

The Impact of Team Diversity on Physician Teams' Performance in Online Health Communities

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Abstract

With the increasing popularity of the Internet, people are increasingly seeking health advice through Online Health Communities (OHCs). Physicians in OHCs are often self-organized into teams to provide on-demand health services. Although many prior studies have investigated OHCs physician performance at the individual level, there is little research at the team level. To fill the gap, this paper analyzes whether team diversity of online physician team influences team performance in OHCs. Team diversity varies depending on physicians' difference in terms of reputation, online-commitment and popularity.

Keywords

OHCs, Physician teams, Diversity.

1. Introduction

1.1 Online Health Communities

The Internet is one of the most important resources for health-related information. Almost three-fourths of people in developed countries are discussing and searching for health-related topics online. Based on the Web2.0 technology, online health communities (OHCs) already become valuable places for people to acquire health information, discuss their health problems and receive medical treatment advice. By diminishing the geographic and time constraints, OHCs can easily connect people far apart and provide an efficient platform for medical information exchange.

Many online health communities recruit health experts to provide professional health services and answer health questions online. People can contact health experts, such as physicians, online and receive consultation services without visiting hospitals. Based on the payment methods, there are two types of online professional health services. The first and the more popular form, is the free health knowledge sharing service, where people can post health questions and physicians will answer the questions when they are available. Given that this is free service, the response speed and quality cannot be guaranteed. The second form is paid service. People can submit detailed health information to the physician who will reply in a predefined time limit. Patients can also make appointments with the physician online and visit the physician offline. Moreover, the paid service employs different types of communication channels, such as video chat and phone.

1.2 Physician Teams

To better meet people's different needs, online communities also organize physicians to form teams. Within a team, physicians can contact and discuss the cases with fellow physicians. When physicians face tough questions from patients, they can ask other team members for help and get their input. Moreover, when a patient makes an appointment for offline outpatient visit, the team leader can match an appropriate physician to the patient according to the patient's idiosyncratic conditions. Comprised of physicians from different hospitals and different specialty areas, the online physician teams are expected to serve the patients more effectively and efficiently than isolated individual physicians.

1.3 Team Diversity

One of the most important issues in online team construction is the composition of teams. Online physician teams are formed from different offline organizations, and may have not worked together

before. Without good relationships and trust among team members, it is difficult to foster team effectiveness. This can also decrease the team performance and patient satisfaction. Among team composition, diversity is an important characteristic that should be considered in team formation. Team diversity refers to the distribution of team members' backgrounds, attributes, and capabilities. Research shows that diversity increases team competitive advantage and improves internal efficiency.

2. Model Establishment

2.1 Reputation

Reputation is the estimation of the consistency of a product or brand and is established by fulfilling marketing signals. A market signal is an activity that provides information regarding the product beyond mere form, such as information on product quality and other unobservable aspects. When consumers don't have a clear idea about the product quality and have difficulties in their product buying decision, product or brand reputation is a good indicator for them to choose the better product. Reputation is positively related to product sales. Consumers prefer to choose reputable products so they can avoid potential risks. Physician reputation has an impact on patient's choices and physician's consultations [1]. Previous studies have shown that having a diverse team can better promote team performance than a non-diverse team. The diversity of the team forms the complementary advantages of professional knowledge. However, online health consultations require a team of physicians with high levels of individual professional competence. The diversity of teams shows that team members have different reputations and provide different levels of health service quality. The varied distribution of team member health service quality can meet needs of different patients and make it easier to select the appropriate medical team and physicians. Thus, we expect the teams consisting of physicians who have different reputations will attract patients to choose them.

2.2 Online Commitment

Commitment-trust theory is an important theory of relationship marketing, originally proposed by Morgan and Hunt [2]. In recent years, many studies have used this theory to explore the relationship among commitment, trust and users' behavior. Commitment is defined as the intent to persist in a relationship, including the long-term orientation toward the involvement as well as feelings of psychological attachment. A positive relationship exists between commitment and retention of users. Higher commitment leads to greater engagement and greater contribution to online communities. High commitment also indicates high involvement and effort. For product and service providers, high commitment means that employees are hard-working and spend more time energy making their product and service better. Therefore, consumers tend to choose hard-working producers in order to acquire high-quality products or services. A similar phenomenon exists in online health communities. If the physician has a commitment to online health communities, the physician will spend more time and energy to answer patients' questions. Physician efforts will significantly affect the perceived quality of patients. Patients would like to choose physicians who spend more time in providing online health services.

2.3 Popularity

A brand's popularity is represented by its market share. More and more online retailers use brand popularity in attempts to influence consumers' purchase decisions. As credible services, severe information asymmetry problems exist in online health consultations between physicians and patients. Because of the lack of professional knowledge, patients can't always select the appropriate physicians. As a result, patients perceive the abilities and quality of the physician through other patients' consulting decisions. Popularity can represent patient consulting decisions and measure their attitudes regarding certain physicians. According to the product quality assessment theory, consumers typically use popularity as a signal of brand quality. Online popularity can help patients judge physician service quality and make consulting decisions. The diversity of physician team's popularity shows that the team members have different levels of popularity, which indicate different health service quality.

2.4 Research Model

Based on the above assumptions, we assume that the greater the diversity of physician reputation online-commitment and popularity, the greater the likelihood that the team will meet the patient's needs, the higher the likelihood of being consulted. In addition, having more opportunities to study and get more experience can improve team performance. Thus, the research model is given in Figure.1.

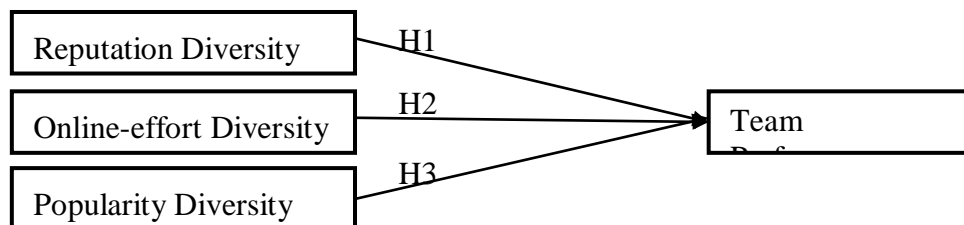


Fig.1 The model of Research

3. Data and Analysis

3.1 Data collection

Our research context is a famous online health community, i.e. Haodf.com, that was launched in 2006. Haodf.com is one of the most popular online health communities in China, and has provided health services to more than 100 million people for information sharing, medical consultation and offline appointments. The website encourages famous medical experts to organize an online team and provide online services to patients. Every medical expert can form an online virtual team on Haodf.com. Other experts can choose to join appropriate medical teams. Normally, the medical team is a collaborative group composed of several cross-regional and cross-hospital specialists. By joining the online medical team, physicians can discuss patient symptoms and treatment solutions, which is helpful for junior physicians. The composition of team members varies within different teams. Patients will choose the appropriate team to consult based on related factors, such as the team's specialty, team member characteristics, consultation costs, and so on.

We collected data from Haodf.com between October 23rd, 2019 and March 4th, 2020 to test the model. The collected data includes information on teams and members. To avoid the possible conflict of team changes, we eliminated teams that had change in membership during the data collection period, and finally obtained the data from 1788 teams. The final data set is consisted of team information (e.g., number of online consultation, major diseases, etc.) and doctor information (e.g., reputation, number of patients etc.).

3.2 Descriptive Statistics

The summary statistics of some key variables are presented in Table 1, including means and standard deviations. We find that the deviation of increased number of team consultations is large in 1788 different teams, and that the standard deviation is 11.74.

Table 1 Descriptive Statistics for Selected Variables (N = 1,788)

Variable	Obs	Mean	Std.	Description
team_patients	1,788	3.782	11.74	The increased number of team consultations
team_num	1,788	4.022	1.769	Team size
team_hospital	1,788	2.960	0.306	The rank of team members hospitals
team_price	1,788	97.51	123.0	The consultation price of team
d_reputation	1,788	0.700	0.297	The diversity of professional titles in the team
d_commitment	1,788	0.938	0.409	The diversity of physician's patients in the team
d_popularity	1,788	0.866	0.369	The diversity of follower's numbers in the team

3.3 Research Results

From Table 2, there were strong correlation between team patients and team diversity. The correlation indexes of such three indexes as reputation diversity, online-commitment diversity and popularity diversity were 0.065, 0.103, 0.094, respectively, indicating that at the significance level of 0.01, team performance and team diversity had strong correlation.

Table 2 Correlation Coefficient of Variables

	team_patients	team_number	team_price	team_hospital	d_reputation	d_commitment	d_popularity
team_patients	1						
team_number	0.105***	1					
team_price	0.069***	0.138** *	1				
team_hospital	-0.0330	0.0340	0.043*	1			
d_reputation	0.065***	0.365** *	0.061**	0.105***	1		
d_commitment	0.103***	0.528** *	0.127***	0.092***	0.620***	1	
d_popularity	0.094***	0.503** *	0.113***	0.083***	0.604***	0.864***	1

*** p<0.01, ** p<0.05, * p<0.1

4. Conclusion

This paper mainly explores the impact of team diversity on team performance in online health communities. We collected data from a popular online health community in China, and examined the effects of different types of team diversity on team performance.

The results demonstrated that the performance of physician teams was related to the team members' diversity attributes. Patients want to find the appropriate team and physicians for disease consultation in online health communities. They browse the detailed information about the physician team and make the consultation decision.

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