A Causal Relationship Model of Factors Influencing Foreigners' Selection of Private Hospitals in Thailand

โมเดลความสัมพันธ์เชิงสาเหตุของปัจจัยที่มีอิทธิพลต่อการเลือกโรงพยาบาลเอกชนในประเทศไทยของชาวต่างชาติ

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Abstract

This study aims to develop and validate a causal relationship model of factors influencing foreigners' selection of private hospitals in Thailand. The sample of 400 foreign customers of private hospitals in Thailand was selected by means of convenience sampling. The data were collected by structured questionnaires, and structural equation modeling was used to analyze the data. The results indicated that the hypothetical model was consistent with empirical data. The goodness of fit statistics were chi-square = 2.16, degree of freedom = 2, p-value = .34, relative chi-square = 1.08, goodness of fit index (GFI) = .99, comparative fit index (CFI) = 1.00, and root mean square error of approximation (RMSEA) = .01. The four exogenous variables are perceived clinical quality, service quality, marketing, and innovativeness/innovation of hospitals. The endogenous variable of satisfaction accounted for 65.40% of total variance of foreigners' selection of private hospitals in Thailand.

Keywords: Service quality; marketing; innovation; satisfaction; private hospital

บทคัดย่อ

การศึกษานี้มุ่งพัฒนาและตรวจสอบโมเดลความสัมพันธ์เชิงสาเหตุของปัจจัยที่มีอิทธิพลต่อการเลือกโรงพยาบาลเอกชนในประเทศไทยของชาวต่างชาติ กลุ่มตัวอย่างคือลูกค้าชาวต่างชาติของโรงพยาบาลเอกชนในประเทศไทยที่ได้จากการเลือกแบบสะดวก ผู้วิจัยใช้แบบสอบถามแบบมีโครงสร้างเป็นเครื่องมือในการรวบรวมข้อมูล และใช้โมเดลสมการโครงสร้างในการวิเคราะห์ ผลการวิจัยชี้ว่าโมเดลสมมติฐานที่พัฒนาขึ้นมีความสอดคล้องกับข้อมูลเชิงประจักษ์ ค่าสถิติที่แสดงความสมรูปดีได้แก่ ค่าไคสแควร์เท่ากับ 2.16 ค่าองศาอิสระเท่ากับ 2 ค่าพี (p) เท่ากับ .34 ค่าไคสแควร์สัมพัทธ์เท่ากับ 1.08 ค่าดัชนีความสอดคล้อง GFI เท่ากับ .99, CFI เท่ากับ 1.000 และค่ารากที่สองของความคาดเคลื่อนของการประมาณค่า เท่ากับ .01 โดยตัวแปรภายนอกได้แก่ การรับรู้คุณภาพคลินิก คุณภาพบริการ การตลาด ความมีนวัตกรรม/นวัตกรรมของโรงพยาบาล และตัวแปรภายในได้แก่ความพึงพอใจอธิบายความแปรปรวนของการเลือกโรงพยาบาลเอกชนในประเทศไทยของชาวต่างชาติได้ร้อยละ 65.40

คำสำคัญ: คุณภาพบริการ การตลาด นวัตกรรม ความพึงพอใจ โรงพยาบาลเอกชน

Introduction

In 2017, 4.23 million foreign patients received treatment in Thailand's private hospitals (National Statistical Office, Ministry of Information and Communication Technology, 2017), drawing about 7.60 billion USD (234,327 million baht) to the country, which was a 40% increase from 2012. The medical tourism industry has high potential and consistent growth.

The Office of SMEs Promotion, Ministry of Industry has analyzed the reasons why foreign patients selected medical services in Thailand's private hospitals. The medical expenses are cheaper compared to other countries (Wongkit & McKercher, 2013). However, that summary was not consistent with the analysis of The Boston Consulting Group, which concluded that the medical expenses in Thailand have no advantage over some countries in the region including Malaysia, Philippines, and India but Thailand was superior to those countries in the aspect of service quality. In terms of the standard and quality of the actual medical treatments, service in Thailand was inferior to Singapore but superior to service in Malaysia and Philippines (NaRanong & NaRanong, 2011; Rerkrujipimol & Assenov, 2011).

The Department of Thai Trade Negotiations concluded that Thailand had the greatest advantages in the aspect of services, technology and innovation in terms of medical equipment and facilities, quality of staff, and reasonable medical expenses but no advantages in marketing and strategic partners.

From these exploratory reviews, there was an inconsistency between the analyses of each agency about how each variable affected foreign patients' intention to select a private hospital. A literature review was conducted of all articles published during the past 15 years (2000–2015) in the research database of the Office of the Higher Education Commission of Thailand. This review found 242 research articles related to private hospitals. Among these, 49 papers (20.2%) used keywords related to marketing, such as 'decision making', 'behavior', 'satisfaction', 'service quality', 'image', 'communication', 'public relations'. The other papers were not directly related to the field of business administration. Only three academic articles (1.2%) included foreign patients in their scope. Overall, few studies were found, despite Thailand's vision of becoming the medical hub of the region.

The findings varied in the variables identified as supporting Thailand as an attractive destination for foreign patients. The major of variables are marketing program, services and staff, clinical quality, and technology and innovation of medical equipment and facilities.

Understanding customers' behavioral intention to select a private hospital is seen as a prime determinant of hospital financial performance. This information can help marketers design effective strategies and implementations to meet consumers' needs, retain existing customers and attract new ones. The study of each variable affecting intention to select a private hospital in Thailand can drive private hospitals' marketing approach, and provide management with the opportunity to achieve the country's vision as becoming the medical hub of the region.

Therefore, the literature review led to this research that aims to develop a causal relationship model of variables affecting the intention of foreign patients to select a private hospital in Thailand.

Research Objectives

1. To develop a causal relationship model of perceived clinical quality, service quality, marketing, hospital's innovation, satisfaction and intention to select private hospital in Thailand and

2. To examine the consistency between the hypothetical model with the empirical data.

Scope of the Study

This research is conducted on convenience sampling of foreign patients who are expatriates or their families, tourists or medical tourists who have ever used a service in a private hospital in Thailand. Samples are selected inside five private hospitals. Exogenous variables are service quality, clinical quality, marketing and hospital's innovations/innovativeness. Endogenous variables in the research framework are satisfaction and intention to use private hospitals.

Literature review

Behavioral intention, an affirmed tendency to engage in a certain behavior, is an important indicator of consumers' future action. Intentions can be defined as signals that reveal whether a consumer will continue to use a company's service or switch to another service provider (Oliver, 1993). Developing behavioral intention contributes to reducing patient defection and 'shopping' or selecting process among patients (Liu, Feng & Shang, 2017)

Factors such as service quality and satisfaction are frequently viewed as the significant keys of behavioral intentions of customers. A higher quality of service and level of satisfaction can result in positive behavioral intention. The past studies have revealed that customer satisfaction can be used as a predictor of behavioral intention (Chen, 2008; Cronin, Brady & Hult, 2000). Several studies confirm that overall satisfaction is the direct antecedent of patient behavioral intention or that customer satisfaction with the service encounter appears to be a moderating variable between service quality and behavioral intention (Choi, Cho, Lee, Lee & Kim, 2004; Kim, Kim, Kim, Kim & Kang, 2008).

Satisfaction is defined as the post-consumption evaluation concerning a specific product or service. One of the most widely accepted customer satisfaction concepts is that satisfaction level is the result of the difference between expected and perceived performance of services (McQuitty, Finn & Wiley, 2000; Oliver, 1993). Several studies have also shown that satisfaction influences repurchase intention (Anderson, Fornell, & Lehmann, 1994; Luo & Homburg, 2007)

Service quality, a measurement of actual service level in comparison to service expectation, can be evaluated by applying the SERVQUAL scale proposed by Parasuraman, Zeithaml & Berry

(1988). The scale comprises 22 items under five dimensions including reliability, assurance, tangibles, empathy and responsiveness.

In addition to measuring service quality of a service firm, Grönroos (1984) proposed a model construct of technical quality, functional quality, and company image. Technical quality refers to what outcomes the consumer receives from the service organization, functional quality refers to how a firm provides services to consumers, and image creates favorable attitude towards a service provider. Choi et al. (2004) measured service quality of hospitals using 24 items under four dimensions. The results found that service quality had positive effects both on satisfaction and behavioral intention, and satisfaction positively affected behavioral intention.

Image is explained in marketing as the perception of product, service or corporate brands remembered by the customer, reflecting the customer's overall impression. Wu (2011) found that hospital brand image improved patient satisfaction and in turn, increasing the re-visit intention of patients. Customers can use hospital image to differentiate one service from its competitors. Greve (2014) measured brand image using value and perceived uniqueness dimensions. Kim et al. (2008) measured two classifications: intangible image (medical services, kindness of service staff, etc.) and tangible image (equipment, facility, etc.). This study proposes measuring hospital image by two classifications of Perceived Hospital's Innovativeness (intangible item) and Innovation (tangible item). Innovation can be classified as product, service and process innovation. Customers obtain direct benefits from product and service innovation, whereas process innovation boosts efficiency in production and service delivery (Johne & Davies, 2000). For organizations, 'innovativeness' can be defined as the ability to develop or invent new things (Hult, Hurley & Knight, 2004). A company's innovativeness can be measured by various factors such as number of patents, improving or inventing new products, services or processes, etc. Regarding the correlation between company's innovation and customers' satisfaction, Stock (2011) cited several studies that mentioned the correlation between company's innovation and customers' satisfaction. Thiangtam, Anuntavoranich & Puriwat (2016) drew a conclusion from empirical data that customers' satisfaction increased by perceived company's innovativeness, followed by service quality.

In the care industry, marketing efforts focused on services may communicate that a healthcare organization has distinct skills and superior service to deliver the requisite satisfaction. Activities such as advertisements, public relations, patient care, and employee performance may then lead to customer satisfaction (Choi et al., 2004). Also, marketing is constantly obligated to increase the value of the product/service by improving its benefits, increasing variety of services and reducing costs through productivity. A study of Al-Qarni, Alsharqi, Qalai & Kadi (2013) indicates that marketing factors (health service, promotion, physical evidence, people and process) significantly affect patient satisfaction.

Based on the literature reviews, the study proposes the conceptual framework shown in Figure 1, and a research hypothesis was developed.

Research Hypothesis

The casual relationship model between variables including perceived clinical quality, service quality, marketing, and perceived hospital's innovation and satisfaction and intention to select a private hospital in Thailand was consistent with the empirical data.

The detailed hypotheses are stated as follows:

H1 : Perceived Clinical Quality has a positive effect on Satisfaction
H2 : Service Quality has a positive effect on Satisfaction
H3 : Marketing has a positive effect on Satisfaction
H4 : Perceived Hospital's Innovations/Innovativeness has a positive effect on Satisfaction
H5 : Perceived Clinical Quality has a positive effect on Intention to Select Private Hospital
H6 : Service Quality has a positive effect on Intention to Select Private Hospital
H7 : Satisfaction has a positive effect on Intention to Select Private Hospital

The model is concluded as a conceptual framework shown in Figure 1

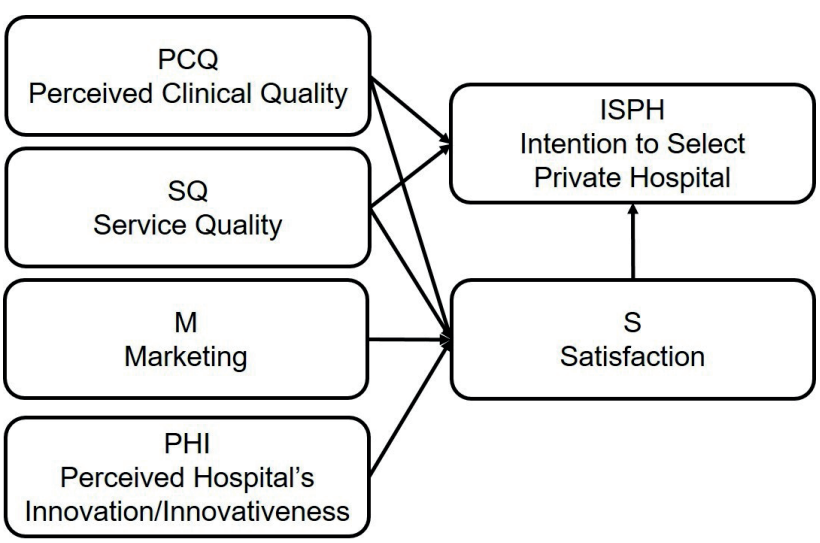


Figure 1 Conceptual Framework

Research Methodology

The population in this study was the foreign patients who received medical services in Thailand's private hospitals. The number of foreign patients treated in 2012 was 4.23 million people (National Statistical Office, Ministry of Information and Communication Technology, 2017). The sample size was 384 determined by the margin of error using probability and confidence level in the calculation. However, the final sample size in this research was 400 people for ease of sampling.

Sampling. This research used a non-probability convenience sampling technique in collecting data.

(1) **Hospital selection:** a sampling frame was specified to select only Thai hospitals that were ready and available for foreign patients. There were 55 hospitals among the 321 private hospitals in Thailand passed the criteria (National Statistical Office, Ministry of Information and Communication Technology, 2017). The top five hospitals with the highest incomes from foreign patients were selected for the study.

(2) **Foreign patients:** the sample was categorized into groups including an East Asia Group (Japan, South Korea, China, Hong Kong, Taiwan, and North Korea), a West Europe Group (England, Germany, France, Netherlands, Switzerland, Sweden, and others), a Middle East Group (UAE, Oman, Kuwait, Bahrain, Qatar, Yemen, and others), a North America Group (USA and Canada), an ASEAN Group (Cambodia, Myanmar, Indonesia, Philippines, Laos, Malaysia, Singapore, and Vietnam). Next, only the top five groups with the highest number of frequencies of the use of medical services were selected (National Statistical Office, Ministry of Information and Communication Technology, 2017).

(3) **Sampling:** This research used accidental sampling in collecting data from patients or their relatives by using a self-administered questionnaire with permissions from hospitals.

Data Collection Tools

Questionnaires with close-ended questions and six-point Likert-type scales were used to collect data. The validity and reliability of the tools were assessed as follows:

- Data Translation: To make the questionnaire more convenient for respondents, the tool was translated from Thai into three languages, including English, Japanese, and Arabic. Next, the languages were checked for accuracy by a third person who then translated those versions back into Thai to make sure that the main contents were unchanged.

- Validity: the questionnaire was checked for validity according to conformity to related theories and research. Three marketing and hospital business specialists assessed and confirmed validity.

- Reliability: Cronbach's alpha was used as the statistical tool to evaluate the reliability of the questionnaire. The total reliability level of the questionnaire was .94, and each dimension was valued more than .70, leading to the conclusion that the questionnaire was highly reliable and qualified for being used as the tool for data collection. Reliability alpha values are shown in Table 1.

Table 1 Result on Reliability of the tools using Cronbach's Alpha

n=30

Factors	No. of Items	Cronbach's Alpha
Service Quality	11	0.97
Clinical Quality	15	0.97
Marketing	7	0.92
Hospital's Innovation/ Innovativeness	3	0.77
Satisfaction	2	0.89
Intention of Select Private Hospital	2	0.96
Total	40	0.94

Data Processing

This research used path analysis with structural equation modeling methodology through mediate variables for the evaluation of the linear relationship.

Research Results

Personal information of the respondents

Most of the respondents were male (68.00%). The largest group, aged between 40-49 years old, accounted for 28.40%. The largest group by geographic origin was from East Asian countries (Japan, China, and Korea) and accounted for 35.00%; people from Middle East Countries accounted for 22.00%, and people from European countries accounted for 19.0%. Nearly all (91.4%) the respondents were patients or service receivers. Most of the respondents (79.20%) had selected a private hospital by themselves, and travel to Thailand for work accounted for 35.50% of the sample.

Nearly half (49.20%) the respondents were personally responsible for their medical expense, insurance plans covered the medical expenses of 34.20%, and the expenses of the remaining patients were covered by welfare or other parties.

Results of Mean and Standard Deviation analysis

Foreign patients who received treatment in the medical services of Thailand's private hospitals had mean satisfaction scores towards the hospital of 5.02 (SD = 1.04), which was a high level. The mean of intention to reuse the future services was 5.14 (SD = 1.09), which was a high level. The mean of hospital's innovation was 5.06 (SD = 1.03), which was a high level. The mean score of service quality was 4.99 (SD = 1.09), a relatively high level. The mean of hospital's marketing was 4.79 (SD = 1.09), which was a relatively high level. The mean of clinical service was 4.99 (SD = 1.04), which was a relatively high level. The details are shown in Table 2

Table 2 Mean, Standard Deviation and Factor Loading of Items

and Construct Reliability (CR) and Average Variance Extracted (AVE) of Constructs

Table 2 Mean, Standard Deviation and Factor Loading of Items and Construct Reliability (CR) and Average Variance Extracted (AVE) of Constructs

Construct	Item	Mean	SD	Factor Loading	Construct Reliability	Average Variance Extracted
S	Overall rating of hospital	5.06	1.03	0.78	-	-
S	Performance met my expectation	4.98	1.04	0.71	-	-
Satisfaction		**5.02**	**1.04**	**-**	**0.71**	**0.55**
INTEND	Likelihood of considering this hospital in case of my next hospitalization	5.12	1.08	0.77	-	-
INTEND	Likelihood of recommending this hospital to my family and friends	5.15	1.11	0.65	-	-
Intention to Select		**5.14**	**1.09**	**-**	**0.67**	**0.51**
INNO	Advanced technology	5.18	1.01	0.76	-	-
INNO	Expertise and specialize services	4.99	1.03	0.77	-	-
INNO	Number of new product/services development provided	5.01	1.03	0.63	-	-
Innovativeness/Innovation		**5.06**	**1.03**	**-**	**0.76**	**0.52**
SQ	Visually attractive and comfortable physical facility in service area	5.16	0.98	0.90	-	-
SQ	Professional appearance/dress of nurse and support staff	5.19	1.00	0.68	-	-
SQ	Providing the service at the time promised	4.82	1.22	0.73	-	-
SQ	Convenience of appointment	4.96	1.11	0.66	-	-
SQ	Waiting time to receive service	4.73	1.20	0.66	-	-
SQ	Staff willingness to help patients	5.13	1.08	0.86	-	-
SQ	Courteous and friendly of physician, nurse and support staff	5.13	1.06	0.66	-	-
SQ	Prompt service without an appointment	4.82	1.10	0.62	-	-

Table 2 (Continues)

Construct	Item	Mean	SD	Factor Loading	Construct Reliability	Average Variance Extracted
SQ	Readiness to respond to the patient 's question and problems	4.95	1.09	0.68	-	-
SQ	Understanding the patient's needs	4.99	1.02	0.65	-	-
SQ	Professional interpreters available in a timely manner	4.97	1.15	0.80		
Service Quality		**4.99**	**1.09**	**-**	**0.92**	**0.52**
MK	Convenience of location, clinic	4.82	1.19	0.60	-	-
MK	Assistance and support to family during my hospitalization	5.01	1.01	0.63	-	-
MK	Availability of information provided in website, poster, media	4.58	0.98	0.61	-	-
MK	Variety of services	5.02	1.02	0.80	-	-
MK	Value for the money	4.64	1.23	0.89	-	-
MK	The service matches word-of-mouth...(reputation)	4.95	1.03	0.71	-	-
MK	I have received information related hospital continuously in my country	4.52	1.18	0.77	-	-
Marketing		**4.79**	**1.09**	**-**	**0.88**	**0.52**
CQ	Careful diagnosis of the patient's problem	5.07	1.06	0.89	-	-
CQ	Keeping patients informed of progress	5.04	1.08	0.65	-	-
CQ	Physician reputation	4.95	1.06	0.64	-	-
CQ	Responsiveness of the nurses and staff to your needs	5.15	1.07	0.89	-	-
CQ	Responsiveness of the physician to your needs	5.15	1.04	0.71	-	-

Table 2 (Continues)

Construct	Item	Mean	SD	Factor Loading	Construct Reliability	Average Variance Extracted
CQ	Ability of physician to inspire trust and confidence of patient	5.04	1.04	0.89	-	-
CQ	Ability of nurse and support staff to inspire trust and confidence of patient	4.95	1.05	0.88	-	-
CQ	Thoroughness of explanation of medical condition and treatment	4.99	1.07	0.61	-	-
CQ	Amount of time physician spent with you	4.96	1.07	0.52	-	-
CQ	Quality of patient education provided by hospital staff	4.77	1.02	0.57	-	-
CQ	Time spent on patient education	4.7	1.03	0.61	-	-
CQ	Highly experience physician	5.04	1.05	0.76	-	-
CQ	Knowledgeable and skill of physician	5.06	1.00	0.89	-	-
CQ	Knowledgeable and skill of nurse	4.97	0.99	0.64	-	-
CQ	Positive medical outcome of treatment	5.07	1.00	0.78	-	-
-	Clinical Quality	4.99	1.04	-	0.95	0.55

Structural Equation Modeling analysis

Structural validity or convergent validity and discriminant validity of the measurement model were determined by both construct reliability (CR) and average variance extracted (AVE) (Hair, Anderson, Tatham & Black, 2006). All standardized factor loadings were larger than .50. The CR-construct reliability estimated the range of .67 to .95, greater than .60, and the AVE-average variance extracted from all constructs ranged from .51 to .55, above the threshold value of acceptance of .05. The convergent validity of the measurement model, with the values shown in Table 2, appeared to be adequate.

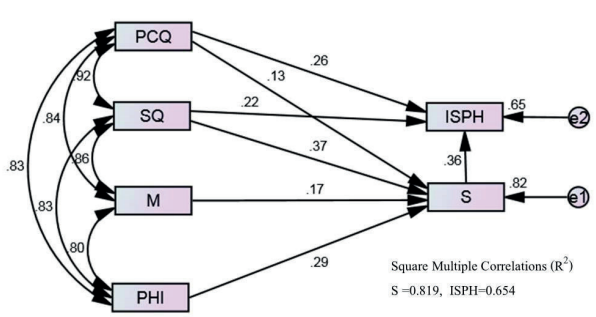
The structural equation modeling was analyzed by maximum likelihood estimation using the AMOS program and found the goodness of fit between the research hypothesis and the

empirical data, including chi-square, was equal to 2.162. The degree of freedom = 2, p-value = .339, relative chi-square = 1.12, goodness of fit index (GFI) = .970, comparative fit index (CFI) = 1.000, and root mean square error of approximation (RMSEA) = .022. All the statistical values passed the criteria as shown in Table 3 (Hair, Sarstedt, Ringle & Mena, 2012).

Table 3 Statistical Value test of Structural Equation Modeling

Statistics	Criteria	Value	Result
CMIN/DF	<2.00	1.12	Passed
GFI	≥0.95	0.97	Passed
AGFI	≥0.95	0.95	Passed
CFI	≥0.95	1.00	Passed
NFI	≥0.95	0.99	Passed
NNFI	≥0.95	1.00	Passed
Statistics	Criteria	Value	Result
RMSEA	≤0.07	0.02	Passed
SRMR	≤0.08	0.03	Passed

Path analysis has shown the direct and positive effect of clinical quality (0.31) and marketing (0.06) on intention to select a private hospital in Thailand. Service quality (0.35) and hospital's innovation (0.11) have an indirect but positive effect on intention. Satisfaction (0.36) was the variable that most directly and positively affected intention to select a private hospital in Thailand. The mentioned variables have also shown through satisfaction towards hospital which was the variable that most affected directly and positively on intention to select a private hospital in Thailand equal to 0.36 shown in Figure 2 and Table 4.



chi square = 2.162, df = 2, p = .339
GFI = .998, RMSEA = .014

Figure 2 Results from AMOS Program

Table 4 Statistical Values of Effects in Structural Equation Modeling

Path	Effects		
	Total	Direct	Indirect
Clinical Quality → Satisfaction	0.13	0.13	-
Service Quality → Satisfaction	0.37	0.37	-
Marketing → Satisfaction	0.17	0.17	-
Hospital's Innovations → Satisfaction	0.29	0.29	-
Clinical Quality → Intention	0.31	0.26	0.05
Service Quality → Intention	0.35	0.22	0.13
Marketing → Intention	0.06	-	0.06
Hospital's Innovations → Intention	0.11	-	0.11
Satisfaction → Intention	0.36	0.36	-

*Square Multiple Correlations: Satisfaction=.82, Intention=.65

Discussion and Suggestion

From the research hypothesis, satisfaction directly affects the intention to select a private hospital. Service quality and clinical quality, directly and indirectly, affect the intention. The hospital's innovations and marketing have direct and slight effects on intention. The result is consistent with those of many studies (Anderson et al., 1994; Anderson & Sullivan, 1993; Cronin et al., 2000; Cronin & Taylor, 1992; Naidu, 2009; Parasuraman et al., 1988; Taylor & Baker, 1994). While satisfaction directly affects intention to select a private hospital, service quality and clinical quality have a direct and indirect effect on the intention. Service quality is a rational perception that happens prior to an emotional response and affects intention for receiving future service. Service is measured as patient evaluations of service attributes such as professional appearance and courteousness of physicians and nurses, providing services at the time promised, the convenience of the time of the appointment, staff willingness to help patients, professional interpreter available in timely manner, attractiveness and comfort of physical facilities in the service area. While service quality is essential in enhancing satisfaction, clinical quality also directly affects satisfaction. This is consistent with many studies (Grönroos, 1984; Naidu, 2009).

Quality can be categorized as technical quality: what consumers pay to get, or in this case, treatment, and functional quality: delivery of the service and how the service is delivered. Clinical quality can be addressed by improving patient care such as careful diagnosis of the patient's problem, keeping patients informed of progress, enhancing the ability of physicians and nurses to

inspire trust and confidence of patients through explanation of medical treatment. Findings about marketing and corporate image or hospital's innovation, in this case, affecting intention for receiving future service are consistent with some studies (Naidu, 2009; Thiangtam et al., 2016). Activities aiming at developing marketing scorecards perceived by patients can be explained as availability of information provided in a website and other media, offering variety of services with reasonable charges.

Practical implications can be drawn from the research findings. Service quality and clinical quality must be emphasized because they affected satisfaction and intention to choose a private hospital, compared to the effects of marketing and the hospital's innovation. Because the sample was foreign patients who have received medical services in Thailand's private hospitals, the intention for receiving future services relied mostly on clinical and service quality, not on the hospital's marketing and innovativeness. However, if it was a patient's first trial of medical service, the result might be different because marketing and hospital's innovation might have a larger effect than clinical and service quality.

Further research on foreign patients who are in the process of selecting a private hospital by applying this theoretical model is recommended. Further study on behavioral intention dimensions such as positive word-of-mouth communications and being advocates as an in-depth endogenous variable to make the model more complete is also recommended.

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