

INVESTIGATING RELATIONSHIPS BETWEEN PATIENT SATISFACTION, PATIENT LOYALTY AND HOSPITAL PERFORMANCE IN THAILAND

by

Vinai Panjakajornsak

Faculty of Business Administration, Eastern Asia University

Abstract

This study attempts to investigate the relationships between patient satisfaction, patient loyalty, and hospital performance in four public hospitals in Bangkok. They are listed on the Stock Exchange of Thailand. The service profit chain was adapted to examine such relationships. The data of the four hospitals were processed and analyzed using the simple bivariate correlation analysis. The overall results of both methods reveal that the three hypotheses were to some extent supported, there were some positive associations among patient satisfaction, patient loyalty, and hospital performance.

INTRODUCTION

The service sector has gained more significance in the economy of Thailand. It contributed to 53 per cent of GDP in 2003 (Bank of Thailand, 2004). Despite its growing importance in terms of revenue generation and workforce employment, relatively little empirical research has been undertaken to examine factors or variables that affect and improve the performance of service firms in Thailand. This is particularly the case with the private hospital business which is one of the service segments that has become an important contributor to the economy, since the government plans to promote Thailand as "the medical hub of Asia". This study is an attempt to investigate the relationships among three constructs (patient satisfaction, patient loyalty, and hospital performance) in four private hospitals in Bangkok.

satisfaction and loyalty and their impact on organizational profitability. The ideas underlying this model and its subsequent developments are derived not only from the research on value domains which explores linkages among customer value, employee value and shareholder value, but also from early studies on the organization of work and its impact on quality, productivity and employee satisfaction (Payne *et al.*, 2000). The model is an integration of research from several academic fields, including services marketing, human resources, and service operations (Lovelock and Wirtz, 2004). After learning about problems from frustrated managers in many service industries, Heskett *et al.* (1997) conducted research on several well-known service organizations in different industries to study the reasons for their success.

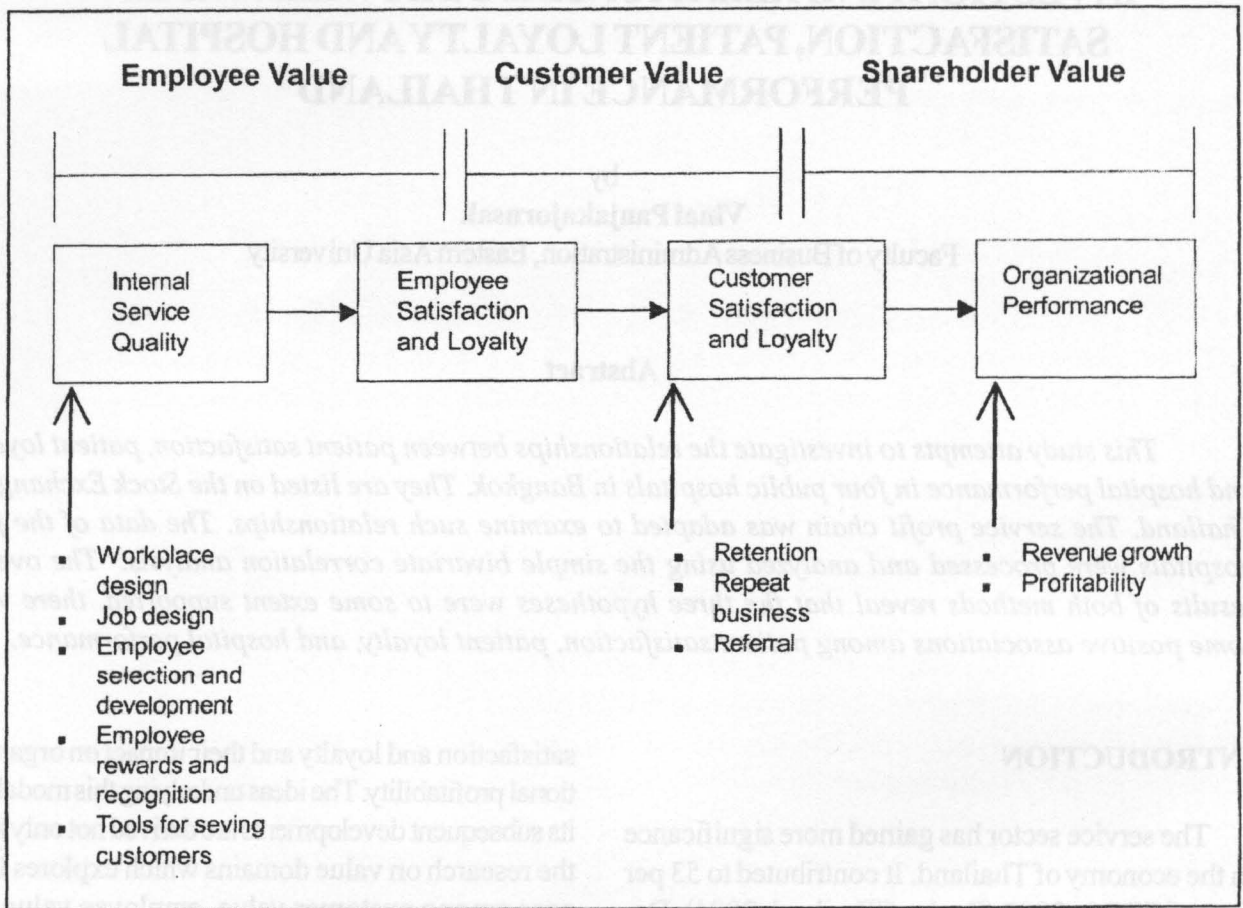
Concepts of the Service Profit Chain

Heskett *et al.* (1994, 1997) laid out a series of hypothesized links in achieving success in service businesses and developed the service profit chain model as shown in Figure 1. The service profit chain highlights the behaviors required of service organizations in order to manage effectively. The links (Fitzsimmons and Fitzsimmons, 2004), are explained as follows:

LITERATURE REVIEW

The service profit chain (SPC) is a term coined by the Service Management Interest Group at the Harvard Business School (Loveman, 1998) to link employee, customer and shareholder value relationships. In 1994, Heskett *et al.* introduced the service profit chain model in the Harvard Business Review Journal. Its roots are derived from Reichheld and Sasser's work (1990) on various aspects of customer

Figure 1: The Service Profit Chain



Source: Adapted from Heskett *et al.* (1994, 1997, 2003)

1. Customer loyalty drives profitability and growth.
2. Customer satisfaction drives customer loyalty.
3. Service value drives customer satisfaction. Customer value is measured by comparing results received to the total costs incurred in obtaining the service.
4. Employee retention and productivity drives service value.
5. Employee satisfaction drives retention and productivity. In most service jobs, the real cost of employee turnover is the loss of productivity and decreased customer satisfaction.
6. Internal quality drives employee satisfaction. Internal service quality describes the environment in which employees work and includes employee selection and development, rewards and recognition, access to information to serve the customer, workplace technology, and job design.

The central component of the model is customer value, suggesting that the value of goods and services delivered to customers is equivalent to the results cre-

ated for them as well as the quality of the processes used to deliver the results, all in relation to the price of the service to the customer and other costs incurred by the customers in acquiring the service (Heskett *et al.*, 1997).

The Three Stakeholders

As pointed out by and Payne and Holt (2001), the concept of value has received increasing interest in the relationship marketing literature and is regarded as a major source of competitive advantage. They suggest that, among many stakeholders of an organization, three stakeholder groups (employees, customers and shareholders), are becoming the central focus for organizations. There has been much research that has supported the relationships in the elements of the SPC (e.g. Hallowell, 1996; Rucci *et al.*; 1998, Bernhardt *et al.* 2000; Lau, 2000).

The Service Profit Chain in Thailand

After an extensive literature search of academic work, relatively no research in Thailand has been found to study all the elements in the SPC and the past re-

search so far has examined only one or two elements in the SPC. It was found that there are around half a dozen books on services marketing and some books and articles on customer relationship management (Tonsorn, 2003, Chaoprasert, 2004), the Balanced Scorecard (Decharin, 2003 and 2004), and Six Sigma (Lertwatthanapongchai, 2002; Kaycharanan *et al.*, 2004). Most of these Thai articles and books are translated or compiled from Western books or academic articles. None of them deals specifically with linking relationship between employees, customers and shareholders.

An important factor that has been empirically found to affect the same variables in different countries is national culture. One significant study on national cultures that is relevant to the Thai context is the research of Hofstede (1980). He conducted a study between 1967 and 1973 among employees of subsidiaries of a large US-based multinational corporation in 40 countries around the world to determine empirically the main criteria by which their national cultures differed. He found four criteria which he labeled dimensions; they are Power Distance, Uncertainty Avoidance, Individualism-Collectivism, and Masculinity-Femininity.

Two dimensions that are directly relevant to the Thai society are the Individualist-Collectivist Dimension and the Power Distance Dimension. The Individualism-Collectivism Dimension indicates the degree to which individuals are integrated into groups and the degree to which individuals are more inclined to look after themselves, and where their ties to each other are quite loose. Plotting the countries comparatively between these two dimensions, Thailand ranked 41st, indicating a strongly "collectivist" society characterized by a tight social framework of strong, integrated in-groups. The Power Distance Dimension indicates the extent to which a society accepts the fact that power in institutions and organizations is distributed unequally. On this dimension, Thailand ranked 21st, implying that Thai people of both junior and senior ranks expect to have greater hierarchical gaps among levels of management.

HYPOTHESES DEVELOPMENT

Operationalization of the Constructs and Hypotheses

As discussed previously, the available studies only

deal with one or two elements of the SPC, mostly customers. Relatively few studies have examined the relationships of all elements in the SPC. This is due to the fact that all data of measures of employee satisfaction and loyalty, customer satisfaction and loyalty, and financial performance, are needed at the same unit of analysis of the firm. Very few firms collect all the required data (Loveman, 1998, Kamakura *et al.*, 2002, Neely *et al.*, 2002). Therefore, taking into account the past research and the concepts of the SPC, this study's objective is to investigate the relationships between three key elements in four public hospitals in Bangkok, particularly patient satisfaction, patient loyalty and shareholders (hospital financial performance).

Customer satisfaction

Customer satisfaction has long been recognized as a central concept and an important goal of all businesses ((Bernhardt *et al.*, 2000; Chan *et al.*, 2003; Gupta *et al.*, 2003). Customer satisfaction is frequently cited as a key of non-financial measure of a firm and its management's performance (Gupta *et al.*, 2003). For this research, patient satisfaction is recognized as a profitable competitive strategy and many research studies on patient satisfaction have been conducted and supported (Andaleeb, 1998).

Satisfaction is a customer's post-purchase evaluation and affective response to overall service experience (Oliver, 1992). Past research has indicated that customer satisfaction is a reliable predictor and thus an antecedent to repurchase intentions (Patterson and Spreng, 1997). Customer satisfaction is considered to be the most basic of customer concepts and is defined as the customers' evaluation of a product or service in terms of whether that product or service has met their needs and expectations (Zeithaml and Bitner, 2000).

H1: Patient satisfaction is positively associated with hospital performance.

Customer loyalty

Customer loyalty has been recognized by researchers as consisting of two components, attitudinal and behavioral (Dick and Basu, 1994; Too *et al.*, 2001; Peppers and Rogers, 2004). Customer loyalty as an attitude is defined as the different feelings a customer has toward a product or service that lead to the creation of the overall attachment (Hallowell, 1996) and is derived from a customer's intent to repurchase (Lau,

2000). As a behavior, customer loyalty, such as repeat purchase and recommendations or referrals, results from a customer's belief that the value received from one supplier is greater than that from another supplier (Hallowell, 1996) and is derived from customer satisfaction (Lau, 2000).

H2: Patient satisfaction is positively associated with patient loyalty.

Organizational performance

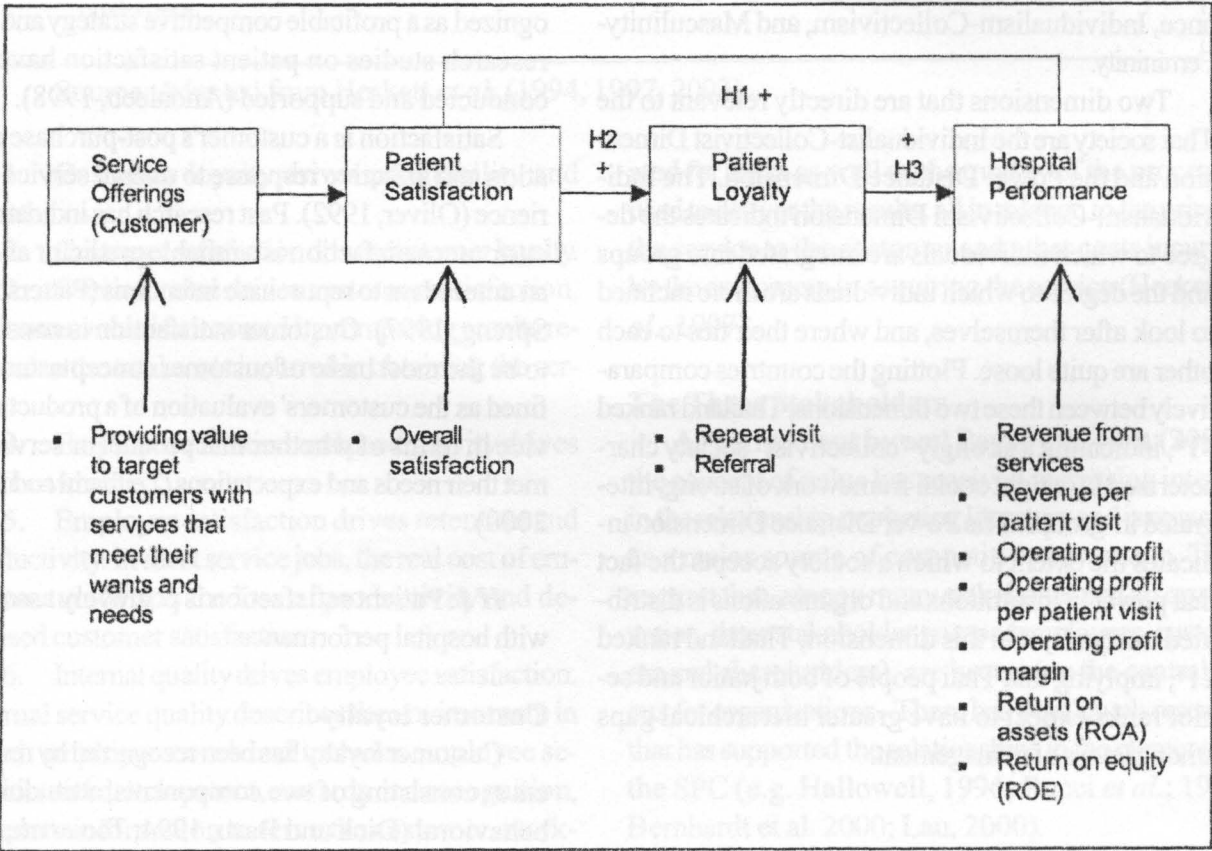
Organizational performance is defined as the accumulated end results of all the organization's work processes and activities (Robbins and Coulter, 2002). The most used measures for organizational performance include organizational productivity, organizational effectiveness, and industry rankings. It can be classified into two major types; financial and non-financial measures. In regard to the hospital perfor-

mance, several financial and non-financial indicators have been used. In a study by Naidu et al. (1999), six performance indicators were used to study their relationships with relationship marketing practices in US hospitals; (1) occupancy rates, (2) admissions per bed, (3) net income margin, gross patient revenue per patient day, total profit margin, and uncollectible ratio. The key measures of hospital financial performance used in another study included earnings before depreciation, interest, and taxes per bed, net revenue per bed, and return on assets (Nelson et al., 1992).

H3: Patient loyalty is positively associated with hospital performance.

Based on the literature review on the service profit chain, a model of patient satisfaction, patient loyalty, and hospital performance is thus proposed in Figure 2.

Figure 2: The Proposed Model of Patient Satisfaction, Patient Loyalty, and Hospital Performance



Source: Adapted from Heskett et al. (1994, 1997, 2003)

RESEARCH METHODOLOGY

Research Design

The purpose of the study is to examine the relationships between patient satisfaction, patient loyalty and hospital performance. It is a cross-sectional study using both personal interviews and secondary data from the years 2001 to 2003 to test the hypotheses. The correlation analysis was used to study the data of the four hospitals. The three constructs in this study are measured as shown in Table 1.

Sampling

The target population of the study was all 12 hospitals listed on the Stock Exchange of Thailand (SET). However, only eight hospitals were chosen as the sample group because they are all located in Bangkok. The other four hospitals are located in other provinces and thus beyond the research resources available as the study used both personal interviews and historical data of their patient surveys to investigate and answer the research questions and hypotheses. Thus, the sample group was the eight listed hospitals in Bangkok. Listed hospitals in the SET were selected as the sample group of this study because they usually conduct regular patient satisfaction surveys and their financial data are publicly available and reliable.

Data Collection

The data collection for the study was divided into two phases; 1) personal interviews and 2) obtaining patient surveys and other relevant data of the four participating hospitals.

Phase I

The eight hospitals were first contacted in early March 2004 by mailing them a formal letter that indicated the purpose and significance of the study and requesting their cooperation for an interview with one of their senior managers and for their patient survey data for the past three consecutive years (2001-2003). If they agreed to participate in the research, their senior managers would sign a consent letter and their managers who were interviewees would sign a consent form. After receiving their written approval to conduct the research, only four hospitals agreed to participate at the end of March 2004. Personal interviews were arranged with their senior managers to ask them about how they conduct patient surveys and to obtain samples of the questionnaires and survey data which are in Thai.

The type of interviews used in this study was face-to-face interviews. The semi-structured interview method was selected to ask the four senior managers prepared questions about their experience and views

Table 1: Constructs and measures used in the study

Constructs	Measures used
Patient satisfaction	Overall satisfaction scores
Patient loyalty	1) Referrals (willingness to recommend to others) 2) Repeat visits (intention to return)
Hospital performance	1) Operating profits Operating profit per patient 2) Operating profit per patient visit 3) Revenue from services 4) Revenue from services per patient visit 5) Operating profit margin 6) Return on asset (ROA) 7) Return on equity (ROE)

Source: Developed for this study

because it was already known at the beginning of the study what information was needed. A list of pre-determined questions was posed to the four respondents. As they revealed their views and comments, the answers were noted down as tape-recording was not allowed. The same questions were asked of the four respondents in the same manner. The interviews lasted about 30-45 minutes and ended by thanking them and reassuring them that what they had said would be treated as confidential. After that, appointments were made to collect results of survey data and other relevant data.

Phase II

After their patient surveys of the past three consecutive years (2001-2003) were obtained in mid April 2004, they were checked for relevance for the study and how they could be processed and analyzed. The patient satisfaction and patient loyalty scores were derived from responses to two questions in the questionnaires. As regards the quarterly data of the hospital performance in the past three years (2001-2003) and the first quarter of 2004, it was accessed through the Stock Exchange of Thailand's online database. Other data such as numbers of patients, employees and beds were given by the hospitals. It was found that the survey data were usable and appropriate for the research purpose.

As the patient survey data were already collected by the four hospitals, the secondary data analysis method was used for this study. Contrary to primary research, the focus of secondary analysis is on analyzing existing data. It was found that the patient surveys were usable because their research designs, data collection, and data processing were appropriately conducted. The validity and reliability problems for this research do not develop and the survey data are suitable for the research objective and testing the three hypotheses and the four hospitals' data collection methods have not changed over time.

Data Analysis

The qualitative data derived from personal interviews of senior hospital managers were discussed and analyzed in the descriptive form. The patient survey data of the four sample hospitals were processed and analyzed using the Pearson bivariate correlation analysis method to investigate the relationships among patient satisfaction, patient loyalty, and hospital perfor-

mance. This correlation analysis of this study follows the same method used in previous research (Hallowell, 1996; Loveman, 1998; Silvestro and Cross, 2000). The data were analyzed using two methods. In Method I, the data of all four hospitals were processed and analyzed together as one aggregate. As for Method II, the data of each hospital were processed and thus analyzed separately in order to compare the results from this method with those of the first method. The objective of using two different methods is to ascertain whether there are any similarities and/or differences in both results.

FINDINGS AND DATA ANALYSIS

The sampling frame of the study was the eight listed hospitals located in Bangkok. They were contacted in March 2004 and four hospitals agreed to participate in the study, accounting for 50 percent of the sampling group. In addition to their different locations, the four hospitals differ in size and target patient groups. As they requested not to be identified, the hospitals were named Hospitals A, B, C and D, respectively, for anonymity purposes. Tables 2 shows the aggregate characteristics of all the four hospitals, including the customer value (patient satisfaction and loyalty) and shareholder value (seven measures of hospital performance measures) as a whole.

Table 2: Aggregate characteristics of the sample hospitals

Data	2001	2002	2003	Average per year
Number of employees	3,077	3,521	3,305	3,301
Number of patients	1,039,451	1,082,417	1,078,472	1,066,780
Number of beds	1,235	1,325	1,285	1,282
Overall satisfaction (%)	72.62	79.77	88.31	80.23
Referrals (%)	-	81.77	92.02	86.9
Repeat visits (%)	-	94.68	97.33	96
Revenue from services (baht)	1,969,836,538	2,312,538,462	2,537,283,018	2,273,219,339
Revenue from services per patient visit (baht)	23,969	99,555	94,125	72,549
Operating profit (baht)	-123,259,616	157,038,461	149,669,811	61,149,552
Operating profit per patient visit (baht)	-1,167	3,451	3,611	1,965
Operating profit margin (%)	0.39	10.73	9.11	6.74
ROA (%)	4.61	0.94	0.6	2.05
ROE (%)	15.30	0.88	0.65	5.61

Source: Developed for this study

The data of the sample hospitals were processed using the SPSS for Windows, version 11. Pearson bivariate correlation analysis was used to study relationships between all measures of the three constructs.

FINDINGS

Results of Personal Interviews

Personal interviews were conducted with senior managers of the four sample hospitals to obtain relevant qualitative data. The objectives of the interviews were as follows:

1. To ascertain whether their available data of patient surveys were relevant and appropriate for the purpose of this study.
2. To get their comments on the concepts of the service profit chain.
3. To obtain their personal opinions about the listed hospitals in Thailand.

The results of interviews can be summarized below:

- 1) The four managers were responsible for conducting patient satisfaction surveys and reporting the

results to top management and departments concerned to improve the hospitals' service quality. They had working experience in this position for more than 3 years on average.

2) The four hospitals conducted patient surveys on a monthly or quarterly basis. The questionnaires used were designed and processed by their staff and those of three hospitals (A, C and D) had similar format and wording. The fourth one (B)'s questionnaire was more simple than the other three and did not include any questions to measure patient loyalty, but they planned to adjust it to include more relevant questions in the next questionnaire. All the four hospitals conducted monthly or quarterly patient surveys and reported the survey results to senior executives every month.

3) The interviewees generally agreed with the concepts of the proposed model that patient satisfaction, patient loyalty, and hospital performance should be related. However, the extent of the links between the elements in the model was not clear. Given the fact that they made changes and improvement based on the patient survey results, it was, thus, assumed in this study that the patient satisfaction in the following

months should improve or at least remain stable. However, they had never conducted employee surveys on their satisfaction and loyalty to the organizations and employee satisfaction with services they render to patients.

4) As regards their opinion about the listed hospitals in general, the health care services they provided were similar to those of other hospitals. The services could be divided into two types: general treatment and specialized treatment. It was revealed that the listed hospitals in Thailand adopt a "follower" strategy, meaning that they normally begin to offer new services after other hospitals have done.

DATA ANALYSIS

This part is divided into two methods of analysis. First, data of all sample hospitals were standardized, processed and analyzed collectively (Method I). The proposition is that there is a relationship between variables and is based on the assumption that the principles of the service profit chain model should apply across subjects, the four sample hospitals in this case. Second, the data of each hospital were processed and analyzed separately because their questionnaire designs were different and the data of each hospital were not complete (Method II). That is, of the four sample hospitals, the survey data of three hospitals (A, C and D) could be analyzed to test the relationships of patient loyalty construct with satisfaction and hospital performance constructs. In addition, the data on the loyalty construct of the two hospitals (A and C) were available for only two years (2002-2003) and one year (2003) for Hospital D. Quarterly satisfaction scores of each hospital were derived from combining the monthly data and dividing it by 3.

The three-year patient survey data of each hospital were processed with the SPSS for Windows, version 11. The level of statistical significance was set at 0.05. The values of relationships above 0.05 ($p > 0.05$) are considered statistically significant.

The variables used in the study are now explained.

1. Patient satisfaction (SAT) refers to the overall satisfaction scores derived from each hospital's patient surveys in the past three years, 2001-2003.

2. Referral (REF) refers to the scores derived from the answer to a question in the patient survey questionnaire that asks whether the patient respondent would recommend others to use the hospital's

services.

3. Return visit (RET/V) refers to the scores derived from the answer of a question in the patient survey questionnaire whether the respondents would return to the hospital if they felt unwell.

4. Operating profit (OP) is derived from the operating profit in each quarter from the years 2001 to 2003.

5. Operating profit per patient (OP/P) is derived from the operating profit divided by the number of all patients in each quarter.

6. Revenue (REV) is the net revenue from providing medical services.

7. Revenue per patient (REV/P) is the net revenue from services divided by the number of all patients in each quarter.

8. Operating profit margin (OPM) is calculated by dividing operating profit by total revenue.

9. Return on assets (ROA) is calculated by dividing net revenue by total assets of each quarter.

10. Return on equity (ROE) is calculated by dividing net income by shareholders' equity in each quarter.

* Patient satisfaction represents the customer satisfaction construct.

* Referrals and return visits represent the customer loyalty construct.

* The seven measures of financial performance (4-10) represent the organizational or hospital performance.

It should be mentioned here that the numerical data in the descriptive statistics for both methods of analysis are expressed in many digits because there were not as many data points. In addition, "N" represents the number of variables used in each set of the computations. Results from both methods are now discussed.

Method I

This method is based on the assumption that relationships between the variables in the service profit chain should hold for all service firms, so all variables of the four sample hospitals were standardized and analyzed in the aggregate.

Table 3 shows the interrelationships of variables for all hospitals. The available data of patient surveys were used to test the relationships of both measures of the patient loyalty construct, referrals and repeat visits.

Table 3: Pearson Correlation Matrix of Variables for All Sample Hospitals

	SAT	REF	REP/V	OP	OP/P	REV	REV/P	OPM	ROA	ROE
SAT	1	.527**	.989**	.103	.058	-.054	.001	.120	-.260	-.273
REF		1	.998**	-.149	.018	.330	.324	-.337	-.271	-.265
REP/V			1	-.028	-.010	-.407	-.353	-.012	-.287	-.150

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Source: Developed for this study

Table 4 summarizes the results of hypotheses testing for all hospitals

Table 4: Research Question, Hypotheses, and Results of All Samples

Research Question	Related Hypotheses	Results
Are there any relationships between patient satisfaction patient loyalty and hospital performance?	<p>H 1: Patient satisfaction is positively associated with seven measures of hospital performance:</p> <ul style="list-style-type: none"> (1) Operating profit (2) Operating profit per patient visit (3) Revenue (4) Revenue per patient visit (5) Operating profit margin (6) Return on assets (7) Return on equity <p>H 2: Patient satisfaction is positively associated with two measures of patient loyalty:</p> <ul style="list-style-type: none"> (1) Referrals (2) Repeat visits <p>H 3: Patient loyalty (referrals and return visits) is positively associated with seven hospital performance measures:</p> <ul style="list-style-type: none"> (a) Referrals <ul style="list-style-type: none"> (1) Operating profit (2) Operating profit per patient visit (3) Revenue (4) Revenue per patient visit (5) Operating profit margin (6) Return on assets (7) Return on equity (b) Repeat visits <ul style="list-style-type: none"> (1) Operating profit (2) Operating profit per patient visit (3) Revenue (4) Revenue per patient visit (5) Operating profit margin (6) Return on assets (7) Return on equity 	<ul style="list-style-type: none"> (1) Not Supported (2) Not Supported (3) Not Supported (4) Not Supported (5) Not Supported (6) Not Supported (7) Not Supported <ul style="list-style-type: none"> (1) Supported (2) Supported <ul style="list-style-type: none"> (1) Not Supported (2) Not Supported (3) Not Supported (4) Not Supported (5) Not Supported (6) Not Supported (7) Not Supported <ul style="list-style-type: none"> (1) Not Supported (2) Not Supported (3) Not Supported (4) Not Supported (5) Not Supported (6) Not Supported (7) Not Supported

Source: Developed for this study

The overall results of all hospitals indicate that patient satisfaction was positively associated with the two measures of patient loyalty only.

Method II

The output of data in Method II was derived from processing the data of each hospital separately for the academic purpose. Thus, the results of each hospital are explained next.

Hospital A

Table 5 shows the interrelationships of variables for Hospital A. The available data of patient surveys of this hospital were used to test the relationships of both measures of the patient loyalty construct, referrals and repeat visits.

Table 6 summarizes the results of hypotheses testing for Hospital A.

Table 5: Pearson Correlation Matrix of Variables for Hospital A

	SAT	REF	REP/V	OP	OP/P	REV	REV/P	OPM	ROA	ROE
SAT	1	.224	.475	.408	.386	.332	.186	.042	.368	.624*
REF		1	.782*	-.065	-.087	.352	.251	-.262	-.005	.118
REP/V			1	.364	.343	.398	.331	.163	.305	.502

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Source: Developed for this study

Table 6: Research Question, Hypotheses and Results of Hospital A

Research Question	Related Hypotheses	Results
Are there any relationships between patient satisfaction patient loyalty and hospital performance?	H 1: Patient satisfaction is positively associated with seven measures of hospital performance: (1) Operating profit (2) Operating profit per patient visit (3) Revenue (4) Revenue per patient visit (5) Operating profit margin (6) Return on assets (7) Return on equity	(1) Not Supported (2) Not Supported (3) Not Supported (4) Not Supported (5) Not Supported (6) Not Supported (7) Not Supported
	H 2: Patient satisfaction is positively associated with two measures of patient loyalty: (1) Referrals (2) Repeat visits	(1) Supported (2) Supported
	H 3: Patient loyalty (referrals and return visits) is positively associated with seven hospital performance measures: (a) Referrals (1) Operating profit (2) Operating profit per patient visit (3) Revenue (4) Revenue per patient visit (5) Operating profit margin (6) Return on assets (7) Return on equity (b) Repeat visits (1) Operating profit (2) Operating profit per patient visit (3) Revenue (4) Revenue per patient visit (5) Operating profit margin (6) Return on assets (7) Return on equity	(1) Not Supported (2) Not Supported (3) Not Supported (4) Not Supported (5) Not Supported (6) Not Supported (7) Not Supported (1) Not Supported (2) Not Supported (3) Not Supported (4) Not Supported (5) Not Supported (6) Not Supported (7) Not Supported

Source: Developed for this study

Hospital B

The available patient survey data of Hospital B could be tested for only Hypothesis 1. Table 7 demonstrates the interrelationships between patient satisfaction and seven measures of hospital performance of this hospital.

Table 8 illustrates the results for patient satisfaction and each measure of hospital performance.

Hospital C

The overall findings of Hospital C support only the first hypothesis.

The patient survey data of this hospital were used to test one measure of patient loyalty, referrals, in 2002 and 2003. Table 9 illustrates the interrelationships between patient satisfaction, patient loyalty and hospital performance of Hospital C.

Table 7: Pearson Correlation Matrix of Variables for Hospital B

	SAT	OP	OP/P	REV	REV/P	OPM	ROA	ROE
SAT	1	-.001	-.057	.313	.018	-.009	-.098	-.268

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Source: Developed for this study

Table 8: Research Question, Hypotheses and Results of Hospital B

Research Question	Related Hypotheses	Results
Are there any relationships between patient satisfaction patient loyalty and hospital performance?	<p>H 1: Patient satisfaction is positively associated with seven measures of hospital performance:</p> <p>(1) Operating profit (2) Operating profit per patient visit (3) Revenue (4) Revenue per patient visit (5) Operating profit margin (6) Return on assets (7) Return on equity</p>	<p>(1) Not Supported (2) Not Supported (3) Not Supported (4) Not Supported (5) Not Supported (6) Not Supported (7) Not Supported</p>

Source: Developed for this study

Table 9: Pearson Correlation Matrix of Variables for Hospital C

	SAT	REF	OP	OP/P	REV	REV/P	OPM	ROA	ROE
SAT	1	.160	.630	.637*	.849**	.885**	.685*	-.754*	-.758*
REF		1	-.205	-.211	.309	.295	-.237	-.170	-.176

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Source: Developed for this study

Table 10 illustrates the results of hypothesis testing for Hospital C

Hospital D

The overall results of this hospital imply that patient satisfaction was positively associated with only

one measure of hospital performance, that is, revenue.

The patient survey data of this hospital were used to test one measure of patient loyalty, referrals, in the year 2003 only. Table 11 reveals the interrelationships between patient satisfaction, patient loyalty and hospital performance of Hospital D.

Table 10: Research Question, Hypotheses and Results of Hospital C

Research Question	Related Hypotheses	Results
Are there any relationships between patient satisfaction, patient loyalty and hospital performance?	H 1: Patient satisfaction is positively associated with seven measures of hospital performance: (1) Operating profit (2) Operating profit per patient visit (3) Revenue (4) Revenue per patient visit (5) Operating profit margin (6) Return on assets (7) Return on equity	(1) Not Supported (2) Supported (3) Supported (4) Supported (5) Supported (6) Supported (7) Supported
	H 2: Patient satisfaction is positively associated with one measure of patient loyalty: (1) Referrals	(1) Not Supported
	H 3: Patient loyalty (Referrals) is positively associated with hospital performance measures: (1) Operating profit (2) Operating profit per patient visit (3) Revenue (4) Revenue per patient visit (5) Operating profit margin (6) Return on assets (7) Return on equity	(1) Not Supported (2) Not Supported (3) Not Supported (4) Not Supported (5) Not Supported (6) Not Supported (7) Not Supported

Source: Developed for this study

Table 11: Pearson Correlation Matrix of Variables for Hospital D

	SAT	REF	OP	OP/P	REV	REV/P	OPM	ROA	ROE
SAT	1	.908	.343	.212	.700**	-.175	.260	-.496	-.502
REF		1	.639	.551	.940	-.538	.603	.716	.705

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Source: Developed for this study

Table 12 illustrates the results of hypothesis testing for Hospital D.

Analytical Comparison of Results from Methods I and II

The results obtained from both methods of analysis reveal that there are some noteworthy differences. First of all, in Method I, patient satisfaction was positively related to only the two measures of patient loyalty, referral and return visit, but not related to any of the seven measures of hospital performance. On the contrary, in Method II, patient satisfaction was correlated with almost all the seven measures of hospital performance (except for Hospital B in which no relationships were found), but had no correlation with the two measures of patient loyalty. Nevertheless, in the case of Hospital B, although no associations between patient satisfaction and hospital performance measures were found, the relationships between patient satisfaction and patient loyalty and between patient loyalty and hospital performance measures cannot be tested because this hospital did not have any data that could be used to represent patient loyalty measures

of referrals and return visits.

The findings imply that the hypotheses stating that there are relationships between three elements of the service profit chain model (SPC), customer satisfaction/loyalty and organizational performance, are supported to some extent in this study. This may be due to the fact that the samples used in the study were too small, that is only four hospitals. In addition, the data on patient loyalty of each hospital were not complete in all four quarters of the three-year period between 2001 to 2003. Therefore, the results can be concluded on a limited extent to only the sample hospitals in the study. More empirical research is warranted to replicate this study to get more conclusive results.

CONCLUSIONS

This study is probably the first that attempted to empirically examine three key elements of the service profit chain (SPC), that is, patient satisfaction, patient loyalty, and hospital performance. The purpose of the study was to test whether these three variables were

Table 12: Research Question, Hypotheses and Results of Hospital D

Research Question	Related Hypotheses	Results
Are there any relationships between patient satisfaction, patient loyalty and hospital performance?	H1: Patient satisfaction is positively associated with seven measures of hospital performance: <ol style="list-style-type: none"> (1) Operating profit (2) Operating profit per patient visit (3) Revenue (4) Revenue per patient visit (5) Operating profit margin (6) Return on assets (7) Return on equity 	<ol style="list-style-type: none"> (1) Not Supported (2) Not Supported (3) Supported (4) Not Supported (5) Not Supported (6) Not Supported (7) Not Supported
	H2: Patient satisfaction is positively associated with one measure of patient loyalty: <ol style="list-style-type: none"> (1) Referrals 	<ol style="list-style-type: none"> (1) Not Supported
	H 3: Patient loyalty (Referrals) is positively associated with seven measures of hospital performance: <ol style="list-style-type: none"> (1) Operating profit (2) Operating profit per patient visit (3) Revenue (4) Revenue per patient visit (5) Operating profit margin (6) Return on assets (7) Return on equity 	<ol style="list-style-type: none"> (1) Not Supported (2) Not Supported (3) Not Supported (4) Not Supported (5) Not Supported (6) Not Supported (7) Not Supported

Source: Developed for this study

associated in any significant way. The units of analysis were four hospitals listed on the Stock Exchange of Thailand. It started with an overview of the Thai service sector of the economy and followed with a review of the health care and Thai hospital industry. After that, it reviewed past literature related to the SPC model and its key components, explained the intellectual roots, and proposed the adapted version of the SPC to investigate patient satisfaction, patient loyalty and hospital performance. It then described how the three constructs were operationalized and some limitations of the study. Next, the design of the research, sampling, data collection, data management, and data analysis were described. Finally, the findings of this study were presented and analyzed.

The analysis of the relationships between variables was divided into two methods. Method I standardized and analyzed the data of all four hospitals. As for Method II, the data of each hospital were processed and analyzed separately. The overall results of both methods reveal that the three hypotheses were to some extent supported that there were some positive associations among patient satisfaction, patient loyalty, and hospital performance.

Implications for Practice and Theory

Implications for Marketing Practitioners and Senior Executives

1) In the introduction of new services or improvement of existing services, service firms should consider first the value that target customers will receive from paying for the services before the services are created. This can be done by conducting focus groups of existing and potential patients. After the new service is launched, top management and senior executives of listed hospitals need to pay special attention and get involved in the service delivery process. As pointed out in many studies (Heskett *et al.*, 1997; Reichheld, 2003), top management in outstanding service firms are committed to the importance of employee and customer loyalty by treating their employees right to deliver superior value to customers.

2) Given the fact that Thai people are highly relationship-oriented, service firms should attempt to implement relationship marketing programs which enhance customer satisfaction and loyalty, which in turn can lead to growth and profitability on a long-term basis. The internal marketing within firms is also required to make all departments in the firms function effectively to support the marketing concept that the

purpose of any business is to create satisfied customers. However, most researchers emphasize that long-term relationships between customers and firms must be reciprocal. That is, a relationship still continues as long as both the customers and firms can benefit from it.

3) As Leisen and Hyman (2004) suggest, patient satisfaction is a subjective evaluation of services received from health care providers. Patients are satisfied when performance meets or exceeds their expectation. As patient expectations become latent over time, they suggest that a performance-only appraisal is most appropriate in a health care context. Patient satisfaction is, therefore, an attitude that reflects patients' post-exposure likes and dislikes of medical services. They indicate that patient satisfaction can change rapidly because healthcare-related expectations shift over time. Thus, it is recommended that hospitals should make regular surveys of patient satisfaction and loyalty.

4) Hospitals' executives need to monitor that the values or benefits that their key stakeholders (employees, patients and shareholders) receive are profitably and appropriately balanced in the long run.

5) Last but not least, hospitals are recommended to conduct regular patient surveys monthly or quarterly, with questions that can measure patient loyalty such as referrals, intention to return, included in their questionnaires. Moreover, they should also undertake employee surveys to measure their satisfaction and loyalty in order to link the results with patient satisfaction/loyalty and company performance measures.

Implications for Academics

First, more empirical research needs to be conducted to examine the key elements in the proposed model, patient satisfaction/loyalty and hospital performance, in the healthcare market. Moreover, attempts should be made to investigate all the elements in the SPC model, from employees to customers to firm performance in the listed hospitals. This requires complete data on employee satisfaction and loyalty, patient satisfaction and loyalty, and measures of hospital performance. More samples of hospitals are needed to obtain more satisfactory conclusions. It will certainly take some time before all necessary data is available.

Second, research in other service industries, such as banks, hotels, life insurance firms, and retailers, is recommended to investigate all elements in the SPC

model or at least the three elements in this study to determine whether the concepts are applicable to service firms in Thailand.

Third, causal models should to be developed and tested in service firms, provided that all relevant data is available. It is noted that relationships between variables in the service profit chain model may not necessarily be linear as pointed out by some academics (Dean, 2004). Lastly, the proposed model of patient satisfaction, patient loyalty, and hospital performance was rather simple. Subsequent studies should investigate by integrating other moderating or intervening variables such as trust, customer commitment, and length of relationship, which have been found in previous empirical research to affect relationship outcomes.

REFERENCES

- Bank of Thailand. 2004, *Economic and Financial Statistics*, fourth quarter, pp.149 and 153.
- Bernhardt, K.L., Donthu, N. and Kennett, P.A. 2000, "A Longitudinal Analysis of Satisfaction and Profitability", *Journal of Business Research*, 47, pp.161-171.
- Chaoprasert, C. 2003, *Service Quality Improvement in Banking Industry*, DBA research paper, University of South Australia, Adelaide, Australia.
- Chaoprasert, C. 2004, *Service Marketing*, Se-Education Publisher, Bangkok, Thailand.
- Choi, K.S., Cho, W.H., Lee, S., Lee, H. and Kim, C. 2004, "The relationships among quality, value, satisfaction and behavioral intention in health care provider choice: A South Korean study", *Journal of Business Research*, 57, pp.913-921.
- Dean, A.M. 2004, "Links between organizational and customer variables in service delivery: Evidence, contradictions and challenges", *International Journal of Service Industry Management*, Vol.15, No.4, pp.332-350.
- Decharin, P. 2003, *Balanced Scorecard*, 2nd, Chulalongkorn University Press, Bangkok, Thailand.
- Decharin, P. 2004, "Implementing the Balanced Scorecard in Thailand Listed Companies", *Chulalongkorn Review*, Vol.62, January-March.
- Dick, A.S. and Basu, K. 1994, "Customer Loyalty: Toward an Integrated Conceptual Framework", *Journal of the Academy of Marketing Science*, Vol.22 No.2, pp.99-113.
- Gupta, M., Narasimhan, C., Niraj, R. and Foster, G. 2003, *Understanding Customer Level Profitability Implications of Satisfaction Programs*, Working Paper Series, Teradata Center for Customer Relationship Management, Duke University.
- Hallowell, R. 1996, "The relationships of customer satisfaction, customer loyalty, and profitability: an empirical study", *International Journal of Service Industry Management*, Vol.7 No.4, pp.27-47.
- Heskett, J.L., Jones, T.O., Loveman, G.W., Sasser Jr, W.E. and Schlesinger, L.A. 1994, "Putting the Service Profit Chain to Work", *Harvard Business Review*, March-April, pp.164-74.
- Heskett, J.L., Sasser Jr, W.E. and Schlesinger, L.A. 1997, *The Service Profit Chain*, The Free Press, New York, NY.
- Heskett, J.L., Sasser Jr, W.E. and Schlesinger, L.A. 2003, *The Value Profit Chain*, The Free Press, New York, NY.
- Hofstede, G. 1980, "Motivation, Leadership, and Organization: Do American Theories Apply Abroad?", *Organizational Dynamics*, Summer, pp.42-63.
- Kamakura, W.A., Mittal, V., de Rosa, F. and Mazzon, J.A. 2002, "Assessing the Service Profit Chain", *Marketing Science*, Vol.21 No.3 Summer, pp.294-317.
- Kaycharanan, N., Patpu, T., Thong-in, C. 2004, Six Sigma, 3rd, ExpertNet, Bangkok.
- Lau, R.S.M. 2000, "Quality of work life and performance: An ad hoc investigation of two key elements in the service profit chain model", *International Journal of Service Industry Management*, Vol.11 No.5, pp.422-437.
- Leisen, A. and Hyman, M.R. 2004, "Antecedents and consequences of trust in a service provider: The case of primary care physicians", *Journal of Business Research*, 57, pp.990-999.
- Lertwatthanapongchai, S. 2002, *Six Sigma*, Se-Education Publishing, Bangkok.
- Loveman, G.W. 1998, "Employee Satisfaction, Customer Loyalty, and Financial Performance: An Empirical Examination of the Service Profit Chain in Retail Banking", *Journal of Service Research*, Vol.1 No.1, August, pp.18-31.

- Naidu, G.M., Parvatiyar, A., Sheth, J.N. and Westgate, L. 1999, "Does Relationship Marketing Pay? An Empirical Investigation of Relationship Marketing Practices in Hospitals", *Journal of Business Research*, 46, pp.207-218.
- Neely, A., Adams, C. and Kennerley, M. 2002, *The Performance Prism*, Pearson Education Ltd., Great Britain.
- Nelson, E.C., Rust, R.T., Zahorik, A.J., Rose, R.L., Batalden, P. and Siemanski, B.A. 1992, "Do Patient Perceptions of Quality Relate to Hospital Financial Performance?", *Journal of Health Care Marketing*, December, pp.6-13.
- Neuman, W.L. 2003, *Social Research Methods*, 5th, Allyn and Bacon, Boston, MA.
- Oliver, R.L. 1992, "An investigation of the attribute basis of emotion and related effects in consumption: suggestions for a stage-specific satisfaction framework", in Sherry, J. and Sternthal, B. (Eds), *Advances in Consumer Research*, Vol.19, Association for Consumer Research, pp.237-244.
- Patterson, P.G. and Spreng, R.A. 1997, "Modeling the relationship between perceived value, satisfaction and repurchase intentions in a business-to-business, services context: an empirical examination", *International Journal of Service Industry Management*, Vol.8 No.5, pp.414-434.
- Payne, A., and Holt, S. 2001, "Diagnosing Customer Value: Integrating the Value Process and Relationship Marketing", *British Journal of Management*, Vol.12, pp.159-182.
- Peppers, D and Rogers, M. 2004, *Managing Customer Relationships: A Strategic Framework*, John Wiley & Sons, Inc., New Jersey.
- Reichheld, F.F. and Sasser, W.E.Jr. 1990, "Zero defections: quality comes to services", *Harvard Business Review*, Vol.28, September-October, pp.105-111.
- Robbins, S.P. and Coulter, M. 2002, *Management*, 7th ed., Pearson Education, NJ.
- Rucci, A.J.; Kirn, S.P. and Quinn, R.T. 1998, "The Employee-Customer-Profit Chain at Sears", *Harvard Business Review*, January-February, pp.82-97.
- Silvestro, R. and Cross, S. 2000, "Applying the service profit chain in a retail environment", *International Journal of Service Industry Management*, Vol.11 No.3, pp.244-68.
- Tonsorn, M. 2003, *Customer Relationship Management*, 2nd, Top Publishing, Bangkok, Thailand.
- Too, L.H.Y., Souchon, A.L. and Thirkell, P.C. 2001, "Relationship Marketing and Customer Loyalty in a Retail Setting: A Dyadic Exploration", *Journal of Marketing Management*, 17, pp.287-319.
- Zeithaml, V.A. and Bitner, M.J. 2000, *Services Marketing*, 2nd ed, McGraw-Hill, New York, NY.