

Relationship Between Service Quality Characteristics and Its Performance In University Hospitals

Byoung Chan Lee*

.....

This study is to examine the factors that influence the performances of service quality in university hospitals by investigating systematically the conditions of service quality. A synthesis of the health care quality is conducted to identify physical quality, operating process quality, and human resources quality that relate to both the overall satisfaction and intention of revisit. Based on the proposed hypotheses, the relationships between the service quality factors and performances are examined using data collected from 167 patients in three hospitals, in Korea.

Reliability and validity tests are performed for examining its relationship with service quality in health care systems. Total eight independent variables with respect to three service quality levels and two dependent variables for performance are identified for relationships between service quality and performance in health care systems. The results provide health care managers with a managerial insight to the planning function of performance with service quality in health care systems as well as other operations (business, government, or other service organizations) systems.

Implication of the study for theory, future studies, and practices are discussed.

.....

I. Introduction

Recently, general hospitals are facing radical change in economic, cultural, and social environments. Health care management needs to respond to new health care environment in 21C such as improved quality of life, advanced health services needs of patients, competition among large-scale hospitals, opening of health care industry, aging, and changes of disease

*Department of Management, College of Business Administration, Keimyung University.

structure.(Berwick, 1989; Dean and Bowen, 1994; and Sterman, Repenning and Kofman, 1997)

This study focuses on health services in university hospitals to improve performance of services and get a solution in terms of quality perspective. That is, by exploring the relationship between service quality provided by hospitals and its related performance, this study wants to find what the service quality factors related to performance are.

Specifically, the purpose of this study is as follows: (1) what kind of service quality perspective can be approached for hospital services, (2) which factors of service quality affect hospital performance improvement, and (3) what is the appropriate direction to improve service quality in university hospitals.

In order to fulfill the study purposes, the related literature reviews are addressed in the next section. The third section presents a research model and hypotheses pertinent to service quality of hospitals with appropriate operational definition. The fourth section presents an empirical findings resulted from a survey with inpatients visited to three university hospitals located in Taegu area of Korea. The final section summarizes the study findings and discusses future direction.

II. Literature Reviews

1. Service Quality

Service has been defined as a social act which takes place in direct contact between the customer and representatives of the service organization. The very nature of service implies that it must respond to the needs of the customer; that is the service must meet or exceed customer expectations. The expectations must be translated into performance standards and specifications similar of conformance that direct manufacturing activities. Service quality includes both the quality of core services and facilitating services.(Griffin and Hauser, 1992; Kettinger and Lee, 1999; and Laffel and Blumenthal, 1989) Table 1 presents service

characteristics.

Continuous quality improvement (CQI) and total quality management (TQM) are growing concepts in health care organizations. CQI is defined as an ongoing effort to provide care that meets or exceeds customer expectations. TQM is defined as a structured systematic process for creating organization-wide participation in planning and implementing continuous improvement in quality. Advanced review of specific reliability and validity issues of quality improvement in health care systems is provided by many studies.(Counte et al, 1992; Gann and Restuccia, 1994; Kaluzny, McLaughlin and Kibbe, 1992; and Kaluzny, McLaughlin and Jaeger, 1993)

2. Service Quality and Performance in Hospitals

Most of the study on the subject of quality and performance focuses on manufacturing concerns. Strong associations between product quality and performance are consistently found(Adam, 1991; Cleverly, 1990; Fleming, 1990; and Harkey and Vraciu, 1992). Garvin (1988) argues that the link between quality and performance takes two routes, the first through increased sales (or premium prices for the same quantity of sales) and the other

Table 1. Characteristics of Services

Items	Explanation
Intangibility	<ul style="list-style-type: none"> • Service is abstract and intangible • no tasteable, no smellable, no hearable before it is served • evaluation difficulty of service values
Heterogeneity	<ul style="list-style-type: none"> • non-standardized and varied • no dynamic due to the involvement of human • no service standardization due to the service heterogeneity
Inseparability	<ul style="list-style-type: none"> • simultaneous occurrence of production and consumption • customer involvement in production process • inseparable possession rights
Perishability	<ul style="list-style-type: none"> • no inventory • perishable product • difficult transportation

through lower costs (improved efficiency). The links between quality and performance resulted primarily from increased sales of the higher quantity product.(Parasuraman, Berry, and Zeithaml, 1991; and Sahney and Warden, 1991)

This study considered the five characteristics of service quality: (1) physical quality such as externality, receptivity, access convenience, and price; (2) operating quality such as procedure convenience and speed; and (3) human resource quality such as primary human resources and supporting human resources. Dependent factors are service quality performance that is measured by a satisfaction of patients and intention of revisit.

III. Model Development

1. Research Design

Service quality level differentiates with three levels: physical quality characteristics, operational process quality, and human resources quality. Factors affecting service quality performance are considered in several ways. Parasuraman, et al (1985) extracts factors

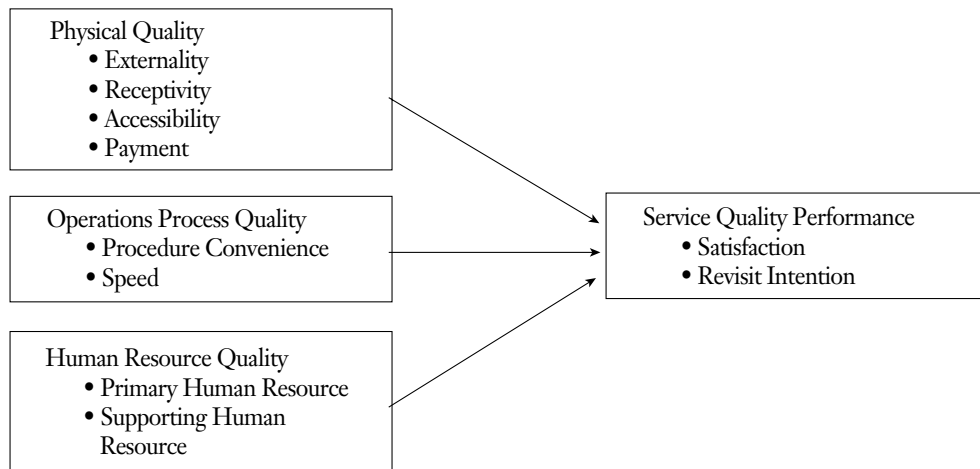


Figure 1. Research Model

affecting services quality in terms of initial ten categorical levels. The resulting factors from ten factors are summarized in externality, reliability, responsibility, confirmability, and accordability.

2. Hypotheses Development

There are three primary hypotheses. H1 is related to physical quality and services quality. H1 has total eight sub-hypotheses. H2 is about a relationship between operations process quality and service quality performance. H2 has total four sub-hypotheses. H3 is pertinent to human resource quality and service quality performance. Specific hypotheses are as follows.

H1: There is a significant relationship between physical quality and service quality.

H11a: There is a significant relationship between externality and service quality.

H11b: There is a significant relationship between externality and revisit intention.

H12a: There is a significant relationship between externality and service quality.

H12b: There is a significant relationship between receptivity and revisit intention.

H13a: There is a significant relationship between accessibility and satisfaction of service quality.

H13b: There is a significant relationship between accessibility and revisit intention.

H14a: There is a significant relationship between payment and service quality.

H14b: There is a significant relationship between payment and revisit intention.

H2: There is a significant relationship between operations process quality and service quality performance.

H21a: There is a significant relationship between procedure convenience and service quality satisfaction.

H21b: There is a significant relationship between operations process speed and service quality satisfaction.

H22a: There is a significant relationship between procedure convenience and revisit

intention.

H22b: There is a significant relationship between operations process speed and revisit intention.

H3: There is a significant relationship between human resource quality and service quality performance.

H31a: There is a significant relationship between primary human resource and service quality satisfaction.

H31b: There is a significant relationship between primary human resource and revisit intention.

H32a: There is a significant relationship between support human resource and service quality satisfaction.

H32b: There is a significant relationship between primary human resource and revisit intention.

IV. Empirical Analyses

1. Data Collection

After establishing hypothesis by the model, this study surveyed the questionnaires on relation between quality characteristics and service performance in three university-hospitals in Korea. Questionnaires were directly delivered to patients of three university-hospitals in Korea. Total 210 questionnaires were prepared and 70 questionnaires were assigned to each university-hospital. 179 of 210 questionnaires were successfully received so that the response rate was 85%. 167 usable questionnaires considered for the analysis after filtering inappropriate questionnaires which contain mismarked or unmarked answers.

These data distribution are as follows: K-hospital was 59 questionnaires (35.3% response rate), Y hospital 58 (34.7%), and D hospital 50 (29.9%) after two follow-ups by letter and

telephone. A t-test of the study variables between first and second respondents revealed no significant differences, implying that non-response bias was not a problem. All patients of three university-hospitals received identical questionnaires. To prevent selection bias, respondents were asked to select the most recent hospital services provided by three university-hospitals. The service recalled was valid by the hospital management.

2. Measurement

Questionnaire was constructed physical quality, human resource quality, operational process quality, service quality performance, and respondent's characteristics. Physical quality was measured by total fifteen items: three items of externality, four items of receptivity, two items of assessability, and five items of payment. Operational process quality was measured by total eight items: three items of procedure convenience and five items of queuing. Human resource quality was measured by total fifteen items: nine items of primary human resources and six items of supporting human resource.

Service quality performance was measured by total seven items: five items of service satisfaction and two items of revisit intention. All items were measured with Likert's five scales. Respondent's characteristics were measured by total ten items of socio-economic ones. Table 2 indicates descriptive statistics.

Table 2. Descriptive Statistics

	Physical Quality				Human Resource Quality		Process Quality	Service Quality Performance	
	Exter-nality	Recepti- vity	Convenience	Price	Primary Human Resource	Supporting Staff	Process Quality	Satisfac- tion	Revisit Intention
Mean	3.39	3.02	3.39	2.87	3.14	2.97	2.97	3.05	3.23
SD	0.56	0.63	0.63	0.65	0.63	0.62	0.63	0.64	0.80

Table 3. Physical Characteristics of Quality with Factor Analysis and Reliability

Factor	Items	Factor Loadings	Eigenvalues	Variance Ratio	Cronbach's alpha
Externality	externality 1	0.733	2.000	14.3	0.631
	externality 2	0.798			
	externality 3	0.555			
Receptivity	receptivity 1	0.726	2.632	18.8	0.675
	receptivity 2	0.753			
	receptivity 3	0.716			
	receptivity 4	0.777			
Convenience	convenience 1	0.550	1.271	9.1	0.588
	convenience 2	0.869			
Price	price 1	0.815	3.348	23.9	0.875
	price 2	0.839			
	price 3	0.849			
	price 4	0.858			
	price 5	0.574			

3. Scale Validity and Reliability

The measures were subjected to confirmatory factor analysis to assess their validity. All variables but operational process quality were more than 0.6 of total variances. Operational process quality was 0.545, because all items are considered as one factor. Cronbach's α analyzed reliability. All but accessibility showed more than 0.6 of Cronbach's α . Accessibility was 0.588 of Cronbach's α . This is below of 0.6 for meeting the requirements suggested for exploratory research. Since the item was important for this study, the item was included for the analysis. Tables 3 to 6 present the descriptive statistics and alpha coefficients for the construct.

4. Analysis and Discussions

There was high correlation between quality characteristics and service quality

Table 4. Human Resources Quality

Factors	Items	Factor Loadings	Eigenvalues	Variance Ratio	Cronbach's alpha
Primary Human Resources	Physician 1	0.716	5.20	34.7	0.914
	Physician 2	0.802			
	Physician 3	0.813			
	Physician 4	0.694			
	Physician 5	0.687			
	Physician 6	0.640			
	Physician 7	0.763			
	Physician 8	0.624			
	Physician 9	0.739			
Supporting Human Resources	Nurse/Staff 1	0.709	4.05	27.0	0.887
	Nurse/Staff 2	0.779			
	Nurse/Staff 3	0.688			
	Nurse/Staff 4	0.784			
	Nurse/Staff 5	0.732			
	Nurse/Staff 6	0.782			

Table 5. Factor Analysis of Process Quality

Factors	Items	Factor Loadings	Eigen values	Variance Ratio	Cronbach's alpha
Process Quality	Process 1	0.798	4.35	54.4	0.879
	Process 2	0.789			
	Process 3	0.705			
	Process 4	0.697			
	Process 5	0.660			
	Process 6	0.738			
	Process 7	0.767			
	Process 8	0.736			

performance. The satisfaction of service quality has correlation with human resource quality, operation quality, and externality in physical quality. The intention of revisit has correlation with operating quality, service quality of support manpower and externality in physical quality. Tables 7 and 8 show correlation analysis of variables as well as regression analysis on service quality satisfaction and revisit intention.

Table 6. Service Quality Performance

Factors	Items	Factor Loadings	Eigen values	Variance Ratio	Cronbach's alpha
Service Satisfaction	Satisfaction 1	0.792	3.03	43.2	0.874
	Satisfaction 2	0.740			
	Satisfaction 3	0.783			
	Satisfaction 4	0.658			
	Satisfaction 5	0.773			
Revisit Intention	Revisit 1	0.879	2.05	29.3	0.856
	Revisit 2	0.873			

Table 7. Correlation Analysis of Variables

		EXT	REC	CON	PRI	PHR	SHR	OPQ	SAT
Service Quality Characteristics	PQ	EXT							
		REC	.39**						
		CON	.75**	.35**					
		PRI	.19**	.43**	.24**				
	HR	PHR	.44**	.45**	.35**	.53**			
		SHR	.42**	.49**	.47**	.46**	.64**		
		OPQ	.34**	.40**	.30**	.50**	.63**	.62**	
Performance	SAT	SAT	.46**	.42**	.40**	.42**	.68**	.74**	.71**
	RVI	RVI	.47**	.29**	.43**	.36**	.52**	.57**	.57**

*: p<0.05

**: p<0.01

For a satisfaction of customers on service quality it is especially necessary to enhance service operation quality like procedure of diagnosis and rapid treatment for patients. In the human resources level, etiquette and kindness of support manpower including nurses appeared to be so important. In addition, service of key manpower including doctors, externality, receptivity, convenience to access, and price as physical factor appeared to have important influences on satisfaction. And similar results appeared on intention of revisit.

Especially, this study discovered that service quality of the operating process, service quality of support manpower in human resources quality, and externality in physical characteristics

Table 8. Regression Analysis on Service Quality Satisfaction and Revisit Intention

	c.v.	T values	sig.	F value	R2
Service Quality Satisfaction				80.66**	0.68
Supporting Staff	0.36	5.34**	0.00		
Operational Process	0.33	5.19**	0.00		
Primary Manpower	0.19	2.92**	0.00		
Externality	0.11	2.08**	0.04		
Revisit Intention				39.86**	0.44
Supporting Staff	0.26	3.09**	0.00		
Operational Process	0.32	4.03**	0.00		
Externality	0.25	3.69**	0.00		

** p < 0.00

were very important.

V. Conclusions

This study is to examine the factors that influence the performances of service quality in university hospitals. For the purpose, this study analyzed the factors of service quality in university hospitals by investigating systematically the conditions of service quality in hospital. Through such an analysis, this study examined the correlation between quality factors and service performance like a satisfaction of customers and intention of revisit.

Summing up the results of this study, quality of physical service, service quality of the operating process, and service quality of human resources appear to be important factors for improving service quality of hospital. Accordingly, it is requested to improve and promote service quality systematically in the overall view of service system.

Service quality is found by systematic approach to be consisted of three aspects of physical hardware, operating software, and humanware related to manpower resources. Lastly, this study tries to find how to improve service quality in university hospitals through relationship between quality characteristics and service performance.

Especially, the procedure and rapidity related to revisit to hospital, and service improvement of support manpower are considered to be most important. An improvement of operating system related to procedure of using hospital and education for consciousness reform of employees should be activated for satisfaction and revisit of patients.

References

- Adam, E. E., Jr. (1991) "Quality Circle Performance", *Journal of Management*, 17: 25-39.
- Berwick, D. M. (1989) "Health Services Research and Quality of Care Assignments for the 1990s", *Medical Care*, 27: 763-771.
- Cleverly, W. O. (1990) "Improving Financial Performance: A Study of 50 Hospitals", *Hospital and Health Services Administration*, 35(2): 173-187.
- Counte, M. A., Glandon, G. L., Oleske, D. M., & Hill, J. P. (1992) "Total Quality Management in a Health Care Organization: How Are Employees Affected?", *Journal of Hospital and Health Services*, 37: 503-518.
- Dean, J. W. & Bowen, D. E. (1994) "Management Theory and Total Quality: Improving Research and Practice through Theory Development", *Academy of Management Review*, 19: 392-418.
- Fleming, S. T. (1990) "The Relationship Between the Cost and Quality of Hospital Care: A Review of the Literature", *Medical Care Review*, 47(4): 487-501.
- Gann, M. J. & Restuccia, J. D. (1994) "Total Quality Management in Health Care", *Medical Care Review*, 51(4): 467-500.
- Garvin, D. A. (1988) *Managing Quality*, New York: The Free Press.
- Griffin, A. & Hauser, J. R. (1992) "Patterns of Communication among Marketing, Engineering and Manufacturing: A Comparison between Two New Product Teams", *Management Sciences*, 38: 360-373.
- Harkey, J. & Vraciu, R. (1992) "Quality of Health Care and Financial Performance: Is There a Link?", *Health Care Management Review*, 17(4): 55-63.

- Kaluzny, A. D., McLaughlin, C. P. & Jaeger, B. J. (1993) "TQM as a Managerial Innovation: Research Issues and Implications", *Health Services Management Research*, 6: 78-88.
- _____, _____, & Kibbe, D. C. (1992) "Continuous Quality Improvement in the Clinical Setting: Enhancing Adoption", *Quality Management in Health Care*, 1: 37-44.
- Kettinger, W. J. & Lee, C. C. (1999) "Replication of Measures in Information Systems Research: The Case of IS SERVQUAL", *Decision Sciences*, 30(3): 893-899.
- Laffel, G. & Blumenthal, D. (1989) "The Case for Using Industrial Quality Management Science in Health Care Organization", *Journal of the American Medical Association*, 262(20): 2869-2873.
- Parasuraman, A., Berry, L. L. & Zeithaml, V. A. (1991) "Perceived Service Quality as a Customer-Based Performance Measure: An Empirical Examination of Organizational Barriers Using an Extended Service Quality Model", *Human Resource Management*, 30: 335-364.
- _____, A., Valarie, A., Zeithaml, V. A. & Berry, L. L. (1985) "A Conceptual Model of Services Quality and Its Implication for Future Research", *Journal of Marketing*, 24: 41-50.
- Sahney, V. K. & Warden, G. L. (1991) "The Quest for Quality and Productivity in Health Services: Managing through Quality Leadership", *Frontiers of Health Services Management*, 7: 2-40.
- Sterman, J. D., Repenning, N. P. & Kofman, F. (1997) "Unanticipated Side Effectes of Successful Quality Programs: Exploring a Paradox of Organizational Improvement", *Management Science*, 43(4): 503-521.

서비스품질특성과 그 성과와의 관계 — 대학병원을 중심으로 —

이 병 찬*

국문초록

최근 급격한 경제, 문화, 사회적인 환경의 변화는 물론 의료환경이 급변하고 있어 종합병원들은 이에 대한 인식의 변화와 대처방안을 미리 수립해 나가지 않으면 경쟁에서 어려움에 직면하게 될 것이다.

따라서 본 연구는 병원에서 이루어지고 있는 서비스 품질 특성과 그 성과를 파악함으로써 성과와 관련 있는 서비스 품질 향상 방안을 모색하는데 연구 목적을 두고, 병원 서비스 품질의 성과를 위한 서비스 품질 차원을 체계적으로 구성하여 그 관련성을 확인하고, 성과 향상을 위한 방안을 서비스 품질 차원별로 모색하고자 하였다.

연구결과 서비스 품질 특성은 서비스 품질 성과에 중요한 영향을 미친다는 것을 발견하였다. 특히 서비스 품질 만족의 측면에서는 진료과정상의 절차 및 시간의 신속성과 같은 운영과정상의 서비스 품질의 제고가 필수적으로 요청되며, 인적자원 서비스 차원에서는 특히 간호사를 비롯 직원의 예절, 친절성이 매우 중요한 것으로 나타났다. 이외에도 의사를 비롯한 핵심인력 서비스, 외형성, 수용성, 접근 편리성, 가격 등의 물리적 서비스 품질도 만족에 중요한 영향을 미치는 요인인 것으로 나타났다. 또한 재이용 의도에 있어서도 비슷한 결과가 도출되었다. 특히 운영과정상의 서비스 품질과 인적자원 서비스 품질 중의 지원인력 서비스 품질, 그리고 물리적 특성의 외형성 요인이 매우 중요한 것으로 나타났다.

* 계명대학교 경영학과 교수

이러한 결과에 기초하여 볼 때, 병원 서비스 품질 향상을 위해서는 물리적 서비스 품질, 운영과정상의 서비스 품질, 인적자원 측면의 서비스 품질 모두가 중요한 요인으로 작용하고 있음을 알 수 있다. 따라서 서비스 시스템 전반적인 관점에서 서비스 품질 향상을 위한 체계적인 개선 노력이 요청된다. 특히 병원 이용과 관련된 절차와 신속성, 그리고 간호사 및 직원의 서비스에 대한 개선은 무엇보다도 중요하다고 볼 수 있다. 이를 위해서는 병원 이용 절차와 관련된 운영시스템의 개선 및 종업원의 서비스 의식 변화를 위한 교육이 매우 중요한 과제가 될 것이다.