

Studying the Way People Rate Their Physicians *Online*

[Extended Abstract]

Ujjwal Baskota^{*}
Jackson State University.
ujjwal.baskota372@gmail.com

Dr. Katie Siek
Indiana University.
ksiek@indiana.edu

1. ABSTRACT

When looking for a health care provider many consumers turn to websites that post physician ratings and reviews. These rating sites have become a popular platform for patients to post their reviews about a health care provider they just visited. Most of the service seekers look at the reviews and ratings posted by fellow patients before they visit a physician.

Main objective of this study is to use the reviews related to health care providers who specialize on prostate cancer and erectile dysfunction on Google and Yelp online. We will analyze each individual ratings and comments. Those data will be categorized based on the type of reviewers and type of Physicians. We will find out the type of services these patients receive while visiting health care providers. Data are analyzed on the basis of [YET TO FILL IN]

2. INTRODUCTION

- Promise: There are internet rating sites that give patients an opportunity to rate a health care provider they visited.
- More people are investigating health related issues online. [4]
- Rating websites can benefit both physicians and patients because the ratings provide patient perspective that health care providers can use to improve their practice and prospective patients can choose a suitable physician. [6]
- Obstacle: If online ratings reflect patient care and health care provider's treatment, are there differences in how patients rate health care providers when outcomes are not similar. Health care providers argue that these reviews may not represent the an accurate appraisal of surgeon quality. [?]
- For example, prostate cancer has a higher incidence in Mississippi and Louisiana (greater than 24%) than

Colorado and Alaska, where the incidence is under 20%. [2]

- In this study, we investigate if health care provider ratings give insights into how health care providers treat their patients which may impact their willingness to be seen for screening and treatment.
- Technology Solution: Researchers have analyzed health care professional online ratings and found that it is difficult to identify reviews based on actual experiences [10]. In addition, most research on health care professional ratings have been done in urban areas, whereas outcomes and care may vary based on location.
- We analyzed ratings and reviews from Yelp and Google in the field of prostate cancer and erectile in states with high prostate cancer mortality rates.
- To this end, we used an Application Programming Interface (API) to collect information about the health care provider, patient demographics, reviews, and meta-data.
- Contributions: The contributions of this paper are:
 - A work flow that utilize APIs to collect, store, and analyze health care provider reviews
 - A qualitative analysis of how patients perceive their care from health care providers in areas with high and low incidence of male-oriented health conditions
 - A discussion about how incidence may impact patient treatment and willingness to be diagnosed

3. RELATED WORK

Online Health care provider rating websites have become mainstream and play important role in future healthcare policy [3]. It is found that people who write reviews are comparatively more educated, younger and healthier than the ones who don't [8]. There has been some debate on whether patients should be allowed to rate their health care providers online. Physicians argue that health care providers should not be reviewed like the way grocery stores or restaurants are reviewed [9]. But, patients give reviews based on who cares and listens them the most so, the online reviews give health care providers a good chance to improve themselves. [6].

Researchers analyzed the review of 23 health care providers in 25 major U.S. cities from 10 of the most used doctor rating sites based on Google Trend data. They found more than 65% of reviewer were positive - few were negative. They postulated that negative comments might be from people who want to tarnish a doctor's image [7]. Females with higher education status and those who utilize health care sector at high rate use these health rating sites more [1] and most reviewers are younger and healthier [8]. . When it comes to health care providers, physicians who were younger, without malpractice claims and physicians who graduated from top -50 medical schools had somewhat higher ratings than other physicians [5]. Rosenbaum found that negative reviews can adversely impact the practice of highly qualified cardiologists [10], thus review accuracy and ratings are important to patients *and* health care providers.

4. METHODS

4.1 Selection

we selected the states with most and least prostate cancer and Erectile dysfunction mortality rates in the United states. There were ten states for each category. Then, we collected reviews and ratings of health care providers in those states. We used google and yelp to collect data reviews from these states. Main reasons behind using these sites are : i) These sites are used more by common people in comparison to other health care provider rating sites. ii) They provide detailed information of reviewers and reviewee. iii) They have free API that allows us to use their information.

Link to Yelp api. https://www.yelp.com/developers/breakdocumentation/v3/business_reviews

link to google api. <https://console.developers.google.com/apis/breaklibrary?project=disco-freedom-169218>

Using APIs we collect the reviews and ratings of each physician posted by their patients.

Then we study about the group of reviewers.

We have county wise data of people with "prostate cancer" but we could not find the accurate county wise or state wise data of people with "erectile dysfunction" so: option 1) Even though we don't have the data of states for "erectile dysfunction" we do have data for state by state viagra consumption. So we can say that the states that consume highest amount of viagra are the states with highest number of erectile dysfunction patients.

Option 2) We know the main factors that contribute to erectile dysfunction. Among all of the factors, we can consider Diabetes, high blood pressure and Depression as the major factors that lead to erectile dysfunction. Hence, we can assume that the states that have highest number of diabetes, heart disease and Depression are the states that have the highest number of erectile dysfunction patients.

We collected the reviews and ratings of each Urologists in these area and evaluate them. The following tables represent the work that has been done so far by other researchers in this field. We found out that most of the researchers used websites like Yelp, RateMd, healthgrades to analyze the rat-

ings and reviews of health care providers. Some researchers conducted cross sectional survey where as some used data from non-profit news room like propublica. When it comes to type of research most of the researchers conducted both qualitative and quantitative analysis, few of them did qualitative analysis. None of the papers mentioned how they collected their data. Most of the researchers were focused on common health care providers which may or may not include all specialties and very few researchers were focused in categorizing the data according to specialization of health care providers. All the data are included in the table below.

5. REFERENCES

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Paper	Google	Facebook	Yelp	RateMD	other
Kadry et al. [7]			*	*	healthgrades,vitals, checkbook, angleslist, ratemd
Lopez, et al. [8]			*	*	
Gao et al. [5]				*	Physician's database of Virginia
sciencedaily et al [?]				*	vitals, health grades
Emmert et al. [1]					cross-sectional survey
NYT et al. [9]			*		
Jain et al. [6]					vitals
Gebauer et al			*		propublica
Rosenbaum et al. [10]					propublica
Fox et al [4]					

Table 1: Sites Used

Paper	Qualitative Analysis	Quantitative Analysis	API	Web Scraping
Kadry et al.[7]	mostly positive ratings	average rating = 77%	-	-
Lopez et al. [8]		61% positive and 39 % negative	-	-
Gao et al. [5]	most reviews were positive	46% got 5/5 12% got below 2	-	-
sciencedaily et al. [?]	female surgeons and surgeons with affiliation got good ratings		-	-
Emmert.[1]	more people are using doctor rating sites in Germany	23% of internet users look for physicians online		
NYT et al. [9].! [9]			-	-
Jain et al. [6]	most people are positive on using internet for health purposes		-	-
Gabeuer et al.	physician rating sites should be more systematic		-	-
Rosenbaum et al. [10]	there is no transparency in online rating sites		-	-
Fox et al [4]	positive	72% of internet users use internet for health info	-	-

Table 2: Type of Analysis

website	Real Name	Pseudoname	Location	Age	Past Reviews	Gender	Pictures	Date reviewed
Yelp	*	*	*	-	*	-	*	*
Google	*	-X	X	X	*	-	-	*
Ratends	X	X	X	X	X	X	X	*
Healthgrades	X	X	*	X	X	X	X	*
Angleslist	X	X	X	X	X	X	X	*
Facebook	*	-	*	-	X			

Table 3: Reviewer Data by API where * indicates most likely available; - indicates may be available; and X indicates not available

website	Doctor Name	Location	Edu History	Star Rating	Review Text	Reviewer Name	Review post Date	Reply to Review	Liking/ Useful	API
Yelp	*	*	X	*	*	*	*	-	*	*
Google	*	*	X	-	-	*	*	-	-	*
Ratemds	*	-	*	*	*	*	*	-	*	X
health grades	*	*	*	*	*	*	*	-	*	X
Angieslist	*	*	X	*	*	X	*	-	X	X
Facebook										*

Table 4: Review Data by API where * indicates most likely available; - indicates may be available; and X indicates not available

paper	no.reviews/ review- ers	no.doctors	rural	sub- urban	urban	speciality
Kadry, Analysis of 4999 physicians.[7]	4999 re- views				*	23 special- ities
Lopez, what patients say about their doctors. [8]	712 reviews	445			*	
Gao, Are doctors created equal..		18,174				fam/ped, ob/gy, surgery, hospital, other
Study finds little consistency in doctor reviews. [?]	2,813 re- views	275				sports medicine surgeons
Emmert, Physician choice making and characteristics associated with physician rating websites..... [1]	3052 re- viewers.					
Negative online reviews leave doctors with little recourse						
Jain, Googling ourselves-what physicians can learn from from online rating sites. [6]						
Gabeuer, Is it time for HIPPA physicians						
Rosenbaum, scoring no goal further adventures in transparency. [10]						cardiologists
Fox, Social life of health information .Fox2011						

Table 5: Number of Doctors and Demographics