

What Do Patients of Different Medical Illness Say About Their Doctors Online? An Analysis of Online Physician Reviews

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Abstract. This study aims to understand the role and function of online physician reviews as a process of health information communication, as well as the applications on medical practice and patients and caregivers' medical decision-making process. It collected online physician reviews from two Taiwan-based health information websites - Good Doctor and Health and DocHos. The analysis framework comprised four aspects: (1) length of reviews; (2) moment in the medical encounter process is reviewed; (3) themes of the reviews; and (4) review intents. In addition to analyzing the structural and textual characteristics of online physician reviews, this study took a step further to identify the relationship between patients of different medical and how they evaluated a medical encounter. In this paper, findings were reported and implications in improving physician-patient communication and patients' empowerment were discussed.

Keywords: Online physician review · Content analysis · Physician-patient communication · Physician selection information

1 Background

The Internet increases information transparency and symmetry in several ways, and one way is to allow patients and caregivers access to needed information without having to consult the physicians. It promotes the autonomy of the patients' role in medical decision-making, creates better physician-patient communication, and further improves health and healthcare quality. Past research suggests that among those who use the Internet for health care information, about 60 % access "user-generated" information, including reading others' health experiences, and consulting ratings or reviews of healthcare facilities or healthcare providers (Fox and Jones 2011). Half of all health care consumers relied on word of mouth referrals and recommendations from relatives and friends when choosing a primary care physician (Tu and Lauer 2008). Online physician reviews or a word-of-mouth referral, as a type of popular medical and health information, increases patients and caregivers' understanding of doctor selection and supports proactive medical decision-making. Online reviews of physicians may provide valuable insights about patient perceptions of medical care, as they represent public perspective and input from patients and caregivers (López et al. 2012). From the

patients and caregivers' perspective, online physician reviews increase patient empowerment to take proactive actions by supporting useful information on selection of physicians (Hay et al. 2008; Sciamanna et al. 2003). From the health care providers' perspective, the reviews can be considered as a form of quality evaluation, so that improvement can be made based on the review results in order to provide better health care services (Strech 2011).

This study aims to understand the role and function of online physician reviews as a process of health information communication, as well as the applications on medical practice and patients and caregivers' medical decision-making process. The online physician reviews were collected from two Taiwan-based health information websites - Good Doctor and Health (<http://health.businessweekly.com.tw/GSearchDoc.aspx>), and DocHos (<http://www.dochos.com.tw>). The analysis framework comprised both structural and textual aspects, each with distinct analytical focuses. The structural analysis included length of reviews. The textual analysis included moment in the medical encounter process reviewed, intent of the reviews, and themes of the review. In addition to analyzing the structural and textual characteristics of online physician reviews, this study took a step further to identify the relationship between patients of different medical and how they evaluated a medical encounter, by conducting statistical tests on the data sets.

This study hopes to understand the role and function of the online physician reviews in the process of health information communication, as well as the applications on physicians' practice of clinical medicine and patients and caregivers' medical decision-making process. It may provide insight into developing patient-centered rather than institution-centered evaluation criteria for evaluating healthcare quality, while the institution-centered evaluation criteria often focuses on physicians' performance data (e.g. number of malpractice payment) which is hidden from public. Furthermore, the results from the statistical analysis may inform the weight assigned to each evaluation criterion in online physician rating service.

2 Research Methods

This study collected online physician reviews from two Taiwan-based health information websites, Good Doctor and Health (<http://health.businessweekly.com.tw/GSearchDoc.aspx>), and DocHos (<http://www.dochos.com.tw>). Good Doctor and Health was funded and established by Business Weekly Media Group- Good Doctor and Health. DocHos was developed and owned by an internal medicine physician; however, the service was closed due to unforeseen circumstances. These two sites are by far believed or used to be the largest and most popular online physician review sites in Taiwan. Both sites were operated in Traditional Chinese, but were also opened for international users.

The online reviews posted by users can be divided into reviews of doctors, practices and medical centers, and pharmacies. The reviews are rated on a scale of one to five, as well as are given in written comments, and are searchable by medical specialties and practice locations. Fifty pieces of physician reviews for each of the 24 medical disciplines are collected, resulting a total of 1,200 reviews for data analysis, and the 24

medical disciplines under investigation were neurology, dermatology, dentistry, obstetrics and gynecology, psychiatry, pediatrics, gastroenterology and hepatobiliary, ophthalmology, traditional Chinese medicine, pulmonology, urology, hematology and oncology, physical medicine and rehabilitation, general surgery, general medicine, orthopedics, family medicine, nephrology, cardiovascular medicine, otolaryngology, rectal digestive surgery, plastic and reconstructive surgery, endocrinology and metabolism, and rheumatoid allergy and immunology.

The analysis framework inspired by Pollach (2006) was adapted and comprised four aspects: (1) length of reviews; (2) moment in the medical encounter; (3) intent of the reviews; and (4) themes of the reviews. The 1,200 reviews were first analyzed as aggregate to form the fundamental understanding of the characteristics of online doctor's reviews, and then were examined specifically for 24 distinct medical disciplines to determine the similarity and differences that existed across medical disciplines. It was this study's assumption that patients of different medical illness may experience the medical encounter differently, and may evaluate such experience with different criteria and different attitude.

Privacy is considered one of the utmost necessary prerequisites for medical research. This study is highly related to a profession that is dependent on professional knowledge as well as trust, and could be damaging to physicians' reputation or patients' privacy. For ethical reason, information that was identity sensitive, such as a doctor's name and practice information or a patient's personal information, was concealed in the reporting of study results.

3 Preliminary Findings

Table 1 shows that average length of all 1,200 reviews is 68.24 words, but review length varies between medical disciplines. Reviews of Neurology (135.6 words), Dermatology (89.6 words), and Dentistry (87.8 words) are the three longest ones. Reviews of Rheumatoid Allergy and Immunology (51.0 words), Endocrinology and Metabolism (51.3 words), and Plastic and Reconstructive Surgery (51.7 words) are the three shortest ones.

Regarding moment in the medical encounter process is reviewed, the research findings mimic the patients' experience and identifies nine critical moments that are addressed in the reviews. According to Table 2, this study conceptualizes the medical process into seven sequential moments and two general remarks: (1) Prior to the medical encounter (5.8 %); (2) making an appointment (1.3 %); (3) waiting for appointment (3.1 %); (4) during examination and diagnosis (34.3 %); (5) receiving prescription and medical advice (5.1 %); (6) during treatment (27.5 %); (7) after treatment (25.8 %). Two general remarks are physician-patient interaction in general (17.1 %) and unrelated to medical encounter process (23.8 %).

Themes of the review can be categorized into physician-related, system-related, clinical-related, and patient-related. The themes mentioned in the physician reviews can be reasoned as the evaluation criteria that patients acknowledged and perceived as important. Physician-related aspects can be broken into a physician's medical ethics (22.5 %), reputation (12.1 %), medical competence (45 %), appearance (2.6 %) and

Table 1. Average length of online physician reviews by medical disciplines

Medical disciplines	Average length
Neurology	135.6
Dermatology	89.6
Dentistry	87.8
Obstetrics and gynecology	76.1
Psychiatry	75.1
Pediatrics	73.7
Gastroenterology and hepatobiliary	71.0
Ophthalmology	69.0
Traditional Chinese medicine	68.9
Pulmonology	67.2
Urology	66.5
Hematology and oncology	66.3
Physical medicine and rehabilitation	65.1
General surgery	63.2
General medicine	62.4
Orthopedics	60.8
Family medicine	60.1
Nephrology	59.5
Cardiovascular division	58.0
Otolaryngology	55.3
Rectal digestive surgery	53.7
Plastic and reconstructive surgery	51.7
Endocrinology and metabolism	51.3
Rheumatoid allergy and immunology	51.0
Average	68.24

Table 2. Moment in the medical encounter process is reviewed by medical disciplines

Medical Disciplines	Prior to medical encounter		Making an appointment		Waiting for appointment		During examination and diagnosis		During treatment		Receiving prescription and medical advice		After treatment		Physician-patient interaction in general		Unrelated to medical encounter process	
General Medicine	2	4.0%	0	0.0%	0	0.0%	27	54.0%	12	24.0%	1	2.0%	13	26.0%	9	18.0%	9	18.0%
General Surgery	2	4.0%	0	0.0%	2	4.0%	16	32.0%	18	36.0%	0	0.0%	20	40.0%	13	26.0%	6	12.0%
Pediatrics	2	4.0%	1	2.0%	2	4.0%	27	54.0%	13	26.0%	8	16.0%	9	18.0%	7	14.0%	9	18.0%
Cardiovascular Division	2	4.0%	0	0.0%	1	2.0%	15	30.0%	14	28.0%	2	4.0%	11	22.0%	7	14.0%	17	34.0%
Dentistry	8	16.0%	3	6.0%	3	6.0%	24	48.0%	27	54.0%	0	0.0%	16	32.0%	1	2.0%	9	18.0%
Dermatology	8	16.0%	3	6.0%	7	14.0%	26	52.0%	17	34.0%	6	12.0%	18	36.0%	13	26.0%	2	4.0%
Otolaryngology	5	10.0%	1	2.0%	1	2.0%	24	48.0%	21	42.0%	6	12.0%	15	30.0%	4	8.0%	7	14.0%
Hematology and Oncology	0	0.0%	0	0.0%	2	4.0%	13	26.0%	13	26.0%	1	2.0%	6	12.0%	8	16.0%	22	44.0%
Traditional Chinese Medicine	4	8.0%	2	4.0%	4	8.0%	20	40.0%	17	34.0%	18	36.0%	21	42.0%	1	2.0%	9	18.0%
Gastroenterology and Hepatobiliary	2	4.0%	0	0.0%	0	0.0%	16	32.0%	7	14.0%	0	0.0%	3	6.0%	13	26.0%	14	28.0%
Chest Medicine	1	2.0%	0	0.0%	0	0.0%	18	36.0%	14	28.0%	3	6.0%	13	26.0%	9	18.0%	10	20.0%
Urology	1	2.0%	0	0.0%	0	0.0%	21	42.0%	12	24.0%	1	2.0%	10	20.0%	8	16.0%	12	24.0%
Rectal Digestive Surgery	3	6.0%	0	0.0%	1	2.0%	12	24.0%	24	48.0%	0	0.0%	15	30.0%	7	14.0%	13	26.0%
Rheumatoid Allergy and Immunology	0	0.0%	1	2.0%	2	4.0%	26	52.0%	7	14.0%	5	10.0%	5	10.0%	7	14.0%	13	26.0%
Endocrinology and Metabolism	1	2.0%	0	0.0%	3	6.0%	13	26.0%	10	20.0%	0	0.0%	6	12.0%	7	14.0%	21	42.0%
Family Medicine	3	6.0%	1	2.0%	2	4.0%	15	30.0%	11	22.0%	5	10.0%	11	22.0%	13	26.0%	8	16.0%
Orthopedics	1	2.0%	0	0.0%	0	0.0%	14	28.0%	14	28.0%	2	4.0%	16	32.0%	3	6.0%	16	32.0%
Obstetrics and Gynecology	0	0.0%	1	2.0%	3	6.0%	23	46.0%	16	32.0%	1	2.0%	13	26.0%	6	12.0%	10	20.0%
Ophthalmology	7	14.0%	1	2.0%	2	4.0%	5	10.0%	11	22.0%	3	6.0%	25	50.0%	1	2.0%	17	34.0%
Physical Medicine and Rehabilitation	4	8.0%	0	0.0%	0	0.0%	13	26.0%	11	22.0%	2	4.0%	18	36.0%	10	20.0%	14	28.0%
Nephrology	2	4.0%	1	2.0%	0	0.0%	10	20.0%	10	20.0%	0	0.0%	5	10.0%	22	44.0%	12	24.0%
Neurology	4	8.0%	0	0.0%	1	2.0%	11	22.0%	15	30.0%	3	6.0%	13	26.0%	18	36.0%	8	16.0%
Psychiatry	4	8.0%	1	2.0%	1	2.0%	17	34.0%	8	16.0%	6	12.0%	9	18.0%	11	22.0%	9	18.0%
Plastic and Reconstructive Surgery	3	6.0%	0	0.0%	0	0.0%	6	12.0%	8	16.0%	1	2.0%	18	36.0%	7	14.0%	19	38.0%
Total	69	5.8%	16	1.3%	37	3.1%	412	34.3%	330	27.5%	74	6.2%	309	25.8%	205	17.1%	286	23.8%

Table 3. Themes of the review by medical disciplines

	Physician's personality	Medical competence	Treatment outcomes	Medical ethics	Diagnostic process	Service attitude	Personal opinion	Physician's reputation	Clinical encounter process in general	Other service staff	Prescription and medical advice	Medical equipment and devices	Physician's appearance	Clinical environment
General Medicine	38 76.0%	29 58.0%	5 10.0%	26 52.0%	10 20.0%	7 14.0%	1 2.0%	3 6.0%	6 12.0%	2 4.0%	1 2.0%	0 0.0%	0 0.0%	0 0.0%
General Surgery	25 50.0%	38 76.0%	13 26.0%	22 44.0%	6 12.0%	5 10.0%	6 12.0%	5 10.0%	8 16.0%	3 6.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Pediatrics	34 68.0%	30 60.0%	9 18.0%	23 46.0%	5 10.0%	7 14.0%	3 6.0%	5 10.0%	8 16.0%	3 6.0%	5 10.0%	2 4.0%	2 4.0%	1 2.0%
Cardiovascular Division	28 56.0%	30 60.0%	10 20.0%	23 46.0%	6 12.0%	7 14.0%	5 10.0%	8 16.0%	7 14.0%	2 4.0%	1 2.0%	1 2.0%	2 4.0%	0 0.0%
Dentistry	26 52.0%	32 64.0%	19 38.0%	8 16.0%	5 10.0%	8 16.0%	4 8.0%	12 24.0%	8 16.0%	6 12.0%	1 2.0%	6 12.0%	3 6.0%	6 12.0%
Dermatology	36 72.0%	34 68.0%	18 36.0%	11 22.0%	6 12.0%	7 14.0%	4 8.0%	18 36.0%	2 4.0%	7 14.0%	1 2.0%	0 0.0%	3 6.0%	2 4.0%
Otolaryngology	41 82.0%	23 46.0%	15 30.0%	10 20.0%	17 34.0%	15 30.0%	7 14.0%	5 10.0%	2 4.0%	3 6.0%	4 8.0%	1 2.0%	1 2.0%	1 2.0%
Hematology and Oncology	38 76.0%	22 44.0%	2 4.0%	12 24.0%	11 22.0%	19 38.0%	4 8.0%	5 10.0%	3 6.0%	3 6.0%	1 2.0%	2 4.0%	0 0.0%	1 2.0%
Traditional Chinese Medicine	27 54.0%	18 36.0%	17 34.0%	9 18.0%	15 30.0%	19 38.0%	4 8.0%	5 10.0%	4 8.0%	4 8.0%	14 28.0%	0 0.0%	0 0.0%	2 4.0%
Gastroenterology and Hepatobiliary	28 56.0%	16 32.0%	6 12.0%	11 22.0%	10 20.0%	3 6.0%	16 32.0%	3 6.0%	0 0.0%	0 0.0%	2 4.0%	3 6.0%	0 0.0%	0 0.0%
Chest Medicine	31 62.0%	28 56.0%	9 18.0%	15 30.0%	10 20.0%	9 18.0%	2 4.0%	2 4.0%	6 12.0%	3 6.0%	1 2.0%	0 0.0%	1 2.0%	0 0.0%
Urology	38 76.0%	17 34.0%	12 24.0%	19 38.0%	14 28.0%	7 14.0%	6 12.0%	9 18.0%	3 6.0%	4 8.0%	2 4.0%	0 0.0%	1 2.0%	1 2.0%
Rectal Digestive Surgery	34 68.0%	16 32.0%	13 26.0%	9 18.0%	11 22.0%	9 18.0%	2 4.0%	5 10.0%	3 6.0%	3 6.0%	0 0.0%	2 4.0%	3 6.0%	0 0.0%
Rheumatoid Allergy and Immunology	40 80.0%	4 8.0%	5 10.0%	7 14.0%	27 54.0%	19 38.0%	9 18.0%	3 6.0%	1 2.0%	2 4.0%	5 10.0%	2 4.0%	0 0.0%	0 0.0%
Endocrinology and Metabolism	38 76.0%	16 32.0%	8 16.0%	11 22.0%	8 16.0%	11 22.0%	8 16.0%	3 6.0%	3 6.0%	2 4.0%	2 4.0%	1 2.0%	0 0.0%	1 2.0%
Family Medicine	37 74.0%	10 20.0%	8 16.0%	7 14.0%	18 36.0%	11 22.0%	5 10.0%	4 8.0%	3 6.0%	5 10.0%	5 10.0%	3 6.0%	3 6.0%	1 2.0%
Orthopedics	33 66.0%	17 34.0%	14 28.0%	6 12.0%	15 30.0%	10 20.0%	7 14.0%	6 12.0%	3 6.0%	4 8.0%	3 6.0%	1 2.0%	1 2.0%	0 0.0%
Obstetrics and Gynecology	36 72.0%	16 32.0%	10 20.0%	6 12.0%	19 38.0%	10 20.0%	13 26.0%	2 4.0%	6 12.0%	4 8.0%	2 4.0%	1 2.0%	1 2.0%	0 0.0%
Ophthalmology	14 28.0%	13 26.0%	25 50.0%	1 2.0%	6 12.0%	3 6.0%	10 20.0%	13 26.0%	2 4.0%	8 16.0%	4 8.0%	3 6.0%	1 2.0%	1 2.0%
Physical Medicine and Rehabilitation	37 74.0%	12 24.0%	16 32.0%	7 14.0%	9 18.0%	8 16.0%	16 32.0%	7 14.0%	3 6.0%	9 18.0%	2 4.0%	3 6.0%	3 6.0%	0 0.0%
Nephrology	35 70.0%	12 24.0%	5 10.0%	9 18.0%	6 12.0%	5 10.0%	12 24.0%	6 12.0%	1 2.0%	2 4.0%	3 6.0%	0 0.0%	2 4.0%	0 0.0%
Neurology	32 64.0%	19 38.0%	11 22.0%	7 14.0%	6 12.0%	3 6.0%	11 22.0%	7 14.0%	7 14.0%	4 8.0%	2 4.0%	0 0.0%	0 0.0%	0 0.0%
Psychiatry	36 72.0%	10 20.0%	8 16.0%	4 8.0%	8 16.0%	7 14.0%	13 26.0%	5 10.0%	3 6.0%	3 6.0%	7 14.0%	1 2.0%	3 6.0%	2 4.0%
Plastic and Reconstructive Surgery	24 48.0%	24 48.0%	15 30.0%	7 14.0%	3 6.0%	3 6.0%	9 18.0%	7 14.0%	6 12.0%	2 4.0%	3 6.0%	1 2.0%	1 2.0%	2 4.0%
Total	786 65.5%	486 40.5%	273 22.8%	270 22.5%	257 21.4%	212 17.7%	177 14.8%	145 12.1%	98 8.2%	90 7.5%	71 5.9%	33 2.8%	31 2.6%	21 1.8%

personality (65 %). System-related reviews deal with clinical environment (1.8 %), medical equipment and devices (2.8 %), office service staff (7.5) and service attitude (17.7 %). Medical-related reviews tend to focus on the diagnostic process (21.4 %), medical advice and prescription (5.9 %), and treatment outcomes (22.8 %). Patient-related aspect focuses on patients' personal opinion (14.8 %) on the overall medical encounter experience (Table 3).

This study uncovered ten types of intent that corresponded to the reviews posted. As shown in Table 4, these intents included (1) showing praise (86.6 %); (2) acknowledging previous comments (28.0 %); (3) asking questions (20.0 %); (4) describing health situations (16.7 %), (5) describing treatment process (16.3 %); (6) making recommendation (12.8 %); (7) showing gratitude (11.6 %); (8) addressing criticism (4.8 %); (9) refuting previous comments (1 %); and (10) others (4 %). It further calculated the number of intent that reviews of each medical discipline communicated, in order to examine the relationship between medical disciplines and the variety of intent. On average, each review had 1.6 intents, while reviews of dentistry (2.0) and ophthalmology (1.9) demonstrated the most number of intents, and reviews of rheumatoid allergy and immunology demonstrated the least number of intents (1.2). The results may suggest that when patients engaged in uninsured medical services, such as jaw reconstruction or laser vision correction, they would evaluate the medical encounter with even higher standard not only as patients, but also as consumers who paid to receive services.

In addition to the descriptive statistics, this study further conducted three statistical tests. To investigate how patients of different medical illness may demonstrate different rating behaviors on the medical encounter, three sets of Chi-square tests were conducted on medical specialties and the categorical variables of three research themes.

Table 4. Intent of the review by medical disciplines

	Showing praise	Describing health situation		Describing treatment process/treatment		Making recommendation		Showing gratitude	Addressing criticism		Acknowledging previous comments	Refuting previous comments	Asking questions	other
General Medicine	47 94.0%	1 2.0%	1 2.0%	4 8.0%	9 18.0%	1 2.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	2 4.0%	
General Surgery	39 78.0%	8 16.0%	4 8.0%	4 8.0%	7 14.0%	3 6.0%	1 2.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	4 8.0%		
Pediatrics	44 88.0%	3 6.0%	7 14.0%	8 16.0%	5 10.0%	3 6.0%	1 2.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1 2.0%		
Cardiovascular Division	44 88.0%	3 6.0%	9 18.0%	5 10.0%	6 12.0%	3 6.0%	0 0.0%	1 2.0%	1 2.0%	1 2.0%	3 6.0%	0 0.0%		
Dentistry	40 80.0%	18 36.0%	19 38.0%	12 24.0%	4 8.0%	2 4.0%	0 0.0%	3 6.0%	0 0.0%	0 0.0%	1 2.0%	0 0.0%		
Dermatology	40 80.0%	14 28.0%	13 26.0%	9 18.0%	3 6.0%	0 0.0%	0 0.0%	1 2.0%	1 2.0%	1 2.0%	4 8.0%	0 0.0%		
Otolaryngology	42 84.0%	10 20.0%	10 20.0%	10 20.0%	4 8.0%	4 8.0%	0 0.0%	2 4.0%	0 0.0%	0 0.0%	2 4.0%	0 0.0%		
Hematology and Oncology	44 88.0%	5 10.0%	4 8.0%	6 12.0%	6 12.0%	2 4.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	2 4.0%		
Traditional Chinese Medicine	39 78.0%	12 24.0%	14 28.0%	9 18.0%	4 8.0%	1 2.0%	3 6.0%	0 0.0%	1 2.0%	1 2.0%	1 2.0%	1 2.0%		
Gastroenterology and Hepatobiliary	41 82.0%	4 8.0%	6 12.0%	10 20.0%	8 16.0%	2 4.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	5 10.0%		
Chest Medicine	45 90.0%	10 20.0%	5 10.0%	4 8.0%	10 20.0%	2 4.0%	0 0.0%	1 2.0%	0 0.0%	0 0.0%	0 0.0%	1 2.0%		
Urology	47 94.0%	9 18.0%	9 18.0%	7 14.0%	6 12.0%	1 2.0%	1 2.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%		
Rectal Digestive Surgery	47 94.0%	8 16.0%	8 16.0%	5 10.0%	7 14.0%	1 2.0%	0 0.0%	1 2.0%	1 2.0%	1 2.0%	1 2.0%	1 2.0%		
Rheumatoid Allergy and Immunology	44 88.0%	3 6.0%	2 4.0%	4 8.0%	3 6.0%	3 6.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1 2.0%		
Endocrinology and Metabolism	45 90.0%	5 10.0%	5 10.0%	2 4.0%	6 12.0%	2 4.0%	0 0.0%	0 0.0%	0 0.0%	1 2.0%	1 2.0%	1 2.0%		
Family Medicine	45 90.0%	6 12.0%	10 20.0%	5 10.0%	5 10.0%	2 4.0%	2 4.0%	0 0.0%	0 0.0%	1 2.0%	1 2.0%	1 2.0%		
Orthopedics	37 74.0%	11 22.0%	8 16.0%	6 12.0%	4 8.0%	5 10.0%	1 2.0%	1 2.0%	2 4.0%	2 4.0%	5 10.0%	0 0.0%		
Obstetrics and Gynecology	47 94.0%	15 30.0%	11 22.0%	7 14.0%	4 8.0%	3 6.0%	0 0.0%	0 0.0%	0 0.0%	1 2.0%	0 0.0%	0 0.0%		
Ophthalmology	42 84.0%	13 26.0%	16 32.0%	4 8.0%	14 28.0%	3 6.0%	1 2.0%	0 0.0%	1 2.0%	3 6.0%	0 0.0%	0 0.0%		
Physical Medicine and Rehabilitation	44 88.0%	13 26.0%	11 22.0%	7 14.0%	4 8.0%	3 6.0%	0 0.0%	2 4.0%	0 0.0%	0 0.0%	0 0.0%	2 4.0%		
Nephrology	46 92.0%	3 6.0%	2 4.0%	3 6.0%	1 2.0%	1 2.0%	1 2.0%	1 2.0%	1 2.0%	0 0.0%	1 2.0%	1 2.0%		
Neurology	45 90.0%	14 28.0%	6 12.0%	8 16.0%	7 14.0%	4 8.0%	1 2.0%	0 0.0%	0 0.0%	0 0.0%	2 4.0%	0 0.0%		
Psychiatry	39 78.0%	5 10.0%	7 14.0%	5 10.0%	8 16.0%	4 8.0%	2 4.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	4 8.0%		
Plastic and Reconstructive Surgery	46 92.0%	7 14.0%	9 18.0%	10 20.0%	2 4.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1 2.0%		
Total	1039 86.6%	200 16.7%	196 16.3%	154 12.8%	139 11.6%	58 4.8%	14 1.2%	12 1.0%	10 0.8%	47 3.9%				

The results show that the intents of “describing health situation ($\chi^2(df) = 55.755$)” and “describing treatment process ($\chi^2(df) = 59.925$)” are significant at the 5 % level ($p < .001$), meaning patients of different illness may show different patterns in indicating these two intents. Regarding moments in the medical encounter is reviewed, the results indicate that medical discipline is a strong factor when the medical encounter moments under review are “during examination and diagnosis($\chi^2(df) = 56.12$),” “after treatment ($\chi^2(df) = 56.90$),” and “physician-patient interaction in general ($\chi^2(df) = 70.47$).” Last set of chi-square test attempted to confirm that medical discipline would be a factor in affecting patients’ priority of the evaluation criteria. This study identified 14 themes of the review, physician’s personality is the most mentioned theme. However, the Chi-square test reveals that patients of different medical illness don’t show any difference in focusing on physician’s personality. When a Chi-square test was further carried out to test the relationship between medical disciplines and each of the review themes mentioned, only themes on “medical competence ($\chi^2(df) = 86.148$),” “treatment outcomes ($\chi^2(df) = 58.692$),” “medical ethics ($\chi^2(df) = 90.178$),” “service attitude ($\chi^2(df) = 61.962$),” and “personal opinion ($\chi^2(df) = 59.339$)” were significant.

4 Implications of the Study

Further analysis regarding the characteristics of the reviews by 24 distinct medical specialties will be reported. Online reviews of physicians provide unfiltered and unedited feedbacks, not only on physician-patient relationship, but also on quality of

healthcare in general. Themes of the reviews generated from this study may propose an alternative multi-dimensional patient satisfaction measure that is patient-focused instead of doctor or institution-centered. In addition, the intent behind the reviews reveals that fact that the majority of the reviews are demonstrating a positive attitude toward the medical encounter by showing praise and gratitude, or recommending the physicians. Description of health situation and treatment process may be informative and useful for other patients in comparing their own situation to the described situation, and in determining how a physician being rated can be ultimately selected.

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