exhibit quite polarized opinions because those who had a neutral experience may be less likely to go out of their way to share. In addition, qualitative comments may have been counted in multiple categories and may therefore not be independent. Analyzing the different subspecialties separately that were grouped within the general dermatology umbrella was beyond the scope of this project but may be of interest in the future. Despite these limitations, we were able to assess over 38,000 reviews from across the country at over

Table 2. Overall Ratings by Platform

| Platform | n | Mean (SD) |
|----------------|-----|-------------|
| Vitals | 296 | 4.08 (0.81) |
| US News | 231 | 4.38 (0.75) |
| WebMD | 271 | 4.17 (0.90) |
| Google Reviews | 145 | 4.39 (0.85) |
| Healthgrades | 277 | 3.99 (0.95) |

n represents the number of dermatologists with available ratings on each platform. Mean and SD are reported for each of the platforms.

Table 3. Qualitative Reviews Separated by Positive and Negative Comments

| Qualitative Category | Positive Comments n = 7,536 | Negative Comments n = 2,256 | All Comments N = 9,792 |
|---------------------------------------|--------------------------------|--------------------------------|---------------------------|
| Patient’s perceived experience, total | 3,285 (34) | 886 (9.0) | 4,171 (43) |
| Physician | 2,019 (21) | 492 (5.0) | 2,511 (26) |
| Staff/office | 681 (7.0) | 153 (1.6) | 834 (8.5) |
| Not specified | 585 (6.0) | 241 (2.5) | 826 (8.4) |
| Physician’s bedside manner | 1,346 (14) | 310 (3.2) | 1,656 (17) |
| Communication | 806 (8.2) | 192 (2.0) | 998 (10) |
| Finance | 54 (0.6) | 174 (1.8) | 228 (2.3) |
| Wait time | 304 (3.1) | 269 (2.7) | 573 (5.9) |
| Time spent with patients | 701 (7.2) | 222 (2.3) | 923 (9.4) |
| Competence/knowledge | 1,040 (11) | 203 (2.1) | 1,243 (13) |

N represents the total number of written reviews for each category. Each qualitative comment was attributed to at least one of seven categories (patient’s perceived experience, physician’s bedside manner, communication, finance, wait time, time spent with patients, competence/knowledge). The proportion included in parentheses is calculated as the number of reviews in that category divided by all comments (9,792).

120 dermatology programs, which provides power to the significance of the factors identified as influencing patient satisfaction.

Analysis of online reviews reveals that the most important factors affecting patient satisfaction are physician’s bedside manner and patient’s perceived experience. These factors are interrelated and suggest that a physician’s character and ability to treat their patients with respect and empathy are the most important part of the clinical practice. By focusing on the patient–physician relationship, providers may be able to improve patient satisfaction.

MATERIALS AND METHODS

The search was conducted (from 12 August 2020 to 22 August 2020) using the online platforms Vitals, US News, WebMD, Google Reviews, and Healthgrades. A total of 121 Accreditation Council for Graduate Medical Education–accredited academic dermatology programs in the United States and Puerto Rico were included. Several programs were excluded if faculty lists were not available or if faculty members were not general dermatology providers. In total, we excluded eight programs (four from the Midwest, three from the

Table 4. Positive and Negative Qualitative Comments Addressing Patient’s Perceived Experience of Physician, of Staff/Office, and Not Specified

| Team | Positive Comments n = 3,285 | Negative Comments n = 886 | All Comments N = 4,171 |
|---------------|--------------------------------|------------------------------|---------------------------|
| Physician | 2,019 (48) | 492 (12) | 2,511 (60) |
| Staff/office | 681 (16) | 153 (3.7) | 834 (20) |
| Not specified | 585 (14) | 241 (5.8) | 826 (20) |

The proportion included in parentheses is calculated as the number of reviews in that category divided by all comments (4,171).

South, and one from the West Coast). General dermatology providers encompassed a broad category, including general, allergy and immunology, cosmetic, and cutaneous oncology providers, whereas providers in pediatric dermatology, dermatopathology, and Mohs surgery were excluded. A total of 352 physicians at these programs were identified using a random number generator from the faculty lists available on their websites. Advanced practice providers were not included in this study. Given potential regional differences, programs were grouped geographically (Southwest = 23, South = 8, West Coast = 57, Midwest = 87, Northeast = 97, Southeast/Puerto Rico = 80). For a given physician, the number of reviews ranged from 1 to ~150. A total of 28,216 quantitative ratings and 9,792 qualitative (written comments) were identified/analyzed. Overall, 311 of the 352 total physicians (88%) had both qualitative and quantitative reviews. The study was exempt from Institutional Review Board review.

Quantitative (ratings on a scale of 1–5) categories are listed in Tables 1 and 2. A standardized qualitative coding methodology was applied to all written comments. Seven positive and five negative categories were agreed on by investigators (Table 3). Physician's bedside manner included comments regarding the attitude and personality of the provider (e.g., positive: caring, kind, empathetic; negative: rude, uncaring). Patient's perceived experience included comments remarking on the overall experience, the intent to return for future care, and recommending others to seek treatment with this provider. Within perceived experience, the comments were categorized as pertaining to the physician (e.g., "love this doctor"), as pertaining to the staff, or unspecified (comments pertaining to office location, décor, cleanliness, etc.). Communication included the ability of the physicians to answer questions, listen, and provide clarity on procedures. Finance encompassed comments describing general costs. Wait time included comments surrounding time spent in waiting room. Time spent with patients included comments that described the provider as thorough or rushed. Competence/knowledge referred to comments regarding the provider's ability to correctly diagnose disease and perceived skill level. Each written review was assigned to at least one of the five categories. If a review fit more than two categories, it was counted as two individual comments. All comments were coded by two investigators (DQ and MHT) to ensure internal validity. There was 95.2% agreement between the two raters (95% confidence interval = 92.4–97.2%).

Statistical analysis was conducted using R studio, version 4.3.1 (Boston, MA). Pairwise comparisons were conducted to assess whether the mean ratings were different between any two of the six quantitative categories and overall ratings across platforms using paired *t*-tests with Bonferroni correction. The *n* reported in Tables 1 and 2 indicates the mean value for all of the data available for each category. The *n* reported in the text indicates the mean value for all of the data used in the pairwise comparison. For example, if a provider did not have a rating in one of the categories, the *n* for the pairwise comparison is less than the total number of data points. For the qualitative results, the percentage of both negative or positive comments among total comments were reported. Datasets related to this article can be found online at the five referenced websites.

Data availability statement

Datasets are available at Columbia University Irving Medical Center (New York, NY) on request to the corresponding author (FHS).

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AUTHOR CONTRIBUTIONS

Conceptualization: DQ, MHT, FHS; Data Curation: DQ, MHT, FHS; Formal Analysis: WF; Investigation: DQ, MHT, FHS; Software: WF; Supervision: FHS; Writing - Original Draft Preparation: DQ, MHT, FHS; Writing - Review and Editing: WF

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CONFLICT OF INTEREST

FHS is an investigator for Castle Biosciences. The remaining authors state no conflict of interest.

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