

Factors Related to the Willingness to Reuse Services of the Users at a University Hospital's Health Examination Center

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ABSTRACT

In order to survive in such a competitive environment, it is necessary to grasp the needs of individual customers and provide satisfactory comprehensive examination services to enhance their level of satisfaction. The purpose of this study is summarized as follows: first, analyze the level of satisfaction of the users of health examination, second, analyze the service reuse intentions according to their level of satisfaction, third, based on the aforesaid analytical results, provide information necessary for the improvement of the health examination center. For this purpose, the study was conducted to examine a total of 86 patients who underwent a comprehensive examination at a university hospital from October 1st through the 30th in 2017.

1. Introduction

WHO (1986) defined health as “a state of not only being free of diseases or fragile, but also being physically, mentally and socially well.” Everyone desires to live a healthy life and enjoy a quality life. Unlike in the past, the quality of life has increasingly become more advanced, and the demand for medical care has rapidly grown as the national income and the level of education have enhanced. Accordingly, the medical field is also rapidly developing, and the demographic structure is undergoing transformation along with the declining mortality rate, life span is prolonged, and the prevention is increasingly considered more important than treatment after the occurrence of diseases (Nah, Kim, & Kim, 1999; Kim, 2012).

The National Health Insurance Service of Korea provides general health examinations and cancer

screenings for the purposes of preventing and managing illnesses by requiring payment of a free or scheduled examination fees for people aged 40 years or older and their dependents, (Song, 2011; Yang, 2011). Those who do not feel satisfied with the state health examinations are using a comprehensive health examination center where the examinees pay the full cost of the examination, centered around large hospitals. They are now shifting from a mere examinee provided by the state to one who actively evaluates medical quality and selects medical institutions directly (Yang, 2011).

However, when comprehensive examination became a subject of interest, medical institutions rolled out marketing initiatives to add cost discounts and examination items as a way to attract customers, and in the process of attracting customers, exceeded an appropriate number of examinees, causing quality issues for the medical services, among others, further losing accuracy and credibility (Song, 2011). In this paper, we propose a new method to solve this problem. The comprehensive health examinations are much more standardized than state health examinations and can be selected according to age, gender, family history, past medical history, and individual preferences, and there are various package examinations available at hospitals for different pricing. As such, comprehensive health examination is trying to understand the needs of customers, satisfy the areas the state is unable to satisfy, and provide high quality customer-oriented medical services (Kim, 2010).

In particular, the comprehensive examination of the hospitals can provide preventive medical services to the citizens and also reduce costs and generate profits by utilizing existing personnel and space facilities. In addition, the competition among the hospitals is intensifying because of the effect of publicity through the users and the ability to attract patients through outpatient visits during outbreaks and for generating secondary income (Lee et al., 2009; Kim, 2012). In order to survive in such a competitive environment, it is necessary to grasp the needs of individual customers and provide satisfactory comprehensive examination services to enhance their level of satisfaction.

The purpose of this study is summarized as follows.

First, analyze the level of satisfaction of the users of health examination.

Second, analyze the service reuse intentions according to their level of satisfaction.

Third, based on the aforesaid analytical results, provide information necessary for the improvement of the health examination center.

2. Subject and Method of Study

2.1 Data collection

The study subjects were those who underwent comprehensive examination at a university hospital and were able to understand and answer the questionnaire survey of their ages from 20 to 70 years between October and November, excluding elderly patients (over 70 years of age) and endoscopic sleeping patients, and a total of 100 questionnaires were provided. and of these, a total of 86 subjects were chosen to be the subject of final analysis, excluding 14 questionnaires whose responses

were inadequate or missing.

2.2 Selection of variables

General characteristics were consisted of 4 items of gender, age, residential form, and area. Service characteristics were classified into the 4 items of examination technique, reservation service, waiting time, employee satisfaction, and facility and environment. The examination technique was classified into 2 stages, whereas the reservation service was classified into 3 stages, whereas the waiting time was classified into 3 stages, whereas the employee satisfaction was classified into 4 stages, whereas the facilities and environments were classified into 7 stages (Table 1).

Table 1. Definition of variables used for analysis

Classification	Item	Definition of Variable
General characteristics	Gender	① Male ② Female
	Age	① 45 or less ② 45 or more
	Residential form	① Rural area ② Urban area
	Area	① Chungnam ② Daejeon ③ Others
Special characteristics of services	Examination technique	① Level of examination ② Examination equipment and facilities
	Reservation service	① Convenience of examination reservation ② Compliance with examination reservation time ③ Phone or reservation guidance
	Waiting time	① Waiting time after examination reservation ② Examination waiting time ③ Inspection waiting time
	Level of employee satisfaction	① Kindness (consideration) of employees in charge of examination ② Handling of business by employees in charge of examination ③ Kindness (consideration) of employees in the examination room ④ Handling of business by employees of the examination room
	Facilities and environment	① Convenience of transportation ② Information sign boards within hospital ③ Environmental cleanliness within the examination center ④ Examination standby facilities ⑤ Restroom and changing room for examination ⑥ Recreational facilities ⑦ Parking facilities

2.3 Data analysis

The collected data were analyzed using the statistical analysis program, R version 3.4.0, as follows. To analyze the general characteristics of the users of the examination center and the distribution of the service satisfaction of the examination center, technical analysis was conducted. The paired

t-test was used to examine the differences in expectation before and after the use of the service. We analyzed by using t-test and ANOVA to examine the satisfaction of the service center. Pearson's correlation coefficient was used to examine the correlations between the intention to reuse the examination center and among the variables. Multiple linear regression analysis was performed to examine the factors influencing the intention to reuse the examination center.

3. Results

3.1 Comparison of the levels of expectation before and after using the health examination center by the study subjects

As a result of examining 86 users of the health examination center, 36 (41.9%) were males and 50 (58.1%) were females, with the latter being greater in number. As for the age, 51 people were of age 45 or less (59.3%) and 35 people were of age 46 or more (40.7%), with the former being greater in number. As for the residential form, 34 people were rural (39.5%) and 52 people were urban (60.5%), with the latter being greater in number. As for the area, 31 people were of Chungnam (36.05%), 50 people of Daejeon (58.1%), and 5 people were of other areas (5.8%), respectively.

As a result of examining the level of expectation before and after using the health examination center on a scale of 10 points for each, males had 8.6 (± 1.5) points for before use and 9.2 (± 0.9) points for after use, and so the points for the level of expectation for after use relative to before use were higher by 0.7 (± 1.2) point, which was statistically significant ($p < 0.05$). Females had 8.2 (± 1.7) points for before use and 8.5 (± 1.4) points for after use, and so the points for the level of expectation for after use relative to before use were higher by 0.4 (± 1.6) point, which was statistically significant ($p < 0.05$). As for the age, those of age 45 or less had 8.2 (± 1.5) points for before use and 8.6 (± 1.3) points for after use, and so the points for the level of expectation for after use relative to before use were higher by 0.5 (± 1.5) point, which was statistically significant ($p < 0.05$).

Those of age 46 or more had 8.6 (± 1.8) points for before use and 9.1 (± 1.1) points for after use, and so the points for the level of expectation for after use relative to before use were higher by 0.5 (± 1.4) point, which was statistically significant ($p < 0.05$). As for the residential form, those of rural had 8.2 (± 1.5) points for before use and 9.0 (± 1.2) points for after use, and so the points for the level of expectation for after use relative to before use were higher by 0.8 (± 1.1) point, which was statistically significant ($p < 0.01$). Those of urban had 8.4 (± 1.7) points for before use and 8.7 (± 1.3) points for after use, and so the points for the level of expectation for after use relative to before use were higher by 0.3 (± 1.6) point. As for the area, those of Chungnam had 8.3 (± 1.4) points for before use and 9.1 (± 1.1) points for after use, and so the points for the level of expectation for after use relative to before use were higher by 0.8 (± 1.1) point, which was statistically significant ($p < 0.01$). Those of Daejeon had 8.4 (± 1.7) points for before use and 8.7 (± 1.3) points for after use, and so the points for the level of expectation for after use relative

to before use were higher by 0.3 (± 1.6) point, where as for others, those had 7.8 (± 2.2) points for before use and 8.8 (± 1.3) points for after use, and so the points for the level of expectation for after use relative to before use were higher by 1.0 (± 1.4) point (Table 2).

Table 2. Comparison of the levels of expectation before and after using the health examination center by the study subjects

Unit: People (%). Mean \pm Standard Deviation

Variable	Frequency		Level of Expectation			Difference		p-value*
	People (%)		Before Use	After Use	(After use - Before Use)			
Gender	Male	36 (41.9)	8.6 \pm 1.5	9.2 \pm 0.9	0.7 \pm 1.2	0.002		
	Female	50 (58.1)	8.2 \pm 1.7	8.5 \pm 1.4	0.4 \pm 1.6	0.110		
Age	\leq Age 45	51 (59.3)	8.2 \pm 1.5	8.6 \pm 1.3	0.5 \pm 1.5	0.023		
	\geq Age 46	35 (40.7)	8.6 \pm 1.8	9.1 \pm 1.1	0.5 \pm 1.4	0.042		
Residential form	Rural area	34 (39.5)	8.2 \pm 1.5	9.0 \pm 1.2	0.8 \pm 1.1	0.000		
	Urban area	52 (60.5)	8.4 \pm 1.7	8.7 \pm 1.3	0.3 \pm 1.6	0.196		
Area	Chungnam	31 (36.0)	8.3 \pm 1.4	9.1 \pm 1.1	0.8 \pm 1.1	0.000		
	Daejeon	50 (58.1)	8.4 \pm 1.7	8.7 \pm 1.3	0.3 \pm 1.6	0.256		
	Others	5 (5.8)	7.8 \pm 2.2	8.8 \pm 1.3	1.0 \pm 1.4	0.189		
Total		86 (100.0)	8.3 \pm 1.6	8.8 \pm 1.3	0.5 \pm 1.4	0.002		

* As per pair comparison's t-test.

3.2 Level of satisfaction and intention to reuse for each service item of the health examination center

The level of satisfaction for the health examination center's services was measured on a 10 point scale, and the overall level of satisfaction was 8.8 (± 1.2) points. The minimum value was 4.1 points and the maximum value was 10.0 points. For the lower areas, examination technique had 8.6 (± 1.6) points, whereas reservation service had 9.1 (± 1.1) points, whereas waiting time had 8.6 (± 1.5) points, whereas employee satisfaction had 9.3 (± 1.1) points, whereas facilities and environment had 8.6 (± 1.5) points, demonstrating highest points for the employee satisfaction, followed by the reservation service.

As for the examination technique, the level of examination was 8.7 (± 1.5) points, whereas the examination equipment and facilities was 8.5 (± 1.8) points, whereas the convenience of making reservation was 9.0 (± 1.3) points, whereas observation of examination time was 9.0 (± 1.3) points, whereas the phone or reservation guidance was 9.2 (± 1.1) points. As for the waiting time after examination reservation, it was 8.7 (± 1.4) points, whereas the examination waiting time was 8.6

(±1.5) points, whereas the examination waiting time was 8.5 (±1.6) points. As for the level of employee satisfaction, the kindness of employees in charge of examination was 9.3 (±1.1) points, whereas the handling of business by the employees of the examination room was 9.2 (±1.1) points, whereas the kindness (consideration) of the employees of the examination room was 9.3 (±1.1) points, whereas the handling of business by the employees of the examination room was 9.2 (±1.1) points. As for the facilities and environment, the convenience of transportation was 8.6 (±1.8) points, whereas the information sign boards within the hospital was 8.8 (±1.4) points, whereas the environmental cleanliness within the examination center was 8.8 (±1.5) points, whereas the examination standby facilities was 8.4 (±1.9) points, whereas restrooms and changing rooms for examination was 8.5 (±1.9) points, whereas recreational facilities was 8.2 (±2.2) points, whereas the parking facilities was 8.7 (±1.5) points.

The intention to recommend to other people to use the health examination center and the intention to reuse the health examination center of another were measured on a 10 point scale, whereas the intention to recommend was 8.7 (±1.6) points and the intention to reuse was 8.8 (±1.5) points (Table 3).

Table 3. Level of satisfaction for each service of the health examination center and the extent of intention to reuse

(N=86)			
Variable	Mean ± Standard Deviation	Minimum Value	Maximum Value
Level of service satisfaction	8.8±1.2	4.1	10.0
Examination technique	8.6±1.6	4.0	10.0
Level of examination	8.7±1.5	5.0	10.0
Examination equipments and facilities	8.5±1.8	3.0	10.0
Reservation service	9.1±1.1	4.3	10.0
Convenience of examination reservation	9.0±1.3	4.0	10.0
Compliance with examination reservation time	9.0±1.3	5.0	10.0
Phone or reservation guidance	9.2±1.1	4.0	10.0
Waiting time	8.6±1.5	4.0	10.0
Waiting time after examination reservation	8.7±1.4	3.0	10.0
Examination standby time	8.6±1.5	4.0	10.0
Inspection standby time	8.5±1.6	4.0	10.0
Level of employee satisfaction	9.3±1.1	4.5	10.0
Kindness (consideration) of employees in charge of examination	9.3±1.1	5.0	10.0
Handling of business by employees in charge of examination	9.2±1.1	4.0	10.0
Kindness (consideration) of employees in the examination room	9.3±1.1	5.0	10.0
Handling of business by employees of the examination room	9.2±1.1	4.0	10.0

Variable	Mean ± Standard Deviation	Minimum Value	Maximum Value
Facilities and environment	8.6±1.5	3.6	10.0
Convenience of transportation	8.6±1.8	3.0	10.0
Information sign boards within hospital	8.8±1.4	5.0	10.0
Environmental cleanliness within the examination center	8.8±1.5	3.0	10.0
Examination standby facilities	8.4±1.9	1.0	10.0
Restroom and changing room for examination	8.5±1.9	1.0	10.0
Recreational facilities	8.2±2.2	1.0	10.0
Parking facilities	8.7±1.5	3.0	10.0
Intention to recommend	8.7±1.6	5.0	10.0
Intention to reuse	8.8±1.5	4.0	10.0

3.3 Level of satisfaction for the health examination center's services as per the study subjects' general characteristics

As a result of analyzing the level of satisfaction for the services of the health examination center according to the general characteristics of the study subjects, males had 9.1 (±1.0) points relative to females having 8.6 (±1.3) points, which was statistically significant ($p < 0.05$). As for the age, those of age 45 or less had 8.6 (±1.3) points and those of age 46 or more had 9.1 (±1.0) points, and so the level of satisfaction was higher the older they were. As for the residential form, those of rural had 9.0 (±1.0) points and those of urban had 8.7 (±1.3) points, with the former being higher. As for the area, Chungnam had 9.0 (±1.0) points and Daejeon had 8.7 (±1.3) points, whereas for others, it was 8.9 (±1.2) points, with Chungnam being the highest.

As a result of analyzing the level of satisfaction for examination techniques, males had 9.2 (±0.9) points and females had 8.1 (±1.8) points, with females being higher and statistically significant ($p < 0.01$). As for the age, those of age 45 or less had 8.3 (±1.7) points and those of age 46 or more had 9.0 (±1.3) points, and so the higher the age, the higher the level of satisfaction for examination techniques, which was statistically significant ($p < 0.05$). As for the residential form, those of rural had 9.0 (±1.2) points and those of urban had 8.3 (±1.8) points, which was statistically significant ($p < 0.05$).

As a result of analyzing the level of satisfaction for the reservation service, those of age 45 or less had 8.8 (±1.3) points and those of age 46 had 9.5 (±0.8) points, and so the higher the age, the higher the level of satisfaction for the reservation service, which was statistically significant ($p < 0.05$).

As a result of analyzing the level of satisfaction for the waiting time, as for gender, males had 9.0 (±1.2) points and females had 8.4 (±1.6) points, with males being higher and statistically significant ($p < 0.05$).

As a result of analyzing the level of satisfaction for the facilities and environment, as for gender, males had 9.0 (±1.3) points and females had 8.3 (±1.7) points, with males being higher and statistically significant ($p < 0.05$).

significant ($p < 0.05$).

There was no statistically significant variable in the level of satisfaction for the employees following general characteristics (Table 4).

Table 4. Level of satisfaction of the health examination center’s services following general characteristics of the study subjects

Variable		Examination technique		Reservation service		Waiting time		Level of employee satisfaction		Facilities and environment		Total	
		Mean ± Standard Deviation	p-value*	Mean ± Standard Deviation	p-value*	Mean ± Standard Deviation	p-value*	Mean ± Standard Deviation	p-value*	Mean ± Standard Deviation	p-value*	Mean ± Standard Deviation	p-value*
Gender	Male	9.2 ± 0.9	0.000	9.3 ± 1.0	0.156	9.0 ± 1.2	0.038	9.4 ± 0.9	0.186	9.0 ± 1.3	0.046	9.1 ± 1.0	0.023
	Female	8.1 ± 1.8		8.9 ± 1.2		8.4 ± 1.6		9.1 ± 1.2		8.3 ± 1.7		8.6 ± 1.3	
Age	≤ Age 45	8.3 ± 1.7	0.024	8.8 ± 1.3	0.002	8.4 ± 1.5	0.158	9.2 ± 1.1	0.706	8.4 ± 1.6	0.142	8.6 ± 1.3	0.076
	≥ Age 46	9.0 ± 1.3		9.5 ± 0.8		8.9 ± 1.3		9.3 ± 1.0		8.9 ± 1.4		9.1 ± 1.0	
Residential form	Rural area	9.0 ± 1.2	0.049	9.2 ± 0.9	0.312	8.9 ± 1.2	0.085	9.2 ± 1.1	0.826	8.7 ± 1.4	0.536	9.0 ± 1.0	0.333
	Urban area	8.3 ± 1.8		9.0 ± 1.3		8.4 ± 1.6		9.3 ± 1.1		8.5 ± 1.6		8.7 ± 1.3	
Area	Chungnam	9.0 ± 1.2	0.110	9.3 ± 0.8	0.414	9.0 ± 1.1	0.152	9.3 ± 1.1	0.936	8.7 ± 1.4	0.654	9.0 ± 1.0	0.446
	Daejeon	8.3 ± 1.8		8.9 ± 1.3		8.4 ± 1.6		9.2 ± 1.1		8.4 ± 1.7		8.7 ± 1.3	
	Others	8.7 ± 1.4		8.9 ± 1.1		8.5 ± 1.5		9.1 ± 1.2		8.9 ± 1.2		8.9 ± 1.2	
Total		8.6 ± 1.6		9.1 ± 1.1		8.6 ± 1.5		9.3 ± 1.1		8.6 ± 1.5		8.8 ± 1.2	

* As per t test or one-way ANOVA.

3.4 Extent of the intentions to recommend and reuse the health examination center following general characteristics of the study subjects

As a result of analyzing the intention to recommend the use of the health examination center following the general characteristics of the study subjects, as for gender, males had 9.2 (±1.2) points relative to females having 8.4 (±1.7) points, with males being higher and which was statistically significant ($p < 0.05$). As for the age, those of age 45 or less had 8.4 (±1.7) points and those of age 46 or more had 9.2 (±1.3) points, and so the level of satisfaction was higher the older they were, and which was statistically significant ($p < 0.05$). As for the residential form, those of rural had 9.0 (±1.5) points and those of urban had 8.6 (±1.6) points, with the former being higher. As for the area, Chungnam had 9.1 (±1.5) points and Daejeon had 8.6 (±1.7) points, whereas for others, it was 8.6 (±1.5) points, with Chungnam being the highest.

As a result of analyzing the intention to reuse the health examination center following the general characteristics of the study subjects, as for gender, males had 9.3 (±1.1) points relative to females having 8.5 (±1.7) points, with males being higher and which was statistically significant ($p < 0.05$). As for the age, those of age 45 or less had 8.5 (±1.7) points and those of age 46 or more had 9.3 (±1.3) points, and so the level of satisfaction was higher the older they were, and which was

statistically significant ($p < 0.05$). As for the residential form, those of rural had 9.0 (± 1.5) points and those of urban had 8.7 (± 1.6) points, with the former being higher. As for the area, Chungnam had 8.7 (± 1.6) points and Daejeon had 8.8 (± 1.3) points, whereas for others, it was 8.8 (± 1.5) points, with Daejeon and others being higher than Chungnam (Table 5).

Table 5. The extent of the intentions to recommend and reuse the health examination center following the general characteristics of the study subject

Variable		Intention to recommend			Intention to reuse		
		Mean \pm Standard Deviation		p-v ^{alue*}	Mean \pm Standard Deviation		p-v ^{alue*}
Gender	Male	9.2	\pm 1.2	0.012	9.3	\pm 1.1	0.008
	Female	8.4	\pm 1.7		8.5	\pm 1.7	
Age	\leq Age 45	8.4	\pm 1.7	0.021	8.5	\pm 1.7	0.024
	\geq Age 46	9.2	\pm 1.3		9.3	\pm 1.3	
Residential form	Rural area	9.0	\pm 1.5	0.290	9.0	\pm 1.5	0.400
	Urban area	8.6	\pm 1.6		8.7	\pm 1.6	
Area	Chungnam	9.1	\pm 1.5	0.380	8.7	\pm 1.6	0.557
	Daejeon	8.6	\pm 1.7		8.8	\pm 1.3	
	Others	8.6	\pm 1.5		8.8	\pm 1.5	
Total		8.7	\pm 1.6		8.8	\pm 1.5	

* As per t test or one-way ANOVA.

3.5 Factors influencing the intention to recommend the health examination center

In order to learn about the factors influencing the intention to recommend health examination center for the users of health examination center, a hierarchical regression analysis was performed by dividing them into general characteristics and the level of service satisfaction of the health examination center. Independent variables included only those variables demonstrating statistically significant differences in the univariate analysis.

As a result of validating the multicollinearity before performing the regression analysis, the tolerance limit was demonstrated to be 0.1 or more, and the variance inflation factor (VIF) did not exceed 10, and so there was no issue of multicollinearity.

In the first step of the analytical model, gender and age were included among the general characteristics, and the R2 value was 0.140. In the second step, the points for the service's sub area level of satisfaction was included, and the R2 value increased to 0.769. The analytical model was determined to be appropriate as the R2 value, which is the explanatory power of the independent variables used in the analysis model, increased.

When we analyzed with general characteristics only, the extent of the intention to recommend

grew higher as the age was higher for males relative to females, but there was no statistically significant difference in the gender and age as the points for the level of satisfaction for the service's sub area were added.

When the level of satisfaction of the examination technique, which is a sub area of the level of service satisfaction, increases or the level of employee satisfaction increases, the intention to recommend the use of the health examination center also increases, and when comparing the extent to which they influence the intention to recommend the use of the health examination center, the level of employee satisfaction had the greatest influence, followed by the examination techniques (Table 6).

Table 6. Factors influencing the intention to recommend the health examination center

	Stage 1			Stage 2		
	B	t	p-value	B	t	p-value
Male (ref. Female)	0.836	2.554	0.012	0.050	0.265	0.792
Age	0.036	2.685	0.009	0.009	1.089	0.279
Level of medical service satisfaction						
Examination technique*				0.526	5.439	0.000
Reservation service [†]				0.014	0.115	0.908
Waiting time [‡]				0.005	0.054	0.957
Level of employee satisfaction [§]				0.557	4.460	0.000
Facilities and environment [?]				0.011	0.105	0.917
F	6.759			36.996		
R ²	0.140			0.769		
Adjusted R ²	0.119			0.748		
p-value	0.002			0.000		

* Points for the level of satisfaction for the level of examination and examination equipment and facilities
[†] Points for the level of satisfaction for the convenience of examination reservation, compliance with reservation time, and phone or reservation guidance
[‡] Points for the level of satisfaction for the waiting time after examination reservation, examination waiting time, and inspection waiting time
[§] Points for the level of satisfaction for the employees in charge of examination, kindness (consideration) of employees in the examination room, and their handling of business
[?] Points for the level of satisfaction for the convenience of transportation, information sign boards within hospital, environmental cleanliness within the examination center, examination standby facilities, restroom and changing room for examination, and recreational and parking facilities
* The level of examination, the level of satisfaction of the examination equipment and facilities

3.6 Factors influencing the intention to reuse the examination center

In order to learn about the factors influencing the intention to reuse the health examination center for the users of health examination center, a hierarchical regression analysis was performed by dividing them into general characteristics and the level of service satisfaction of the health examination center. Independent variables included only those variables demonstrating statistically significant differences in the univariate analysis.

As a result of validating the multicollinearity before performing the regression analysis, the tolerance

limit was demonstrated to be 0.1 or more, and the variance inflation factor (VIF) did not exceed 10, and so there was no issue of multicollinearity.

In the first step of the analytical model, gender and age were included among the general characteristics, and the R2 value was 0.144. In the second step, the points for the service's sub area level of satisfaction was included, and the R2 value increased to 0.855. The analytical model was determined to be appropriate as the R2 value, which is the explanatory power of the independent variables used in the analysis model, increased.

When we analyzed with general characteristics only, the extent of the intention to reuse grew higher as the age was higher for males relative to females, but there was no statistically significant difference in the gender and age as the points for the level of satisfaction for the service's sub area were added.

When the age increased or the level of satisfaction of the examination technique, which is a sub area of the level of service satisfaction, increases or the level of employee satisfaction increases, the intention to reuse the health examination center also increases, and when comparing the extent to which they influence the intention to reuse the health examination center, the level of employee satisfaction had the greatest influence, followed by the examination techniques and the age (Table 7).

Table 7. Factors influencing the intention to reuse the examination center

	Stage 1			Stage 2		
	B	t	p-value	B	t	p-value
Male (ref. Female)	0.839	2.656	0.009	0.144	0.991	0.325
Age	0.035	2.669	0.009	0.013	2.170	0.033
Level of medical service satisfaction						
Examination technique*				0.462	6.237	0.000
Reservation service [†]				-0.033	-0.356	0.723
Waiting time [‡]				-0.121	-1.663	0.100
Level of employee satisfaction [§]				0.816	8.534	0.000
Facilities and environment [?]				0.010	0.133	0.894
F	6.980			65.669		
R ²	0.144			0.855		
Adjusted R ²	0.123			0.842		
p-value	0.002			0.000		

* Points for the level of satisfaction for the level of examination and examination equipment and facilities

[†] Points for the level of satisfaction for the convenience of examination reservation, compliance with reservation time, and phone or reservation guidance

[‡] Points for the level of satisfaction for the waiting time after examination reservation, examination waiting time, and inspection waiting time

[§] Points for the level of satisfaction for the employees in charge of examination, kindness (consideration) of employees in the examination room, and their handling of business

[?] Points for the level of satisfaction for the convenience of transportation, information sign boards within hospital, environmental cleanliness within the examination center, examination standby facilities, restroom and changing room for examination, and recreational and parking facilities

* The level of examination, the level of satisfaction of the examination equipment and facilities

4. Discussion

As the national income has grown and the quality of life has increasingly enhanced, everyone desires to live a healthy life and prevent diseases. Accordingly, the purpose of this study was to investigate the factors influencing the level of satisfaction and intention to reuse of the users of the university hospital's health examination center, identify the issues of the health examination center, and improve the medical service while increasing the rate of reuse of the users.

Out of the total examinees, 41.9% of males, 58.1% of females, 59.0% of those aged 45 or less and 40.7% of those aged 46 or more were shown. This is a result which is somewhat different from the studies of Kim (2012) and Park (2014), which suggests that women are increasingly engaged in starting economic activities and are more interested in health. In addition, the concept of health is not conceived from the age of 50, but instead, the perception of health is elevated as the level of economy has grown, and it is also because of the increased interest in stress and health caused by economic activities conducted from younger generations.

As for the residential form, 39.5% were rural and 60.5% were urban, with the urban areas being higher. Among the urban areas, 36% were of Chungnam and 50% of Daejeon, with Daejeon being the highest. It is a university hospital located in the city of Daejeon, and for the advantages it has in distance and location in Daejeon and Chungnam area, it is necessary to secure examinees by developing a strategy of actively publicizing to them. In addition, the level of expectation before use was 8.3 points on a 10 point scale, but the level of expectation after use was 8.8 points, demonstrating that the level of satisfaction is higher than that of before use. The level of satisfaction of the health examination service which can increase the level of satisfaction of the service had a total of 5 items classified into 19 categories, and the technical analysis was performed to learn about the distribution of level of service satisfaction for each item on a 10 point scale. As a result of the level of satisfaction, the mean level of service satisfaction was 8.8 points, of which the level of employee satisfaction was the highest, followed by reservation service, examination technique, waiting time, and facilities and environment, which resembled those of the study conducted by Park (2014).

Reviewing the level of employee satisfaction for each sub area, the kindness (consideration) of the employees in charge of examination was the highest, followed by the level of kindness and handling in the examination room. As such, the level of employee satisfaction and examination technique, equipment and facilities can be seen to have a significant influence on the level of satisfaction as with any hospital or patient.

As for the level of satisfaction of service following general characteristics, males had 9.1 points and females had 8.6 on a 10 point scale, with males being more satisfied. This is a result which is different from the study conducted by Song (2011), which we believe that this difference might originate from the individual's state of health on the day concerned, extent to which costs are paid, and the presence or absence of the discovery of disease. In addition, as for the age, those of age 45 or less had 8.4 points and those of age 46 or more had 9.2 points, and so the higher the age, the higher the level of satisfaction, and those of rural and urban were 9.0 points and 8.6 points, with the rural being higher. This suggests that as the age increases, the interest in health

increases, and the more people live in rural areas, the more likely they are exposed to the risk of diseases.

The intentions to reuse and recommend on a 10 point scale were the means of 8.8 points and 8.7 points each, demonstrating very high points, which we believe is due to the increase in the patients' desire for disease prevention and health care for themselves, fueling growth in the quality of medical services, and consequently, growth in the level of satisfaction and the intentions to reuse and recommend. According to the study results of Park (2013), 489 people, or 90.8%, out of 538 respondents said that they "have the intention to reuse," a result which was consistent with the results of this study.

The results concerning the reasons for the intention to reused demonstrated high results in the level of service satisfaction ($r=0.829$) and the intention to recommend ($r=0.918$), and in the sub area of the level of service satisfaction, a high quantity of correlation was demonstrated in the sub areas of examination technique ($r=0.832$), reservation service ($r=0.575$), waiting time ($r=0.580$), level of employee satisfaction ($r=0.838$), and facilities and environment ($r=0.743$). As for the results on the reasons for the intention to reuse, the kindness of employees was 26.5%, being the highest, and was consistent with Park (2013). In addition, the factors influencing the intention to reuse were demonstrated to be service value, level of service of medical services, and number of visits, the variables of which explained a total of 31.9% of the intention to reuse, and the service value was the largest factor of influence on the intention to reuse and was consistent with the study results of Song (2011). In addition, the higher the intention to reuse for a customer, the higher the intention to recommend, so the focus has to be placed on the service system of the employees to ensure that the level of employee satisfaction can be much felt.

5. Conclusion

This study was conducted to examine a total of 86 patients who underwent a comprehensive examination at a university hospital from October 1st through the 30th in 2017, and the results of analyzing the factors influencing the intention to reuse the services of the users of a university hospital's health examination center are summarized as follows.

First, the comprehensive examination users were consisted of males (41.9%) and females (58.1%), demonstrating those of the age 45 or less to be 59.0% and those of the age 45 or more to be 40.7%. In addition, residential areas were demonstrated to be Daejeon and Chungnam regions for 94.1%, and while the level of expectation before use was 8.3 ± 1.6 points, it was 8.8 ± 1.3 points after use, so it turned out that the level of satisfaction was higher after use.

Second, the level of satisfaction and related factors were the mean of 8.8 ± 1.2 , and the level of employee satisfaction was the highest with 9.3 ± 1.1 points, and the facilities and environment being the lowest with 8.6 ± 1.5 points, respectively.

Third, as for the level of satisfaction for general characteristics, males had 9.1 ± 1.0 points and females had 8.6 ± 1.3 points, with males having a higher level of satisfaction. In addition, for the age, those of age 45 or less had 8.4 ± 1.7 points and those of age 46 or more had 9.2 ± 1.3 points,

so the higher the age, the higher the level of satisfaction, and those of rural had 9.0 ± 1.5 points and those of urban had 8.6 ± 1.6 points, with the rural being the higher.

Fourth, the intentions to reuse and recommend on a 10 point scale had a very high ratio with the means of 8.8 ± 1.5 points and 8.7 ± 1.6 points. The results of the reasons for the reuse showed high results in the level of service satisfaction ($r=0.829$) and the intention to recommend ($r=0.918$). As for the sub area of the level of satisfaction, a very high quantity of correlation was demonstrated in the sub areas of examination technique ($r=0.832$), reservation service ($r=0.575$), waiting time ($r=0.580$), level of employee satisfaction ($r=0.838$), and facilities and environment ($r=0.743$).

In conclusion, the level of satisfaction of the comprehensive examination of a general hospital showed that the greatest influence was the level of employee satisfaction, and the higher the age, the more rural areas which lack many hospitals.

Finally, it was demonstrated that the more kind the employees are, the higher the intentions to reuse and recommend.

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