The Relationship between Service Quality and Customer Satisfaction of Pharmacy Departments in Public Hospitals

Prachayaporn Arsanam and Khanchitpol Yousapronpaiboon, *Member*, *IACSIT*

***Abstract*—This study focuses on the relationship between service quality and customer satisfaction of those who come to receive pharmacy services in public hospitals. The objectives of this study were (1) to examine the relationship between customer satisfaction and the quality of pharmacy services in public hospitals by using Descriptive research and (2) to determine five dimensions of service quality by using SERVQUAL instrumentation. The result from a hypothesis test showed the significant relationship between overall quality of pharmacy service in public hospitals and overall customer satisfaction with a significance level at 0.01. The mean difference between the perception and expectation was 0.03. It shows that assurance positively impacted patient satisfaction with the highest difference, followed by empathy and reliability. On the other hand, responsiveness and tangibles negatively impacted customer satisfaction respectively. These findings would be useful for the pharmacy department in public hospitals to improve their service quality in order to increase customer satisfaction.**

***Index Terms*—Customer satisfaction, pharmacy department, public hospital, service quality.**

I. Introduction

Service quality is considered a significant strategy to satisfy the customer and encourage repeated service which attracts loyal customers. Thus, the continual improvement of service is needed in order to compete with other players in the hospital industry. In the hospital industry, most hospitals provide common services but differ in service quality which is an indicator to gain a competitive advantage in the business [1]. Currently, there are many hospitals in the market. This gives customers or clients more options to choose the best service with the reasonable price they require. Therefore, hospitals have to improve their service quality and other functions in every small detail to succeed. However the medical service in developing countries is often managed by the government and faced with a limited budget, and also lacks human resources [2]. This leads to customers' dissatisfaction with the level of service quality. The hospital service industry has a perceived level of excellent service quality, and this leads clients to expect these levels of excellence. Customer satisfaction is found when the level of a customer's expectations is met by the actual quality of the service provided [3]. Thus, service quality is the actual service quality the customers or clients perceived when measured against their expectations before receiving a service [4]. The pharmacy is the department which is responsible for the medicines and drugs in the hospital. Thus the topic of this study is the service quality that clients perceive from the pharmacy department in public hospitals. It could be guideline to improve and develop proper service management in public hospitals.

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The authors are with the College of Graduate Study in Management, Khon Kaen University, Thailand (e-mail: karaokoi@hotmail.com, Yousapro@yahoo.com).

II. Conceptual Framework and Relevant Literature

A. Service Quality Concept

Service quality is the ability to satisfy customer needs which is intangible, of great variety, and cannot be stored or separated [5]. Therefore, service quality can be evaluated from the process and outcome of a particular service [6]. This is especially true for the interaction between service provider and client, which is called "quality of care" instead of "quality of service" in the health and hospital business. The high quality of care as a continuous treatment to cure and maintain a client's quality of life and extend their life [5].

Since 1983, the service quality model and dimensions of service quality have been developed. The service quality model measures the perception of clients towards their expectations [5]. The model and dimensions were developed and applied to the type of service from clients' expectations, which come first, and dimensions of service quality are evaluated from clients' 10 dimensions. Second, the service measurement tool is called "SERVQUAL" which analyzed the statistics results and provided conclusions under five main indicators or "RATER" (reliability, assurance, tangibles, empathy & responsiveness) with which the clients could evaluate the service quality from their five dimensions [6], [7].

- Tangibles are physical objects that indicate the facilities of a service.
- Reliability is the ability to provide the promised service to the clients.
- Responsiveness is the readiness and willingness to provide a service in a particular moment.
- Assurance is the skill and knowledge related to a service which could make the clients trust and believe that they will receive the best service.
- Empathy is the ability to treat, care for, and cure an individual client.

SERVQUAL is defined as the measurement tool of Service Quality (SQ), which can be divided into two parts; the first part is for evaluating the Expected Service Quality (E), and consists of 22 items. Another 22 items are in the second parts and are used to evaluate the Perceived Service Performance (P), which can be represented as

$$SQ = P - E$$

If $P>E$, the service is excellent. If $P<E$, the service is

considered bad. When *P=E*, the service is good [6], [8], [9].

In medical service evaluation, the clients cannot evaluate the quality in terms of professional techniques according to the requirements of professional knowledge and treatment process knowledge. Therefore, the SQ will be evaluated from the experience and perception of patients when they receive a particular service. If the perception of performance is equal to their expectation, the service is considered good quality. That is, any SQ shows the qualification of that particular service which could satisfy clients' needs and necessities; thus the client's perception is the indicator to estimate or evaluate SQ [10].

B. Theory of Health Service Satisfaction

The satisfaction is the results of participating in some particular activity. A positive attitude will lead to satisfaction with that service. On the other hand, a negative attitude will lead to dissatisfaction with that service [11].

The accessibility of the medical system, concluded in five parts, which are

- Availability is the sufficiency ability to serve clients' needs.
- Accessibility is the location that could be easy to access.
- Accommodation is the convenience for the clients while receiving service.
- Affordability is the ability to pay for a treatment or service.
- Acceptability is the overall acceptance of the Service Quality, including the type of providers or doctors [12].

C. Measuring Service Quality in Hospitals.

The literature has shown that numerous studies used the SERVQUAL instrument to measure service quality in hospitals. Wong evaluated the service quality provided for ambulatory clients at the Bone Densitometry Unit in the Royal Brisbane Hospital and found that there were high satisfaction ratings with both perception scores and expectation-minus-perception gap scores [13], [14]. Of the five dimensions, responsiveness, assurance and empathy factors were more important predictors of overall service satisfaction. Perception scores better predict overall satisfaction than gap scores. Sadiq Sohail examined and measured the service quality provided by private hospitals in Malaysia. Patients' perceived value of the services exceeds expectations for all the variables measured [14], [15]. Butt and Run indicated a moderate negative quality gap for overall Malaysian private healthcare service quality with the SERVQUAL model. Results also indicated a moderate negative quality gap on each service quality scale dimension [16]. Yesilada and Direktor tested the dimensionality of the SERVQUAL instrument in the Northern Cyprus healthcare industry, to assess the service quality provided in public and private hospitals in Northern Cyprus and to identify the service quality dimensions (reliability-confidence, empathy and tangibles) that play an important role in patient satisfaction [17]. This result does not support the five dimensions model of the original SERVQUAL. Gap analysis showed that private hospitals have smaller gaps than public hospitals in all three service quality dimensions. K. Yousapronpaiboon determined the dimensions used in judging hospital service quality [14]. The results indicated that SERVQUAL's five latent dimensions had a significant influence on overall service quality. Responsiveness had the most influence, followed by empathy, tangibles, assurance and finally reliability.

III. Methodology

A. Method

This study adopted a quantitative approached by self-administered questionnaire as a survey tool. All data were collected from 400 customers who came to receive pharmacy services in the public hospitals between Feb 2014 in Bangkok, the capital of Thailand.

B. Survey Instrument

A questionnaire was used as the survey instrument of this study which is divided into three parts. First, there are six questions asking about demographic information, which are gender, age, educational background, occupation, the right to reimbursement of medical expenses and the number of times a service is used in a year. Moreover, there are questions on service satisfaction, measured by using the Likert scale and the interval scale to evaluate the test. Second, opinions were quantified using SERVQUAL regarding the expectation level and perceived performance from clients who interacted with the pharmacy department in public hospitals [8]. There are 21 questions, which need to be answered twice which using a seven-scale instrument. The first set is the measurement of E; the second set measures the P. The score is considered SQ. Third is the opinions of and suggestions from clients for the pharmacy department in public hospitals [14].

Thirty samples of the reliability test were given to pharmacy department clients before conducting the survey in order to test the reliability of the survey by analyzing and finding Cronbach's alpha Coefficient of reliability, which was 0.971[9].

C. Sample Design and Data Collection

The sample respondents answered the questions themselves. The respondents in the study were patients or those receiving service in the pharmacy department during and after office hours. The numbers of respondents was 400. They were selected regardless of gender, age, education, occupation and income.

D. Ethics

This study was approved the by the head of the pharmacy department in the hospitals. Respondents were assured that their responses would be kept confidential.

E. Data Analysis Procedures

This study used SPSS version 17 (Statistic Package for Social Sciences) for calculation of statistics. 1) The paired Difference Test was used to find the difference between the average level of P and E. 2) Pearson Correlation refers to the relationship between the quality of pharmacy services and the satisfaction of those who receive services (patients or clients).

IV. Results

A. Demographics Information

From the sample of 400 respondents, 227 were female

(56.75%) and 173 were male, or 43.25 % of the total respondents. 120 were aged between 35-44 years (30%). Those aged 25-34 years totaled 96 (24%). Those who had attained a bachelor's degree were the most common at 209 respondents (52.25%), followed by master's degree at 105 (26.25%). The major occupation was the office/factory workers at 129 (32.25%), followed by business owners at 83 (20.75%). 134 respondents (33.50%) were covered by the social security scheme. 117 respondents (29.25%) paid individually. 244 respondents (61%) received service 2-4 times per year while 78 respondents, or 19.50%, received service more than 5 times this year as shown in Table I.

TABLE I: DEMOGRAPHICS DATA OF SAMPLE (*N*= 400)

VARIABLES		*N*	%
Gender	Male	173	43.25
	Female	227	46.75
Age	15-24 years	33	8.25
	25-34 years	96	24.00
	35-44 years	120	30.00
	45-54 years	76	19.00
	55 years or older	75	18.75
Education	Primary School	16	4.00
	High School	53	13.25
	Bachelor's Degree	209	52.25
	Master's Degree	105	26.25
	Ph. D or higher	17	4.25
Career	Unemployed	36	9.00
	Farmer	10	2.50
	Hired laborer	9	2.25
	Office/ Factory worker	129	32.25
	Business owner	83	20.75
	Student	40	10.00
	Government official	49	12.25
	Pensioner	44	11.00
Right to Reimbursement of Medical Expenses	Civil servant medical	87	21.75
	Social security scheme	134	33.50
	Universal coverage	58	14.50
	Individual payment	117	29.25
	Others	4	1.00
Number of times used per year	First time	75	18.75
	2-4 times	244	61.00
	5 times or more	78	19.50

B. Descriptive Statistics of the Variables in the Model

From customer satisfaction on service data as shown in Table II, it can be seen that most of the respondents are rather satisfied with the service ($\bar{x}$= 5.17, S.D. = 0.90). The question which asked respondents to rate their impression as to whether or not, "You made the right decision to receive pharmacy service from this hospital," received the highest level of satisfaction of all the questions in the survey.

The majority of the respondents have high expectations for service according to the survey (($\bar{x}$ = 5.24, S.D. = 0.86) When we selected five dimensions of service, the highest expectation is assurance, follow by empathy, tangibles, responsiveness, and reliability. Most of the respondents have a high perception of performance (($\bar{x}$= 5.27, S.D. = 0.94). When we determined five dimensions of service quality, the most commonly chosen perception was assurance, followed by empathy, tangibles, reliability, and responsiveness. The analysis of the factors determining the quality of service that comes from the difference between the P and E of a pharmacy in a public hospital, found that overall patients are satisfied with the pharmacy service in the public hospitals. There is a difference of 0.03 in the clients' satisfaction with SQ, which is the difference between P and E. The aspect with the highest level of satisfaction is assurance, followed by empathy. The aspect which received the most client dissatisfaction on SQ towards P and E is responsiveness and tangibles. Overall service quality shows that there is a probability to accept the hypothesis on the P and E of the SQ at Sig. (2-tailed) is 0.393, so there is no significance in the difference between the P and E of the overall SQ provided by the public hospital pharmacies at 0.05. When we break through the five dimensions, the responsiveness and assurance have the probability of accepting the hypothesis Sig. (2-tailed) at 0.000. Therefore, there is significant difference in the responsiveness and assurance of 0.05. There is a probability to accept the hypothesis Sig. (2-tailed) of 0.585 (responsiveness), 0.135 (assurance), 0.187 (empathy). In conclusion, there is no significant difference in the P and E of SQ in public hospital pharmacies in the aspects of reliability, empathy, and tangibles at 0.05. There is a significant relationship between the overall SQ of pharmacies in public hospitals and customer satisfaction. There is a relationship between reliability, responsiveness, tangibles and the customer satisfaction of clients who received service from pharmacies in public hospitals. There is no relationship between assurance, empathy and client satisfaction of public hospital pharmacies, as shown in Table III.

TABLE II: MEAN AND STANDARD DEVIATION OF CUSTOMER SATISFACTION ON SERVICE

Satisfaction Description	Satisfaction Stats		Satisfaction Level
	$\bar{X}$	S.D.	
1. You are satisfied with your decision on receiving pharmacy service from this hospital.	5.20	1.04	Rather Satisfied
2. If you could flash back to make a decision, you would still consider pharmacy service from this hospital as your first choice.	5.17	1.03	Rather Satisfied
3. You wish to receive service from the Pharmacy in this hospital.	5.14	1.01	Rather Satisfied
4. You are happy with your decision to receive Pharmacy service from this hospital.	5.13	0.95	Rather Satisfied
5. You made the right decision to receive Pharmacy service from this hospital.	5.23	1. 08	Rather Satisfied
Total	5.17	0.90	Rather Satisfied

V. CONCLUSION

The clients were satisfied by the service quality of public hospital pharmacies. When we separated to five dimensions of service quality, assurance has the greatest difference between average perceptions and average expectations (*P*>*E*) followed by empathy and reliability. Meanwhile, there is the greatest difference between average expectations and average perceptions (*E*>*P*) on responsiveness, followed by tangibles. This shows that clients were dissatisfied with the service in terms of responsiveness and the tangibles of public hospital

pharmacies.

The analysis of the relationship between service quality and customer satisfaction in the pharmacy department of public hospitals, by using the Pearson Correlation (r) at the 0.01 significant level, found that the overall SQ of public hospital pharmacies has significantly relationship with customer satisfaction at 0.01 significant. The reliability, responsiveness, tangibles of public hospital pharmacies has a relationship with customer satisfaction at the 0.01 significant level. Meanwhile, the assurance and empathy of public hospital pharmacies has no relationship with customer satisfaction at the 0.01 significant level. This study is related to previous study by Yesilada and Direktor, the gap analysis showed that private hospitals have smaller gaps than public hospitals in all three service quality dimensions (reliability-confidence, empathy and tangibles). In public hospitals the tangibles dimension seems to exert no significant influence on satisfaction [17]. And related to previous study by K. Yousapronpaiboon, the SERVQUAL's five dimensions had a significant influence on overall service quality [14]. While there was no relation to previous study by Wong, evaluates the quality of service provided for ambulatory clients at the Bone Densitometry Unit in the Royal Brisbane Hospital using the SERVQUAL instrumentation. There were high satisfaction ratings with both perception scores and expectations-minus-perceptions gap scores. Of the five dimensions, responsiveness, assurance and empathy factors were more important predictors of overall service quality [10].

TABLE III: MEAN SCORES OF DIMENSIONS OF SERVICE QUALITY

Dimensions and Items	Perceived		Expected	
	MEAN	S.D.	MEAN	S.D.
Reliability	5.15	1.04	5.14	0.92
Responsiveness	5.02	1.14	5.17	0.94
Assurance	5.58	1	5.35	0.93
Empathy	5.37	1.02	5.31	0.91
Tangibles	5.22	1.08	5.25	0.93
Total SQ	5.27	0.94	5.24	0.86
Dimensions and Items	P-E		SQ & CS	
	Δ MEAN	Sig. 2-tailed	Correlation (r)	Sig. 2-tailed
Reliability	0.01	0.585	0.277**	0.000
Responsiveness	-0.15	0.000	0.296**	0.000
Assurance	0.23	0.000	0.084	0.095
Empathy	0.06	0.135	0.016	0.749
Tangibles	-0.03	0.187	0.215**	0.000
Total SQ	0.03	0.393	0.207**	0.000

VI. RECOMMENDATIONS

Reliability: customers were satisfied with the quality of service in public hospital pharmacies, both for reliable and sincere service. A suggestion for further improvement is that faster service in terms of queue cards and service should be based on the queue, with a notice board displaying waiting time. And if there are problems during working hours, they should be solved quickly in order to avoid delays.

Responsiveness: customers were not satisfied with service responsiveness of pharmacies. The hospitals should first pay attention to this dimension because it relates directly to customers. The service provider should express their commitment to always be ready to provide friendly, polite service. The hospitals should provide service training and customer engagement to service providers to support them to understand the needs of clients. Also the head of the pharmacy may use the strategy of "putting the right man in the right job" in the recruitment process. The service provider is most important as the core value to deliver the SQ to the customer.

Assurance: customers were satisfied with the assurance dimension of SQ in pharmacy of public hospitals. There is the greatest mean difference between the P and E (P-E = 0.23), if the provider is a pharmacist. This is a profession that is reliable and competent at reassuring clients through their skills, knowledge, and academically abilities. This facility is something that should be developed, and the pharmacist should use lay terms to explain instructions and communicate with customers, avoiding technical jargon which may confuse the customer. The pharmacist or service provider should be ready to listen to the customer and help them to understand a problem and solve it with the correct treatment.

Empathy: customers were satisfied with the quality of pharmacy care services in public hospitals. It is important that a hospital has holistic care and customers should be viewed as more than simply patients. Hospitals can apply TQM strategy (TQM; Total Quality Management) to give priority to taking care of their customers. Moreover, hospitals should train service providers in the skills of good SQ with a positive opinion towards service. The hospitals could give them rewards which may derive from surveys of clients and co-workers in order to motivate service providers to work better and be willing to improve themselves.

Tangibles: customers were not satisfied with service quality in terms of the physical appearance (tangibles) of public hospital pharmacies. This may due to obsolescent and insufficient equipment facilities, and even the environment and atmosphere which are neither suitable nor attractive. Hospitals usually spend their limited budget on treatment rather than the buildings, the surroundings and the appearance of the hospitals, but they can easily solve this problem by cleaning the location regularly. Another aspect which also impacts a hospital's image is the pharmacist and the other service providers. Their polite behavior and proper uniform is considered a method of improvement. We can conclude that a good physical appearance also enhances the good image of a hospital.

VII. SUGGESTIONS

This study only collected data on the SQ of pharmacies for outpatients in public hospitals. For further study, inpatient's opinions should be studied as well. Other aspects of pharmacy services which should be examined are patient counseling and the medication service, in order to understand and improve the SQ of the whole pharmacy department.

When a problem is recognized, there should be a follow up study at least every six months, subject to specifically survey to aspects which need to be improved from the previous study. It will take more time to complete the questionnaires, but it will improve the SQ of the pharmacy in every dimension.

A management team can apply this survey to other

departments to improve SQ and boost customer satisfaction in the future.

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Prachayaporn Arsanam was born on September 29, 1980 in Khon Kaen province. Before studying at the College of Graduate Study in Management, Khon Kaen University, Bangkok Campus, she graduated with a bachelor's degree from the Faculty of Pharmaceutical Sciences, Khon Kaen University, in 2004. Her experience includes working as the head of pharmacy in Waeng Noi hospital. She is currently working as an executive medical representative for Novartis (Thailand) Limited.

Khanchitpol Yousapronpaiboon has been an assistant professor of marketing in the College of Graduate Study in Management, Khon Kaen University, for 14 years, where he taught marketing management and service marketing management courses at the master's and doctoral levels. He received an Excellent Teaching Award from Khon Kaen University in 2003. He gained his DBA from Nova Southeastern University of the H. Wayne Huizenga's school of business & entrepreneurship FL., USA. He worked for Bangkok Bank Public Company Limited for 10 years. Currently he is the honorary advisor; the secretary of the Senate Standing Committee on Education; and sub-standing committee on the follow up and evaluation preparation of ASEAN community, the senate standing committee on education in Thailand. He is also a part-time lecturer of marketing management and service marketing management courses at Chiang Mai University and Ubon Ratchatani University in Thailand.