

Perceived Service Quality among Outpatients Visiting Hospitals and Clinics and Their Willingness to Re-utilize the Same Medical Institutions

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Objectives : This study was to determine how the perception and the satisfaction of outpatients who utilized clinics and hospitals are structurally related with their willingness to utilize the same institution in the future.

Methods : Three hundred and ten responses (via convenient sampling) were collected from 5 hospitals and 20 clinics located in Seoul listed in the "Korea National Hospital Directory 2005". Service quality was utilized as the satisfaction measurement tool. For analysis, we used a structural equation modeling method.

Results : The determining factors for general satisfaction with medical services are as follows: medical staff, reasonability of payment, comfort and accessibility. Such results may involve increased competition in the medical market and increased demands for quality medical services, which drive the patients to visit hospitals on their own on the basis of changed determining factors for

satisfaction.

Conclusions : The structural equation model showed that the satisfaction of outpatients with the quality of medical services is influenced by a few sub-dimensional satisfaction factors. Among these sub-dimensional satisfaction factors, the satisfaction with medical staff and payment were determined to exert a significant effect on overall satisfaction with the quality of medical services. The structural relationship in which overall satisfaction perceived by patients significantly influences their willingness to use the same institution in the future was also verified.

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INTRODUCTION

Since the introduction of the National Health Insurance program in July 1989, many Korean medical institutions have been experiencing competition, due to a variety of subsequent developments, including increased governmental regulations and policies such as more strict control over medical charges for third party payments, more intense competition among medical institutions spurred by an increased number of doctors and hospitals, societal demands for better quality medical service, and changes in disease trends. In order to stay ahead in a competitive environment with growing medical operation management difficulties, it is necessary to improve the medical services in terms of both quality and payment. However, as the introduction of

National Social and Medical Insurance made price competition practically impossible, the majority of medical institutions have begun to focus their attention on improving the quality of their medical services as a means to retain their competitive edge.

The quality of medical services has been an issue throughout the history of mankind, and remains the subject of a great deal of controversy. This issue can be viewed from different perspectives and standpoints. From the viewpoint of the competitiveness of medical services, in particular, the evaluation of the perception and the satisfaction with the service quality by the patients, the actual clients of medical services, should be an important issue for discussion [1-4].

The patient's perception and appraisal of the quality of the health care services of a

particular medical institution is reflective of the satisfaction of the patients with its service quality (SERVQUAL). A number of studies have been conducted regarding patients' satisfaction with medical services since 1990, and these have been generally targeted toward the strengthening the competitiveness of medical institutions. However, there is still no generally recognized measurement model for patient satisfaction. There have also been only a few studies conducted thus far regarding the measurement of patients' perceptions of the efficacy of treatment. Nevertheless, studies of the satisfaction of patients with medical services are crucial, because they provide a means by which the cognitive and emotional reaction of the patients to the medical services they receive may be objectively assessed and understood. A medical institution can utilize the patient satisfaction information to identify

their weaknesses from the clients' point of view, and such information will also provide base data by which measures for improvement might be developed. Also, sharing the results of service quality surveys with staff, including doctors, can motivate the hospital to improve their services and enhance their sense of responsibility, thereby contributing to the establishment of a client-oriented organization culture [5]. Therefore, it is critical to determine the principal factors in patient satisfaction and to understand how these factors evidence a structural relationship with the loyalty of patients, i.e., their willingness to employ the same medical institution in the future.

In this study, we have attempted to identify the determining factors for patient satisfaction in Korea, a country which transformed itself from a developing country into a member of the Organization for Economic Cooperation and Development (OECD) with a national social and medical insurance system. In particular, we will apply the SERVQUAL scales, which have been shown to be valid for the Korean environment [6], and develop a structural equation model representing the simultaneous, multi-variable relationship among variables. The results of this study will help to identify the reasons for the unrestrained behavior of patients toward using tertiary hospitals, which have caused the health care delivery system in Korea to be somewhat degraded.

The principal objective of this study was to determine how the perception and the satisfaction of outpatients who utilized clinics and hospitals is structurally related with their willingness to utilize the same institution in the future. Another purpose is to identify the individual component factors that influence the perception and the satisfaction of the patients with the quality of health care services in clinics, the 2nd and the 3rd level institutions. From the results of our analysis and findings, we will track down the paths of health care service use and the use behavior of outpatients, in order to determine why they prefer the 2nd

and 3rd level medical institutions, even for the treatment of minor medical problems.

METHODS

I. Sample

The population used in this study was comprised of outpatients at clinics and hospitals in Seoul. It was a cross-sectional study based on the data collected from a survey using a structured questionnaire administered by the authors and trained surveyors at various clinics and hospitals in Seoul for 5 hours, at the same time between 10 am and 12:30 pm and 2 pm and 5:30 pm on May 7, 2006. The subjects were all adult males and females aged 20 years or more who had received outpatient treatment that day and were waiting to pick up their bills or prescriptions. The detailed survey method included authors and trained surveyors, who identified themselves as belonging to an outside research institute, and administered to them a brief explanation regarding the purpose of the study and the contents of the questionnaire, and collecting the magnetic recording-type questionnaires immediately after the subjects' completion.

The selection of health care institutions was predicated on information of 193 hospitals (excluding convalescent hospitals and oriental medicine clinics) located in Seoul listed in the "National Hospital Directory 2005" and 6,410 clinics (excluding dental clinics and oriental medicine clinics) in Seoul registered with the Korean Medical Practitioners Association. 5 hospitals and 20 clinics were finally selected via randomization sampling.

As the survey required cooperation by the subject hospitals and clinics, the heads or administrative executives of the institutions were contacted using the telephone and fax numbers obtained from the Korea Hospital Association and the Korean Medical Practitioners Association one week prior to the scheduled survey, to formally request their cooperation in writing, and again 2 days prior to the survey to reconfirm their consent. The

purpose and intended topics of the study as well as the survey schedule were clearly indicated in the formal request. We were unable to obtain consent from 2 hospitals and 7 clinics, so a total of 3 hospitals and 13 clinics were finally employed in the study as the subject health care institutions.

A total of 200 questionnaires were distributed to the subject hospitals and another 200 at the clinics, and all 400 questionnaires were collected successfully. Many questionnaires were only completed in part, because the outpatients at the clinics spent a relatively short time waiting for their bills or prescriptions, as compared to the wait at hospitals. After screening the responded questionnaires, those completed by 172 outpatients at the hospitals and 138 outpatients at the clinics were finally employed for analysis in this study.

II. Measurement

This study utilized SERVQUAL as the satisfaction measurement tool. SERVQUAL has been more frequently utilized than any other scale, and it has been demonstrated that the quality of services provided by health care institutions consistently influences the satisfaction of the patients and their willingness to utilize the same institution again [7,8]. The causal relationship model, "Quality of medical services → degree of satisfaction → use of the same institution" [7], is extensively used now as a general model in studies on this topic [9-12].

In order to assimilate to the specific environment of Korea, we added accessibility, an external environmental factor, to the internal material and human factors within the hospital which had been conventionally utilized as the measurement scale in studies of service quality. The internal material factor includes hospital facilities and treatment procedures and the human factor includes doctors and nurses. The process structure in which these factors influence the service quality was also analyzed. As we were concerned that the linearity of

existing causal relationship may cause problems of confusing variables, we conducted an in-depth analysis as to how the quality of medical services triggers the satisfaction of the patients. Therefore, we utilized structural equation analysis modeling by representing the quality of medical services with more ramified potential variances, rather than just several observable variances.

Patients' satisfaction is influenced by the characteristics of the health care service provider and its medical services, and the patient evidences unique behavioral responses to each of these characteristics. The sub-dimensions of the characteristics include person-to-person relationship, technical quality, accessibility, and convenience, economy, efficacy, continuity, availability, and environment. Patient's satisfaction, in particular, is subdivided into orientation toward care and conditions of care [13], in which the orientation toward care represents the patients' response from the use of a hospital in view of their hope and expectation, and the conditions of care represent specific conditions including the method of treatment, the location of the health care institution, the waiting time, the payment, and the treatment results.

With regard to the operational definitions of variances, the definitions for inpatients in their classification of the structural dimensions of patient's satisfaction [14] were utilized in this study. Considering that the 3-level health care delivery system in Korea has all but collapsed, this study analyzes how the different dimensions comprise the SERVQUAL, which has been used in Western countries. Although Korea has passed the transient stage of developing countries in which the transition of the evaluation of the quality of medical services toward patient-oriented viewpoint has occurred [15,16], it failed in subdividing the health care delivery system; additionally, the choice of hospitals made by the public shows such a profound imbalance that 4 or 5 giant hospitals in Seoul, each of which accommodate more than 2,000 beds, completely dominate the

entirety of the national health care system. Therefore, the research [14] conducted a survey at one 3rd level medical institution (2,200 beds), one provincial private hospital (550 beds) and one public hospital (300 beds), applying all existing scales. They employed all of the eleven scales developed in Western countries, namely: materiality, credibility, responsiveness, person-to-person contact, sympathy, systemicity, responsibility, completeness, accessibility, mutuality, client understanding, and efficiency [1,8,13,17-20]. The results indicated that the patient satisfaction with the medical services consists of 4 dimensions in Korea: hospital facilities, treatment procedure, medical manpower, and service quality. We developed our hypotheses on the basis of these results.

III. Hypothesis

The following theoretical hypotheses were developed in this study for structural modeling:

- H1: Perceived service quality exerts a positive (+) effect on overall satisfaction.
- H2: Perceived comfort of hospital facilities exerts a positive (+) effect on overall satisfaction.
- H3: Perceived accessibility of the hospital exerts a positive (+) effect on overall satisfaction.
- H4: Perceived quickness of treatment exerts a positive (+) effect on overall satisfaction.
- H5: Perceived of treatment exerts a positive (+) effect on overall satisfaction.
- H6: Overall satisfaction exerts a positive (+) effect on the use of the same hospital again in the future.

The above items, namely, service provided by medical staff, comfort of hospital facilities, accessibility of hospital, speed of treatment (quickness), payment of treatment, and overall satisfaction, are all factors derived from the results of factor analysis. According to the relevant literature [11,12,14,21], the theoretical basis of each of the hypothesis are: the relationship between doctors and nurses and

satisfaction, the relationship between hospital facilities and satisfaction, the relationship between procedures and payment of treatment and satisfaction, and the relationship between satisfaction and willingness to use again. However, there is a limitation in the precedent studies and those using the models for covariance structure analysis models, in that they reviewed only linear models of service quality, satisfaction, and loyalty (intension of future use) [21].

First, we must determine the SERVQUAL scales that have been proven with regard to their validity for the Korean environment under circumstances in which some structural variances that had been overlooked are being reported as the constituent variances of service quality [14]. Secondly, we will propose a general model for covariance structure analysis to complete a precedent study [12] which asserted that the composition of independent variables of SERVQUAL differs depending on the types of patients (In-/Out-patient). Thirdly, we will confirm the hypothesis that the components of the satisfaction of patients differ between 1st level health care institutions and 2nd and 3rd level institutions. This is because the fact that patients tend to seek treatment in large university hospitals in Seoul must justify the hypothesis that the component of satisfaction with the 1st level health care institutions differs from those of 2nd and 3rd level institutions.

RESULTS

I. Socio-demographic Characteristics of the Subject Patients

Table 1 shows socio-demographic characteristics of the survey respondents. 60.3% of the subjects were females and the age group from 30 - 39 was the largest age group, comprising 31.2% of the total. Nearly half (49.8%) of the subjects were college graduates and 66.4% were married. Full-time housewives and office clerks accounted for 17.1% and 15.8% respectively, and 31.9% came from households

Table 1. General characteristics of survey data set

Contents	Frequency	Percentage
Gender		
Male	123	39.7
Female	187	60.3
Age		
20 - 29	94	30.2
30 - 39	97	31.2
40 - 49	55	17.7
50 - 59	32	10.3
60 ≤	33	10.6
Education		
Under high school	136	44.3
College	153	49.8
Graduate School	18	5.9
Marital status		
Single	102	33.6
Married	202	66.4
Occupation type		
Professional/technical	46	14.8
Service	27	8.7
Production	14	4.5
Self-employed	41	13.2
Administrative/Clerical	49	15.8
Homemaker	53	17.1
Others (students, military, unemployed)	76	24.5
Monthly average household income		
< \$1,000	17	5.8
\$1,000 - \$1,999	71	24.1
\$2,000 - \$2,999	94	31.9
\$3,000 - \$3,999	57	19.3
\$4,000 - \$4,999	31	10.5
> \$5,000	24	8.1
Facility type		
Hospitals	172	55.5
Clinics	138	44.5
Medical department visited		
Internal	82	26.5
Surgery	169	54.7
Others	58	18.8
Total*	310	100

* Total may not be 100 percent due to missing values

with monthly incomes of over 2 million but less than 3 million won. Outpatients of hospitals accounted for 55.5%, which is slightly higher than the users of clinics, which were 44.5%. 54.7% of the patients employed surgical services, including orthopedics and ophthalmology, as compared with 26.5% who utilized internal medicine services.

II. Exploratory Factor Analysis of Medical Service Quality Perceived by the Patients

In order to identify the dimensions of the quality of medical services as perceived by the patients, an exploratory factor analysis was conducted using 29 questions (Table 2). The principal component method and varimax rotation were employed for the analysis. Five

Table 2. Results of factor analysis on patient satisfaction questionnaire

Questionnaire items	Factor loading				
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Overall satisfaction					
Q32 (recommending reuse)	0.8033	0.2549	0.1725	0.2132	0.0566
Q33 (willingness to reuse)	0.7932	0.1893	0.2654	0.1326	0.0671
Q31 (suggest to use)	0.7823	0.2095	0.2315	0.1384	0.0776
Q30 (satisfaction on use)	0.6835	0.3706	0.2163	0.2248	0.1562
Q29 (overall satisfaction)	0.6687	0.2630	0.0829	0.3001	0.1788
Q28 (satisfaction on medical quality)	0.6131	0.3314	0.0749	0.3096	0.1807
Doctors and nurses					
Q13 (Easiness of asking questions to doctors)	0.2601	0.7619	0.2560	0.2019	0.0729
Q14 (Doctor's attitude toward patient's opinion)	0.2930	0.7528	0.2505	0.1517	0.0961
Q15 (Comfort provided by doctors)	0.3412	0.7132	0.2247	0.2242	0.1638
Q16 (Doctors' attitude toward patients' health management plan)	0.2694	0.7124	0.2248	0.1928	0.1535
Q12 (Doctors' explanation)	0.2723	0.7062	0.1086	0.3258	-0.0374
Q17 (Nurses' hospitality)	0.2118	0.4577	0.2603	0.4107	0.1473
Medical procedures					
Q8 (appropriateness of wait time)	0.0407	0.2784	0.7550	0.1792	0.0753
Q7 (Keeping appointment time)	0.0884	0.2626	0.7361	0.1493	0.1260
Q9 (Easiness of making payment)	0.0927	0.3461	0.6842	0.1837	0.2259
Q10 (Promptness of exam process)	0.2264	0.2731	0.6241	0.2502	0.1128
Q26 (appropriateness of exam fee)	0.5427	-0.0251	0.6175	0.0845	0.1389
Q25 (appropriateness of medical treatment fee)	0.5484	-0.0412	0.6151	0.0285	0.1122
Comfortableness					
Q5 (Newest medical equipment)	0.1806	0.2139	-0.1633	0.7090	-0.0486
Q3 (Cleanness of peripherals)	0.1287	0.1876	0.2401	0.7082	0.0838
Q2 (Cleanness of interior)	0.2071	0.1597	0.2765	0.6875	0.2031
Q1 (Cleanness of surrounding environments)	0.2482	0.1089	0.2044	0.6270	0.2103
Q6 (Easiness of making appointment)	0.1611	0.2442	0.1709	0.6064	-0.2458
Q4 (Comfort during the wait time)	0.3315	0.1886	0.3881	0.5592	0.0824
Accessibility					
Q22 (Distance to facility)	0.0789	-0.0158	0.2035	-0.0334	0.7887
Q23 (Easiness of finding the facility)	0.0244	0.2427	0.0560	0.1080	0.7836
Q21 (Easiness of transportation)	0.2294	0.0046	0.1163	-0.0564	0.7805
Q24 (Location of facility)	0.1931	0.1301	0.0968	0.2046	0.7088

factors were identified from the results of the analysis (Table 2) of which the dimensions are; the quality of medical services (factor 1), medical staff (factor 2), treatment procedures (factor 3), comfort (factor 4) and accessibility (factor 5). As compared with a precedent study which evaluated the satisfaction with medical services using structural equation modeling (SEM) [15], it should be noted that, in our study, the satisfaction with medical staff (doctor satisfaction) appeared as a single dimension without any differentiation of satisfaction with doctors from satisfaction with nurses, and that the treatment procedure, comfort, and accessibility were also identified as the factors. Perhaps this can be explained by the presumption that, as the satisfaction with the doctors in the precedent study was predicated on the perceptions of inpatients, it may have already been reflected in the satisfaction with medical procedures, whereas in our study, the satisfaction with medical services was pronounced independently,

because the subjects used in our study were outpatients. The overall satisfaction and willingness to use the same medical institution again in the future also appeared as one dimension (factor 1). However, we designed a 3-level SEM model that differentiated these two, as overall satisfaction is a perceptive reaction and willingness to use again is a behavioral reaction. Although the treatment procedure is a combined single factor, it is actually concerned with two different dimensions-payment and time. Therefore, we divided it into speed of treatment (quickness) and treatment payment in our later analysis.

The reliability for each question regarding the quality of medical services perceived by the patients was determined for each dimension, using Cronbach's alpha coefficient. The overall reliability of the 28 questions determined by factor analysis was 0.944. The reliability for each factor was 0.860 for overall satisfaction, 0.912 for willingness to use again, 0.924 for speed of treatment, 0.813 for

accessibility, 0.831 for comfort, and 0.902 for treatment payment.

III. Multiple Regression Analysis of Overall Satisfaction

Using OLS linear regression analysis, we assessed the effects of factor score from factor analysis on overall satisfaction with hospital under the controlled condition of the principal socio-demographic characteristics of the patients who utilized outpatient treatment services and the number of visits to the hospital (Table 3). For this, by only using latent variables (Italic variables) that can be extracted as the first score of each factor from the individual factor analysis, we named our independent variables same as the latent variables in Figure 1. Thus, we could able to analyze the factor score regression without mathematical impossibility. The entire model was statistically very significant and the corrected R square value was 0.531, thereby indicating that 53.1% of the variance of the satisfaction of all the users could be explained by these independent variables.

According to these results, no socio-demographic factor had any significant effect on satisfaction, which indicates that the sample used in this study can be considered a universal representation. As each hospital has distinct characteristics, it is difficult to use a stratified sampling method. Therefore, examining the effects of socio-demographic factors post-factum would be the best alternative. Unlike the socio-demographic factors, the scores of the derived factors evidenced significance. In particular, satisfaction with the medical staff, payment and comfort of hospital facilities were statistically significant. The structural equation model was developed on the basis of these results.

IV. Estimation Using Structural Equation Model

Reviewing the path coefficients of potential factors, we determined that the determining

Table 3. Results of multiple regression analysis on overall satisfaction for all outpatients

Variables	Unstandardized coefficient		Standardized coefficient	t	p-value
	Beta	SE	Beta		
(constant)	0.171	0.332		0.515	0.607
Gender*	0.034	0.089	0.017	0.384	0.701
Age †	-0.042	0.044	-0.053	-0.957	0.340
Marriage*	-0.103	0.096	-0.054	-1.068	0.287
Occupation*	-0.001	0.016	-0.004	-0.093	0.926
Income †	0.019	0.035	0.026	0.545	0.586
Education †	0.060	0.066	0.044	0.910	0.364
<i>Hospital revisiting †</i>	-0.038	0.026	-0.074	-1.462	0.145
<i>Payment</i>	0.223	0.054	0.226	4.147	0.000
<i>Accessibility</i>	0.088	0.049	0.089	1.818	0.070
<i>Doctor satisfaction</i>	0.408	0.065	0.397	6.304	0.000
<i>Quickness</i>	0.027	0.063	0.027	0.430	0.668
<i>Comfortableness</i>	0.218	0.060	0.220	3.634	0.000

SE: standard error
 * Binary variable (the reference group is male, single, unemployed), †Continuous variable (the older, the higher income, and the higher educated had more hospital visits.)

Table 4. Regression coefficients

Path	Estimate	SE	CR	p-value
Overall satisfaction ← Doctor satisfaction	0.451	0.077	5.894	0.001
Overall satisfaction ← Comfortableness	0.262	0.082	3.198	0.001
Overall satisfaction ← Accessibility	0.104	0.049	2.113	0.035
Overall satisfaction ← Quickness	-0.064	0.063	-1.019	0.308
Overall satisfaction ← Payment	0.145	0.039	3.745	0.001
Hospital Revisit ← Overall satisfaction	1.383	0.103	13.395	0.001

SE: standard error, CR: critical ratios

factors in the satisfaction with the service were the satisfaction with medical staff (doctor satisfaction) and the reasonability of the payment (Table 4).

This result bolsters the findings of a precedent study in which the fundamental determining factor for the satisfaction with hospital and the willingness was shown to be satisfaction with the quality of medical services [22]. Although the satisfaction with nurses, who provide a great deal of person-to-person contact and care services in practice, is second to the satisfaction with doctors in importance for in-patients, it was not derived separately as a factor in the case of outpatients. On the other hand, the reasonability of payment evidenced significant importance, thus reconfirming that the payment factor is not always overlooked in the forming of willingness by patients to use the same hospital again.

Other factors that were shown to be significantly important were comfort and accessibility. The degree of comfort reflects the manner in which the internal facilities and treatment procedures are organized for the benefit of the patients, rather than how the

external facilities are. The accessibility represents how close the hospital is and how conveniently it is located for commuting. The significance of the comfort and accessibility factors means that patients will consider them in making their choice of hospital, in as far as it has kind, quality medical staff and its payment is affordable. These results, departing from the treatment quickness factor, are believed to reflect the recent changes in selection factors. However, this should not be decisively interpreted as changing criteria, as the hospital today is organized, without exception, in such a way as to make the patient inevitably wait for long hours, thus depriving them of any expectation of quick treatment in the first place. Therefore, it seems that the relative significance among factors are determined as analyzed, as the patients consider factors other than quick treatment. In other words, we believe that the determining factors for satisfaction have been shifted in a changing environment in which patients would rather make their own selection of hospital rather than considering the general institutional and market conditions of health care as demands for the

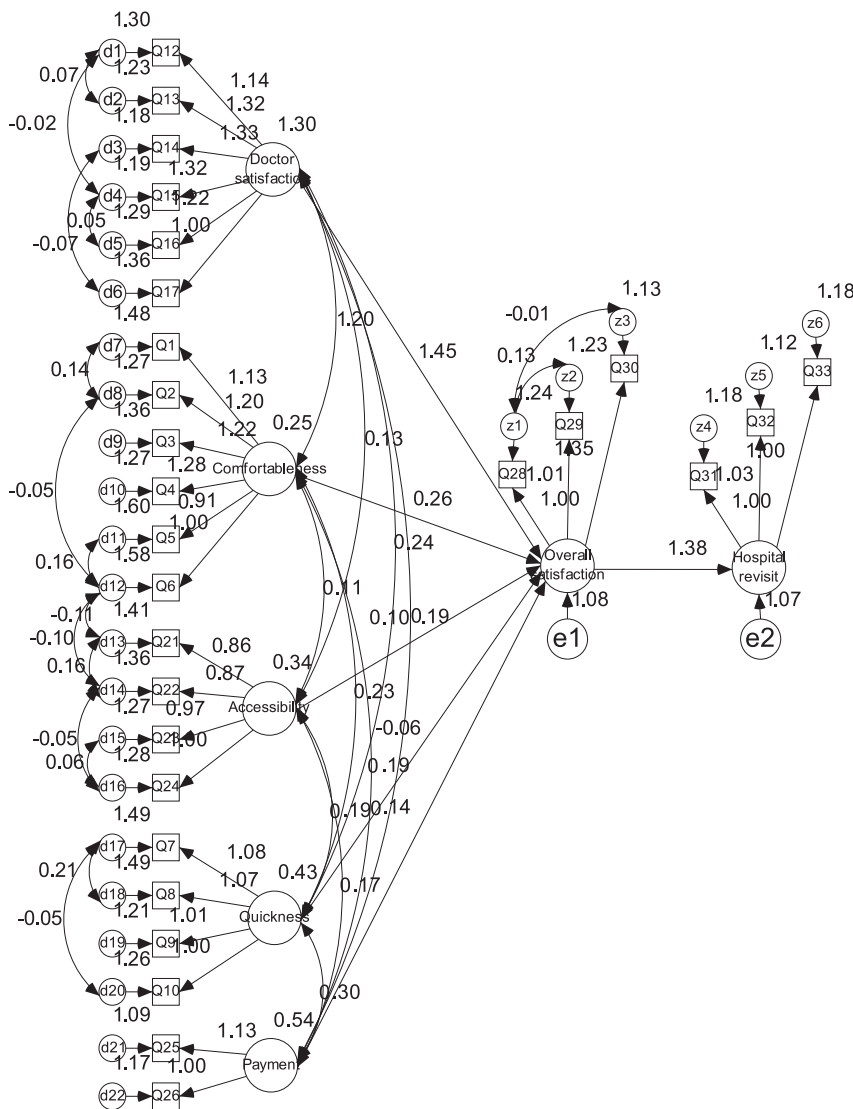


Figure 1. SEM model of the patient satisfaction among hospital outpatients SEM: structural equation modeling.

quality of medical services increased.

The SEM model of patient satisfaction among hospital outpatients was constructed on the basis of these results, as shown in Figure 1.

The “goodness of fit” of the model was evaluated as follows using the absolute goodness of fit index, which is the indicator of the goodness of input data study models. First, CMIN (discrepancy of MINimum) is the χ^2 value where $\chi^2 = (N-1) \times (\text{input covariance matrix} - \text{estimated covariance matrix})$. The null hypothesis in this case is that the input covariance matrix is equal to the estimated covariance matrix. The goodness of fit is high when the p-value is sufficiently large for the null hypothesis not to be rejected. In this study,

the CMIN was 562.191 and the P-value < .000 at the degree of freedom 318. The CMIN divided by the degree of freedom was 1.768.

Next, the relative goodness of fit was RMR (Root Mean square Residual) = 0.034 (< 0.10), GFI = 0.891 (> 0.90), AGFI (Adjusted Goodness of Fit Index) = 0.861 (> 0.90) (values in brackets are standard values). These values of the RMR representing the variance within the input covariance matrix, the GFI indicating the degree of explanatory power of covariance matrix on covariance, and the AGFI which is the result of applying the degree of freedom to GFI, were all slightly low. However, the value of RMR, which is calculated as the square root mean of the squared errors between input

variances and covariance values was sufficiently satisfactory to make the model acceptable [23].

The most generalized explanatory script regarding patient satisfaction we could draw from the results of our analysis was as follows: when a patient, particularly an outpatient, visits a health care institute, he/she does so with an expectation of the treatment capability of the doctor and will become willing to use the same institution in the future if the patient can be satisfied with the treatment. However, as found in the regression analysis described above, the comfort, rather than the payment, becomes one of the factors in satisfaction, and the accessibility is also considered in the case of treatment at a hospital rather than a clinic. General preference for large hospitals, however, resulted in the speed of treatment no longer being a determining factor for satisfaction. To be more specific, waiting for treatment can not be a component factor in the satisfaction of patients in Korea, where health care insurance is an institutionalized system for all people and, instead, the satisfaction with medical staff carries more weight. With the characteristic general notion of Korean people that a doctor belongs to a hospital, the myth of individuals that they must choose hospitals if they are to be satisfied with their doctors drives them to the hospitals and, in turn, drives the health care delivery system as a whole into a collapse. In other words, rational behavior on a microscopic scale resulted in ‘unintended outcomes’ on a macroscopic scale.

DISCUSSION

In today’s Korea, where the health care market has reached a state of saturation, competition among health care institutions has increased and the demands for quality service by patients are quite high. In particular, the external environment of hospitals in the market has motivated hospitals to alter their management strategies toward client

satisfaction. What forms the foundation for these strategies is the concerns of the medical service industry on SERVQUAL. Medical services provided by medical staff are so technology-intensive that an information asymmetry exists between doctors and patients [24]. Information asymmetry refers to a state in which patients do not have appropriate criteria to judge a product-in this case, medical services-nor can they make an objective evaluation of the services they have received. This is why the relationship between medical services and technology was considered an important characteristic of the medical market in precedent studies [7,18].

However, continuing changes in the market and increased public knowledge regarding general health are transforming the asymmetry between doctors and patients into a functional relationship. The functional relationship here is a concept which arose when it was pointed out that satisfaction with services is not consistently transformed into medical technical concerns. Researchers have argued that, in addition to therapeutic activities, the components of treatment include a variety of dimensions such as service mind, reliability, person-to-person contact, degree of responsibility, systemization of services, accessibility, reciprocity, understanding the clients, and efficiency [3,8,25]. As a high degree of technicality in treatment does not always ensure complete recovery, particularly when the disease to be treated is of a moderate to severe nature, the uncertainty of modern medical services is being increasingly supplemented with SERVQUAL.

In this study, we attempted to identify the determining factors for the satisfaction of outpatients with hospitals, via a structural equation model. The results indicated that the determining factors for general satisfaction with medical services are as follows: satisfaction with medical staff, reasonability of payment, comfort and accessibility. The comfort factor refers to the manner in which

internal facilities, rather than external facilities, and treatment procedures are organized for the benefit of the users. The accessibility factor represents how close the hospital is and how convenient the transportation is. The existence of these two factors indicates that patients would consider comfort and accessibility in their selection of a hospital if the hospital has quality medical staff and its treatment payments are affordable. Such results also show that the factors in one's selection of a hospital have been changed without regard to the speed of treatment. The reason for such changes may involve increased competition in the medical market and increased demands for quality medical services, which drive the patients to visit hospitals on their own on the basis of changed determining factors for satisfaction [26]. The collective behavior of such preferences has caused the collapse of the Korean health care delivery system which, in turn, has exerted negative effects on the financial supply, thus continuously undermining the foundation of the health care insurance system.

A number of hypothesis regarding determining factors that influence willingness to use a clinic or a hospital in the future were formed and tested, and the results are as follows: Hypothesis 1: "The service provided by medical staff exerts a positive effect on overall satisfaction." was validated. Hypothesis 2 "The comfort of hospital facilities exerts a positive effect on overall satisfaction." was validated. Hypothesis 3 "The accessibility of hospital exerts a positive effect on overall satisfaction." was validated. Hypothesis 4 "The speed of treatment exerts a positive effect on overall satisfaction." was rejected. Hypothesis 5 "The payment of treatment exerts a positive effect on overall satisfaction." was validated. Hypothesis 6 "The overall satisfaction exerts a positive effect on the use of the same hospital again in the future." was validated.

Based on the hypothesis validation results, the differences of determining factors of

satisfaction between users of hospitals and the users of clinics were identified that satisfaction with medical staff proved to be the most salient determining factor in both hospital and clinic users. Satisfaction with doctors was more important to those who used clinics as compared to those who use 2nd level or higher hospitals. This single variance was determined to explain much of the satisfaction with medical services by clinic users.

Using a structural equation model, this paper summarized the results of a study performed for the last 15 years on the quality of medical services and patient satisfaction, and derived a causal relationship model for validation. The structural equation model showed that the satisfaction of outpatients with the quality of medical services is influenced by a few sub-dimensional satisfaction factors-namely, satisfaction with medical staff, payment, and the difference between hospitals and clinics. Among these sub-dimensional satisfaction factors, the satisfaction with medical staff and payment were determined to exert a significant effect on overall satisfaction with the quality of medical services. The structural relationship in which overall satisfaction perceived by patients significantly influences their willingness to use the same institution in the future was also verified.

These results compelled us to derive general implications regarding the current status of health care in Korea in two aspects. First, satisfaction with medical staff is most salient for patient satisfaction, although the components of satisfaction in inpatients and outpatients differ depending on the patient type characteristics. However, the importance of the satisfaction with medical staff is also the result of the weakening of other satisfaction components. This means that the social justification has been formed that it is worth paying more and spending more waiting time if one can obtain better treatment. Next, such justifications have brought about the collapse of the health care delivery system, and may cause health inequalities due to regional

imbalances in medical resources and socioeconomic distinction. This will also deepen the competition among hospitals and, as a consequence, increase peoples' health care expenses.

There are several limitations in this study. When collecting the data for this study, we only conducted our survey in one day of the year. Although we attempted to randomly select hospitals and clinics, the number of primary sampling units (i.e., hospitals and clinics) was quite small. When selecting survey respondents, moreover, we employed a convenient sampling method. A generalization of this study is somewhat limited. This study, however, attempted to summarize previous discussions on medical service quality in Korea and proposed a more comprehensive model that incorporates those factors affecting medical service quality perceived by patients. Regarding SERVQUAL research, the impact of systems and policies needs to be used for cross-country comparative research as a new research question.

We must be aware that the microscopic behavior of individuals based on the scales of patient satisfaction will eventually result in an unintended outcome. When planning national health policy, furthermore, it is essential to carefully examine the pattern of health services use by the public and their satisfaction level. By doing so, it would be possible to establish more stable national health policy that incorporates needs of the public. It is, therefore, necessary to continuously monitor the changes in the components of patient satisfaction.

The importance of the satisfaction with medical staff means that the social justification has been formed that it is worth paying more and spending more waiting time if one can obtain better treatment. Moreover, such justifications have brought about the collapse of the health care delivery system, and may cause health inequalities due to regional imbalances in medical resources and socioeconomic distinction.

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Appendix. Reliability, mean, and standard deviation of SERVQUAL

Cronbach's Alpha=0.944					
Items	Mean	Standard deviation	Items	Mean	Standard deviation
Overall satisfaction (a=0.860)			Doctors and nurses (a=0.909)		
Q28	3.515	0.702	Q12	3.727	0.829
Q29	3.482	0.702	Q13	3.585	0.864
Q30	3.536	0.771	Q14	3.686	0.839
Revisit intention (a=.912)			Q15	3.638	0.840
Q31	3.489	0.857	Q16	3.526	0.859
Q32	3.423	0.846	Q17	3.807	0.812
Q33	3.440	0.866	Comfortableness (a=0.831)		
Quickness (a=0.924)			Q1	3.514	0.897
Q7	3.239	1.004	Q2	3.676	0.794
Q8	3.152	0.993	Q3	3.490	0.866
Q9	3.515	0.808	Q4	3.433	0.827
Q10	3.480	0.834	Q5	3.679	0.904
Accessibility (a=0.813)			Q6	3.694	0.931
Q21	3.330	0.822	Payment (a=0.902)		
Q22	3.353	0.795	Q25	3.039	0.888
Q23	3.600	0.768	Q26	2.987	0.852
Q24	3.407	0.788			