Short report

An analysis of healthcare providers' online ratings

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ABSTRACT

Background Many websites allow consumers to evaluate their healthcare experience yet scant data exist that explore the type and content of reviews.
Objective To evaluate and describe online healthcare provider reviews.
Methods We analysed 16 703 ratings on 6101 providers from four US cities. Ratings spanned five categories and an overall provider score. We also performed text analyses of narrative commentary ($n = 15\,952$).
Results Providers had a high mean score for each category (3.7–4.0 out of 5). Higher overall scores were associated with higher staff (adjusted odds ratio (aOR) 3.0, 95% CI 2.9–3.0, $P < 0.01$) and punctuality scores (aOR 2.1, 95% CI 2.05–2.15, $P < 0.01$). Review frequency was inversely associated with scores, (aOR 0.94, 95% CI 0.92–0.96, $P < 0.01$). Analyses of narrative commentaries revealed more positive than negative terms ($P < 0.01$).
Conclusions Online ratings were largely positive. Future research must discern how online surveys affect patient referrals, provider reputations and patients' perceptions of quality of care.

Keywords: healthcare providers, online review, quality of care

Introduction

Academic medical journals and mainstream media outlets have recently reported commentary about consumer websites that offer users the opportunity to rate their medical providers.[1] Likening them to a Zagat's™ or Harden's™ guide, which provide critical reviews of restaurants by diners, these websites constitute a community, the purpose of which is to disseminate individual opinions about medical professionals. Consumers increasingly use the internet to critique their physicians,[2] yet despite this trend little research exists to evaluate consumer postings.

The medical community appears to be grappling with this concept. While consumer opinion-driven websites are relatively new, some have concluded that they have

promise as social information tools, given that indicators of patient satisfaction reflect aspects of quality of care.[2] Others differ, labelling physician review sites as mediums for defamation.[1] The aim of this report is to analyse online reviews of healthcare provider performance. Our hypothesis, shaped by commentary from several recent medical publications,[1] posited that a significant number of reviews would be critical or negative.

Method

Using complementary search engines (Google[TM], Yahoo[TM] and Bing[TM]), the authors tabulated websites that offered healthcare consumer feedback and commentary related to service oriented businesses. Using the frequency of online 'hits' or visitors to rank the sites, the authors chose to focus on the most frequented, free, online website that ranks healthcare providers – RateMDs.com.

The study team approached RateMDs.com president John Swapceinski and obtained evaluations of medical providers in four major US cities (Dallas, Texas; San Francisco, California; Chicago, Illinois and New York). These data are publically available via the RateMDs.com website, but to facilitate efficient analysis we requested and were supplied with data in a tab-delimited format. These evaluations started in February 2004 and continued until June 2009, allowing analyses of 16 703 individual ratings of 6101 providers. Reviews are based on five categories, each scored on a scale of one to five, with five as the highest. The categories are:

1 staff ('How is the service and helpfulness of this doctor's staff?')
2 punctuality ('How long does the doctor keep you waiting?')
3 helpfulness (a rating of the doctor's helpfulness and approachability) and

4 knowledge ('How did his or her treatments work for you?').

The website also calculates an *overall aggregate provider score* by the mean of 'helpfulness' and 'knowledge'. Additionally, online reviewers can add qualitative comments, and 15 952 (95.5%) of the ratings included narrative commentary (mean = 19.3 words).

Multivariate analysis was conducted on the number of provider ratings. Due to a lack of variability in the data, we dichotomised the overall aggregate provider score into high (those with a rating of five, $n = 2873$ providers) versus low (those with a rating of less than five, $n = 3228$) for logistic regression analyses. Outcomes of the logistic regression analysis were adjusted to control from independent variables. Analysis for this University of Florida Institutional Review Board exempt study was performed using SPSS PASW v.17, a statistical analysis software application.

Results

Analyses of health provider ratings

We found that providers had a mean of 2.7 individual ratings (range = 1–103), with a high mean score for each domain (3.7–4.0 out of 5.0; Table 1). Amongst providers, scores varied by specialty, and by physicians compared to other providers (Table 2). Physicians were rated as more knowledgeable ($P < 0.01$), but less helpful ($P = 0.03$) and less punctual ($P < 0.01$) than non-physicians. When non-physicians were excluded from the analysis, paediatricians received the highest mean scores in punctuality, knowledge and helpfulness; general surgeons were rated highest in staff ratings. Amongst all providers on all four constructs, alternative medical practitioners were rated highest. We also found significant differences in the ratings by

Table 1 Mean scores for healthcare providers on RateMDs.com

	n (number of ratings)	Mean	Standard deviation	Variance	Standard error
Staff	11 787	3.72	1.47	2.34	0.01
Punctuality	16 703	3.65	1.44	2.91	0.01
Helpfulness	16 703	3.72	1.70	2.17	0.01
Knowledge	16 703	3.92	1.53	2.41	0.01
Aggregate provider rating (mean helpfulness and knowledge)	16 703	3.82	1.33	2.54	0.01

Table 2 Description of healthcare providers

	Frequencies		Mean ratings				
	No. of physicians (% total)	No. of ratings (% total)	Staff (standard error)	Punctuality (standard error)	Helpfulness (standard error)	Knowledge (standard error)	Overall aggregate provider score (standard error)
Physician							
Non-surgical subspecialty	1704 (27.90)	3628 (21.70)	3.80 (0.03)	3.66 (0.03)	3.77 (0.03)	4.03 (0.03)	3.90 (0.03)
Internal medicine	767 (12.60)	2054 (12.30)	3.79 (0.04)	3.75 (0.03)	3.92 (0.04)	4.07 (0.03)	3.99 (0.03)
OBGYN and IVF	722 (11.80)	3170 (19.00)	3.46 (0.03)	3.39 (0.03)	3.57 (0.03)	3.82 (0.03)	3.70 (0.03)
Subspecialty surgery	698 (11.40)	1842 (11.00)	4.03 (0.04)	3.82 (0.033)	3.96 (0.04)	4.18 (0.03)	4.07 (0.04)
Family practice	369 (6.00)	1105 (6.60)	3.69 (0.06)	3.64 (0.05)	3.80 (0.05)	3.92 (0.05)	3.86 (0.05)
Psychiatry and addiction	353 (5.80)	837 (5.00)	3.43 (0.07)	3.76 (0.05)	3.27 (0.06)	3.52 (0.06)	3.39 (0.06)
Dermatology	244 (4.00)	1079 (6.50)	3.53 (0.06)	3.34 (0.048)	3.37 (0.05)	3.62 (0.05)	3.50 (0.05)
Paediatrics	212 (3.50)	386 (2.30)	4.04 (0.09)	3.92 (0.07)	4.15 (0.08)	4.30 (0.068)	4.22 (0.07)
Cosmetic surgery	203 (3.30)	901 (5.40)	3.69 (0.06)	3.67 (0.05)	3.42 (0.06)	3.52 (0.06)	3.48 (0.06)
General surgery	180 (3.00)	317 (1.90)	4.10 (0.09)	3.84 (0.08)	4.03 (0.09)	4.18 (0.08)	4.10 (0.08)
Sports; physical medicine	76 (1.20)	191 (1.10)	3.59 (0.14)	3.74 (0.11)	3.72 (0.13)	3.86 (0.12)	3.79 (0.12)
Non-physician							
Dentistry	313 (5.10)	609 (3.60)	3.59 (0.09)	3.73 (0.06)	3.54 (0.07)	3.63 (0.07)	3.59 (0.07)
Mental health (psychologists, counselors)	47 (0.70)	116 (0.70)	4.20 (0.18)	4.27 (0.12)	3.86 (0.16)	3.88 (0.15)	3.87 (0.16)
Non-physician extenders (podiatrists, optometrists)	73 (1.20)	168 (1.00)	3.99 (0.15)	4.15 (0.10)	4.10 (0.12)	4.21 (0.11)	4.15 (0.11)
Alternative (acupuncture, naturopathy, chiropractic)	89 (1.50)	163 (1.00)	4.52 (0.12)	4.59 (0.07)	4.63 (0.082)	4.64 (0.08)	4.63 (0.08)
Other or not specified	61 (1.00)	137 (0.80)	4.08 (0.22)	3.81 (0.15)	3.89 (0.18)	3.92 (0.18)	3.90 (0.18)
Total	6101	16703					

region, with medical practitioners in Dallas, Texas rated significantly higher on all constructs than practitioners in the other cities ($P < 0.01$).

Owing to a lack of variability in the ratings data (σ^2 = 2.17–2.91), we dichotomised the overall aggregate provider score to use as dependant variables, with staff and punctuality as covariates. The model explained variations in scores well ($R^2 = 0.66$). Adjusted odds ratios (aOR) for staff were 3.0 (95% CI 2.9–3.1 $P < 0.01$) and for punctuality 2.1 (95% CI 2.0–2.2 $P < 0.01$). This indicates that reviewers' perceptions of their providers' overall abilities, as measured by knowledge and helpfulness, were associated with their perception of the front office staff and punctuality. Increased numbers of ratings per practitioner were associated with decreased overall aggregate provider scores (aOR = 0.94, 95% CI 0.92–0.96 $P < 0.01$).

Utilising TextSTAT 2.8, we queried the narrative commentaries for the five most common positive and negative terms (n = 15 952). Positive terms (54.1%) were more frequent than negative terms (16.0%) (X^2 = 3303.17, $P < 0.01$). The most common positive terminology found was 'good' (n = 2230), 'knowledgeable' or 'knowledgable' (sic) (n = 2192), 'best' (n = 2149), 'excellent' (n = 1355) and 'wonderful' (n = 1134). The most common negative terminology found was 'rude' (n = 977), 'bad' (n = 616), 'worst' (n = 480), 'horrible' (n = 393) and 'terrible' (n = 326).

Discussion

Principal findings

Our analysis reveals that the website analysed was overwhelmingly supportive of healthcare providers, evidenced by high ratings and positive commentaries. This is contrary to our hypothesis, given that anonymous surveys, such as those offered by RateMD.com, often encourage more honest and potentially negative critiques from reviewers since they remove concerns of social disapproval or peer embarrassment.[3] We thus expected online reviews to be negatively biased, yet our findings refute this notion and reveal that the intent of the vast majority of reviewers appears to be constructive.

Implications of the findings

How online ratings affect where a patient decides to receive care, however, remains unknown. Roughly a quarter of internet users read online reviews prior to purchasing goods or services; fewer (14%) specifically have reviewed medical services. Nonetheless, a majority

(76%) of these individuals specified that the online medical review had a significant influence on their decision.[4] Healthcare providers need to recognise the popularity of web-based reviews. Given that existing measures of patient experiences do not seem to facilitate a good understanding for healthcare providers,[2] personalised feedback such as that offered by RateMDs.com may be advantageous. Rather than departmental reports or annual surveys, internet based, anonymous reviews may help healthcare providers improve the quality of care as well their patients' clinical experience.

Even if providers are not interested in online reviews, they need to be aware of their own online footprint. One's online identity is composed of a myriad of data, either purposely or inadvertently placed on the internet. In addition to ratings, online information may be composed of photographs, blog postings, journal publications and/or addresses. Yet only 3% of internet users regularly 'self-search' on the internet.[5] Today's internet potentially challenges ideals of medical professionalism, since it mixes personal and professional issues of patient care, reputation and interpersonal connections.[6] This study of online ratings is but one example of how healthcare providers need to take an active role in understanding online profiles and footprints.

Comparison with the literature

Online reviews may offer valuable insights into providers' skills and business practices. Assessment of patient satisfaction is an important aspect of quality of care; nonetheless, some view online surveys as something to be censored. Providers have even required patients to sign agreements to abstain from posting commentary related to their physician without their explicit permission.[1] However, research has shown that when patients perceive their physician as open, transparent and engaging, they have a more positive perception of the care they receive.[2] Solicited online patient feedback and evaluation is seen as a valid and reliable form of evaluation.[7] This study demonstrates that internet reviews are another measure of patient satisfaction, and should be valued similarly.

Limitations

This study has several limitations. First, there are numerous websites that offer healthcare provider reviews; we performed analyses of only one site. It is unknown whether other sites emulate the practices of RateMDs.com. Secondly, RateMDs.com reviews all posts prior to online availability and removes approximately 5% because of potentially libellous content. Finally, this study focused on only four major metropolitan areas, and the demographics and motives of

the reviewers from these cities who post online reviews are unknown.

Call for further research

Future research must discern if online surveys affect patient referrals, provider reputations or patients' perceptions of quality of care. Providers should consider opportunities for incorporating this unique medium into the promotion of their practices.

Conclusions

Findings indicate that healthcare professionals receive high online ratings. While this study is limited in scope, it is our belief that healthcare professionals probably have little to fear from online provider surveys.

REFERENCES

1 Woodward C. 'Anti-defamation' group seeks to tame the rambunctious world of online doctor reviews. *Canadian Medical Association Journal* 2009;180:1010.
2 Bacon N. Will doctor rating sites improve standards of care? Yes. *British Medical Journal* 2009;338:b1030.
3 Lau GT and Ng S. Individual and situational factors influencing negative word-of-mouth behavior. *Canadian Journal of Administrative Sciences* 2001;18:163–78.
4 Comscore, Inc. Online consumer-generated reviews have significant impact on offline purchases. November 2007. www.comscore.com/Press_Events/Press_Releases/2007/11/Online_Consumer_Reviews_Impact_Offline_Purchasing_Behavior (accessed 22 July 2009).
5 Madden M, Fox S, Smith A and Vitak J. *Digital Footprints: online identity management and search in the age of transparency.* Technical report. Pew internet and American Life Project, Washington, DC, 2007.
6 Thompson LA, Dawson K and Ferdig R. The intersection of online social networking with medical professionalism. *Journal of General Internal Medicine* 2008;23:954–7.
7 Chien TW, Wang WC, Lin SB, Lin CY, Guo HR and Su SB. KIDMAP, a web based system for gathering patients' feedback on their doctors. *BMC Medical Research Methodology* 2009;9:38.

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