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Horizontal Inequity in Health Care Use and Out-of-pocket Payment in Korea

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Contents

Contents

List of Tables

Contents

Contents

Contents

Chapter

01

Introduction

Chapter 1

Introduction

Section 1. Rationale and Purpose of the Study

Many studies have revealed over the years health disparities between people of different socio-economic groups. It is already a well-known fact that the wealthier or better educated segments tend to be healthier than their less privileged counterparts (Veugelers & Yip, 2003).

Various attempts have been made to analyze how disparities in health arise between different groups. Among the factors that affect the health of people from different socioeconomic strata are the differences in their lifestyle habits, such as smoking, dietary patterns, and physical exercise (Hertzman, Frank, & Evans, 1994; Whitehead, 1988); and in healthcare use, not least in the use of primary care services (Black et al., 1988; Davis, Gold, Makuc, 1981). In addition, the financial burden of using health care services is one of the most important factors underlying differences health status across different socioeconomic groups (Veugelers & Yip, 2001; Yip, Kephart, & Veugelers, 2002). Out-of-pocket costs for care can be a sticking point for people of socioeconomic strata in their access to even primary care. This may in turn lead to increases in disease among low-income groups(kim, 2011 recited).

Such is the background for the emphasis on horizontal equality

with regard to the access to health care services along with efficient delivery of health and medical services as policy goals of so many countries (van Doorslaer, Masseria, & Koolman, 2006). Access to healthcare service refers to the opportunity to utilize the service when there is a need in theory (Oliver & Mossialos, 2006). The right to access healthcare service guarantees the freedom and competency to fulfill the function called health, thus is said to be one of the basic human rights (Sen, 1999; kim, 2011 recited).

One of the main goals of introducing the National Health Service is to guarantee accessibility to healthcare facility so as to allow the delivery of adequate amount of medical service regardless of the ability of the population to pay for the service. If we agree that one of the main objectives of health insurance is to eventually improve the health of all nationals by allowing access to the necessary medical services regardless of income level or other socioeconomic status, then the degree of equity in the utilization of the current healthcare system under the National Health Insurance (NHI) coverage becomes one of the major policy interests (The Korean Society for Equity in Health, 2007).

It is true that NHI, implemented in 1989, helped the Korean people to have better access to healthcare services. However, factors influencing the equity of healthcare utilization still remain among different income levels because economic barriers such as out-of-pocket medical payment of the patient still exist (Yoon et al, 2011; Kim, 2011 recited).

Countries such as the U.K., Canada, Finland and Sweden, which offer universal coverage, also have experienced inequity

among socioeconomic groups in using healthcare service. In Asia, reports of such inequity were made in Thailand and Japan. Compared to these countries, the degree of inequity in Korea is more severe. This is attributable to the low protection of health insurance and the unique mechanism of the health market comprising mostly private health institutions.

Equity in healthcare use has been examined in previous studies in terms of vertical equity and horizontal equity. Horizontal equity is about whether equal treatment is provided to those with the same healthcare needs. Most of these studies compared Korea with countries in Europe or OECD countries on horizontal equity in utilization of healthcare. In particular, studies on healthcare delivery by country and the equity in the utilization of the healthcare system and such facilities were done by country.

To compare differences among countries, studies have measured the equity in utilization of healthcare among all adults. Not many studies were carried out to measure the equity by population. The study analyzing the influence of the factors on the equity by population has not been done yet, until now.

Equity in healthcare utilization is not allocated by socioeconomic status (eg. income) but refers to the equal treatment for equal need. Equity in healthcare service use by population is a theme that deserves more attention for two reasons. First, unlike in the past, the demographic structure is changing at a rapid pace. Second, it is meaningful to identify the group especially sensitive to health or healthcare utilization amid the growing income inequity with the rapid economic changes like today.

Meanwhile, equity from the policy viewpoint is often considered

to be extremely important in leading the policy and to which the direction of the policy is heading. For instance, one of the four principles of Ireland's healthcare system is "equity and fairness" (Department of Health and Children, 2001). The definition of equity in policies concerning health service is very ambiguous. Some researchers insist that the equity should be defined based on equal access to the healthcare service (Le Grand, 1982; Mooney, 1983; Mooney et al., 1991; Mooney et al., 1992), but others say that equity must be analyzed in view of the utilization of healthcare (Culyer et al., 1992; O'Donnell et al., 1991).

As early as in the early 1980s, Mooney (1983) and Le Grand (1982) said that most health policies defined equity in healthcare use to guarantee an equal access to equal treatment for health needs. What's important is the level of health service use of individuals and the utilization of healthcare is determined by the demand for health service by individual. Individuals use health services in different manners even if they have the same needs. Consequently, the focus should be on the demand and the actual utilization of healthcare rather than the desire or needs for healthcare.

Culyer, van Doorslaer, and Wagstaff (1992a; 1992b) asserted that the demand curve should be drawn differently for each individual and the characteristics of each group even if the individuals actually use different healthcare facilities. Therefore, it is essential to analyze the cause determining the different demand curves, why they are shaped differently and what causes them to change such as income level. In other words, we must find out the true source of inequalities among different groups by

looking carefully into whether the patterns of healthcare utilization are different, the reasons for such differences, and important factors influencing the utilization of healthcare service.

Section 2. Contents

This study includes the following:

- Analysis of equity in the utilization of outpatient, emergency and inpatient healthcare services among different income classes.
- Analysis of equity in the expenditure paid when using outpatient, emergency, and inpatient healthcare services by income classes
- Proposal of policy alternatives to enhance equity in utilization of Korean healthcare services

Chapter

02

Data and Method

Chapter 2

Data and Method

Section 1. Data

1. Korea Health Panel Data

This study used data from the 2008 and 2009 Korea Health Panel (KHP) survey conducted jointly by the Korea Institute for Health and Social Affairs and the National Health Insurance Corporation.

The main objective of the KHP survey is to build panel data that allow comprehensive and in-depth analysis of not only the information on healthcare utilization behavior and health payment expenditure size, but also the factors that influence the healthcare utilization and medical expenses (Jung et al., 2009). The survey has been conducted by the National Health Insurance Corporation and the Korea Institute of Health and Social Affairs since 2008.

The KHP allows independent estimation of healthcare utilization and medical expenses based on its sample of a total of 8,000 households in 16 metropolitan cities and provinces across the country. In this study, a total of 9,014 households including 722 sample households selected in the preliminary study and 8,292 households finally selected were chosen. Eventually, 7,866 households were selected as original sample households (Jung et al. 2009).

The KHP conducted a survey of socio-demographic

characteristics of households and household members. The survey was carried out to find the number of members in the household, the composition of households, income, residential type, subscription to private insurance while the survey on members of the households asked age, sex, educational background, profession, health insurance type, chronic illnesses and use of medicine/medical supplies, frequency, and medical payment for services including emergency/inpatient/outpatient and childbirth.

The KHP survey is a specialized panel survey in the medical field. It is valued not only as the only panel data on health care use and payment but also as an important source for understanding equity in health care use among Koreans.

In particular, the panel data is used to control individual variables that can impact the utilization of healthcare in a relatively stable manner. Also, in regard to the need for healthcare utilization, it is relatively easy to identify the illnesses or health status of individuals, which acts as an advantage in analyzing the equity of healthcare utilization and medical expenses.

The data used in this study is KHP data beta version 1.0 provided by the National Health Insurance Corporation. Use of the data was approved by the Corporation prior to this study.

2. Study Subjects

Of the subjects selected for final analysis of this study, 43.77% were men while 56.23% were women. In terms of age group, people in their 40s were the most numerous at 21.63%, then 30s (21.30%), with 50s (17.71%) last. Over 74% of the subjects

were married in terms of marital status. High school graduates comprised 37.59% with those who graduated from junior college standing at 27.75%.

40.31% of the respondents were not carrying out any economic activities. 4.17% of the respondents were receiving medical benefit or some kind of privilege benefits. Of all the respondents, 78.83% were subscribed to more than one private insurance policy per household.

Of the respondents, 5.28% were legally disabled, 47.46% had more than one chronic illness, and 22.16% were smokers. Overall, the quality of health-related life was higher for men than for women.

In terms of healthcare utilization, 18.36% had outpatient visits, 6.49% had emergency care, and 9.94% with inpatient experience. Women had more inpatient experience than men. In terms of frequency, women had a higher frequency number than men in outpatient and inpatient healthcare or the same in emergency health care experience. Medical payment was also spent more by women than by men.

〈Table 2-1〉 General characteristics of the subjects

(unit: %, persons, KW)

Variable	Total	Male	Female	p-value
Total	100.0 (13,058)	100.0 (5,716)	100.0 (7,342)	
Age group				
20s	12.25	11.56	12.78	
30s	21.30	20.50	21.93	
40s	21.63	22.52	20.93	
50s	17.71	18.14	17.37	0.008
60s	16.12	16.52	15.81	
70s	9.41	9.45	9.38	
Over 80s	1.59	1.31	1.80	
Marital Status				
Married	74.14	78.27	70.92	
Separated/bereaved/divorced	11.69	5.04	16.86	0.000
Single	14.18	16.69	12.22	
Education level				
Elementary school or lower	23.00	16.36	28.17	
Middle school	11.66	11.14	12.07	0.000
High school	37.59	40.26	35.51	
junior college or higher	27.75	32.24	24.26	
Economic activity				
No	40.31	23.29	53.57	0.000
Yes	59.69	76.71	46.43	
Health insurance coverage				
Health insurance	95.71	95.87	95.59	
Medical benefit/privilege	4.17	4.01	4.30	0.684
No subscription/disqualified/ Suspended	0.11	0.12	0.11	
Private health insurance				
No	21.17	21.24	21.13	0.875
Yes	78.83	78.76	78.87	
Disability				
No	94.72	93.28	95.83	0.000
Yes	5.28	6.72	4.17	
Chronic illness				
None	52.54	57.58	48.62	0.000

Variable	Total	Male	Female	p-value
1	21.89	21.69	22.05	
2 or more	25.56	20.73	29.32	
Smoking				
Current smoker	22.16	46.69	3.05	
Previous smoker	14.85	31.21	2.11	0.000
Non smoker	63.00	22.10	94.84	
Activity limitations				
Yes	94.49	94.28	94.65	0.361
No	5.51	5.72	5.35	
EQ-5D score	0.8981	0.9200	0.8811	0.000
Outpatient healthcare experience				
No	81.64	26.47	12.04	0.000
Yes	18.36	73.53	87.96	
Average number of outpatient health care utilization	12.57	10.02	14.55	0.000
Emergency healthcare experience				
No	93.51	93.65	93.39	0.557
Yes	6.49	6.35	6.61	
Average number of emergency health care utilization	0.08	0.08	0.08	0.861
Inpatient healthcare experience				
No	90.06	91.36	89.05	0.000
Yes	9.94	8.64	10.95	
Average number of inpatient health care utilization	0.13	0.12	0.14	0.069
Average outpatient health payment	301,658.80	255,069.80	337,930.00	0.000
Average emergency health payment	4,395.98	4,118.79	4,611.77	0.459
Average inpatient health payment	101,026.40	88,367.93	110,881.50	0.031

3. Variable composition

The KHP survey provides a wide scope of information about healthcare use behaviors and medical expenses, which allows identification of utilization rate for emergency/inpatient/outpatient

health care respectively. This study aims to measure the equity among different income classes on the frequency of healthcare utilization and medical expenses distinguishing emergency/inpatient/outpatient.

Meanwhile, independent variables used in this study will be variables known to have relations with healthcare utilization of existing study outcome. For example, Andersen & Newman (1973) defined variables into predisposing (eg. sex, age), enabling (eg. income), illness (eg. sickness or health status) in proposing a model for healthcare utilization. According to Health Canada (1995), factors impacting health are as follows: socio-economic environment, infant and youth environment, physical environment, health service, biological and genetic factors. The variables of health service are divided into health service expenses, service delivery, health service access level, use of medicine and medical supplies, unfulfilled health needs, and alternative health service.

To measure the health status or sickness status for each individual that can become important variables related to the need for healthcare utilization, using illness-related data for each individual may be a good idea. One of the disease-related variables that can be drawn from the KHP survey is the number of chronic illnesses.

A. Frequency of healthcare utilization and health payment

The frequency of healthcare utilization was defined as the number of outpatient/inpatient/emergency visits to healthcare institution during January~December 2008. Health payment refers

to the amount paid by the patient plus the amount paid to the healthcare institution either on emergency, inpatient or outpatient visits (out-of-pocket payment for covered services + out-of-pocket payment for uncovered services) and the amount paid for prescription drugs. It was calculated the same way as the frequency of healthcare utilization divided into outpatient, inpatient, and emergency payments.

Free treatments, payment made by insurance companies for traffic accident to be paid to medical institution, or in cases where payment was considered to be industrial accidents were marked with 0 won. Prescriptions not prescribed at pharmacies or in cases where patients did not make payments were also marked with 0 won. Emergency payment included ambulance use and transportation use payments.

All the data were for visits to emergency rooms in 2008 and the beginning and end dates in the year 2008 in case of hospitalization (inpatient). The dates beginning in 2007 and ending in 2008, and the dates beginning in 2008 and ending in 2009 were excluded. The analysis also excluded hospitalization reasons for comprehensive medical testing and outpatient visits for beauty/cosmetic surgery/obesity reasons.

B. Income Level

The KHP survey provides information about labor income, side job income, asset income, social and private insurance amount covered, government and private subsidy, other income from other household members added together. In the study, the income

earned from January 1 to December 31, 2008 was calculated. The annual income of all members of the household for the year 2008 was added, then the amount was divided by the square root of the number of household members to calculate the correct household income of all the household members.

C. Socio-demographic Characteristics

This category was divided into gender and age with age further categorized in ten-year intervals. Marital status - married, single, and other status (separated/divorced/bereaved) - was also identified.

Socio-economic status is measured by educational level and by economic activity. Educational level is measured with two questions: "What is your educational background? Are you still in school?" and "Have you graduated from the school you have attended or have you dropped out of school? Did you take school qualification examination to obtain the diploma?" The graduation categories were divided into 4 groups: not graduated from elementary school, graduated from middle school, graduated from high school, and graduated from university. Graduation and obtaining diploma and taking the school qualification examination fell into the category of graduated. Other categories such as in attendance, taking leave, completion of courses, incompletion of studies all fell into not graduated. The question asked for carrying out economic activity was "are you involved in any economic activity?" and the respondent could answer "yes" or "no". The respondent is involved in economic activity if the

respondent replied "yes" and he/she is not carrying out economic activity if the answer is "no."

D. Health Behavior

Health behavior was measured by the current smoking status. The smoking status was divided into current smoker, previous smoker, and non-smoker. To find out the smoking status, the question on whether more than 100 cigarettes were smoked by the respondent and whether he/she is currently smoking were asked. To the question "Have you smoked a total of 100 cigarettes (5 packs of cigarettes) until the present?" "yes," "no," or "never smoked" were the possible answers. "Are you currently a smoker?" was asked to find out the current smoking status and the respondent was asked to choose "daily," "sometimes," or "not smoking but smoked in the past" if he/she said yes to the question. Current smoker was defined as a person who has smoked over a total of 100 cigarettes until the present and currently smokes daily or smokes sometimes. Past smoker is defined as a person who has smoked over a total of 100 cigarettes until the present and smoked cigarettes in the past, but is not smoking now. Non-smoker is defined as a person who has not smoked over a total of 100 cigarettes (5 packs of cigarettes) and has never smoked.

E. Health Status and illness-related characteristics

To evaluate the health status in a comprehensive way, EQ-5D (EuroQol-5Dimension) was used. EQ-5D is measured with 5

questions with 3 different levels. In this study, Kang et al. (2005) converted the indices using weights.

Because the difference in utilizing the healthcare system depends on the number of chronic illnesses a person suffers, the number of chronic illness was used as the control variable. The respondents are supposed to answer "yes" or "no" to the two questions "Are you currently suffering a chronic illness?" and "have you been diagnosed with a chronic illness by a doctor?" Those who have been diagnosed by a medical doctor with a chronic illness are considered to have chronic illness. The respondents are divided into no chronic illness, one chronic illness and over two chronic illnesses.

To find out economic activity involvement, the questions "are you currently restricted in daily life and social activities due to health problems or physical/mental disability?" requiring "yes" or "no" answer. If the respondent answered "yes," activity is restricted and no activity is restricted if the respondent said "no."

To survey the disability of respondents, the question "what type of disability grade was decided?" was asked. If there is no disability, the respondent answers no disability. No disability exists for those in the no disability category and those with disability answer disability types including retardation and brain lesions.

F. Health insurance type and private health insurance

Subscription to medical social security type and private health insurance may impact the utilization of healthcare. To survey medical social security type, questions such as "are you subscribed to a health insurance?" and "Are you receiving medical benefit?" were asked. One of the following choices was asked: "health insurance for public servants and teaching faculty," "health insurance from place of business (workplace)," "regional health insurance," "medical benefit type 1," "medical benefit type 2," "exceptions (person with national merit), "unsubscribed," "disqualified," "benefit suspended." Three groups exist in this category. For those that chose one from public servant/teaching faculty health insurance, place of business (workplace) health insurance, and regional health insurance, he/she is the recipient of health insurance. For those that chose one from medical benefit type 1, medical benefit type 2, and exception (person of national merit), the respondent is a recipient of medical benefit or privileges. If one of the unsubscribed, disqualified or benefit suspension is chosen, he/she is not applicable to health insurance or medical benefit.

Subscription to private health insurance is measured by two questions - "Is your household subscribed to a private health insurance policy?" and "Is the private health insurance policy subscribed by your household a private health insurance product compensating medical expenses?" Two groups were identified: those belonging to a household that subscribed to a private health insurance that covers the medical expenses and those belonging to a household with no private health insurance.

The types of variables and brief descriptions of the variables used to analyze the equity of healthcare utilization and medical expenses are included in the following <Table 2-2>:

〈Table 2-2〉 Variables used for analysis

Category	Name of Variant	Description
Dependent variable	Number of times used outpatient healthcare	Number of times used outpatient medical care in 2008 alone
	Number of times used emergency healthcare	Number of times used emergency medical care in 2008 alone
	Number of times used inpatient healthcare	Number of times used inpatient medical care facility in 2008 alone
	Outpatient healthcare payment	Outpatient medical expenses spent in 2008 alone
	Emergency healthcare payment	Emergency medical expenses spent in 2008 alone
	Inpatient healthcare payment	Inpatient medical expenses spent in 2008 alone
Independent variable	Gender	Male, female
	Age	Over 20 years of age at ten-year intervals
	Marital status	Married, divorced/separated/widowed, single
	Educational background	Not graduated from elementary school, middle school, high school, over junior college
	Economic activity	Whether economic activity is carried out
	Health insurance coverage	Subscription to health insurance plan, medical benefit/exempted, Unsubscribed/disqualified/ pay suspension
	Private insurance	Subscription to private insurance (by household)
	Disability	Has disability
	Chronic illness	Number of chronic illnesses diagnosed by doctor. None. One. More than two
	Smoking	Currently smoking, Smoking in the past, Non-smoker
	Activity restrictions	Whether activity is restricted or not
	EQ-5D score	Score with regard to the quality of health-related life (EQ-5D)
	Income	Household income corrected by the number of household members

Section 2. Analysis Method

A number of researchers, such as Wagstaff, Paci, & van Doorslaer(1991), Kakwani, Wagstaff, & van Doorslaer(1997), Wagstaff & Van Doorslaer(2000), van Doorslaer, Koolman, & Jones(2004), Bago d'Uva(2006), have developed a range of methods to measure the equity in the utilization of healthcare services among income classes.

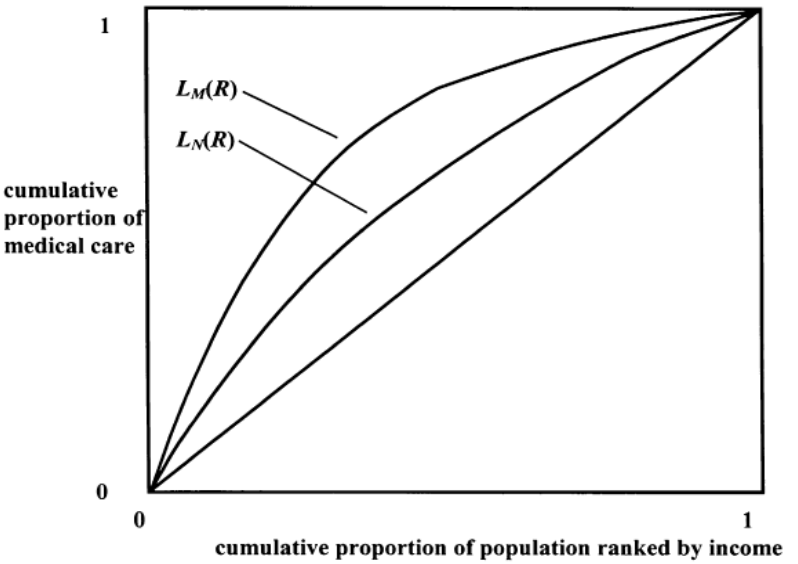
In this study, the Horizontal Inequity index (HIwv index) proposed by Wagstaff and van Doorslaer (2000) is used to measure the degree of equality in the utilization of the medical care service.

The Horizontal Inequity index developed to measure the equality in the utilization of the medical care facility uses the concentration index. The concentration factor in the actual health care use is revised and calculated using the need-expected use value based on the need of medical care utilization.

In the picture below, concentration curve $L_M(R)$ showing the actual use of medical care facility is larger than $L_N(R)$, the expected medical care facility usage considering the need to utilize medical care facility. Thus, it can be said that an inequality in the utilization of medical care facility exists in an advantageous way by the poor.

In general, the distribution of health care utilization by income class shows a higher utilization rate of low-income class. This is because the health of the poor class is relatively poorer than other classes, which can be interpreted to a higher need for health care.

[Picture 2-1] Actual vs. expected utilization of health care concentration curve



Data: van Doorslaer and Wagstaff, et al, 2000.

The equity of healthcare utilization is calculated as follows:

$$HIwv = 2\int_0^1 [L_N(R) - L_M(R)]\,dR = C_M - C_N$$

In this equation, C_M is the concentration factor of the actual utilization and C_N is the concentration index of the expected utilization expected based on the need.

The detailed calculation equation to measure the level of equity of the healthcare utilization of the revised need for healthcare is the following:

If y_i stands for the actual number of healthcare utilization, the relationship between the frequency of healthcare utilization and income, required variables in utilizing healthcare and other variables (non-need) is as follows:

$$y_i = \alpha + \beta \ln(inc_i) + \sum_k \gamma_k x_{k,i} + \sum_p \delta_p z_{p,i} + \varepsilon_i \qquad \text{Equation (1)}$$

Also, the expected utilization of healthcare based on the need for healthcare utilization of individuals and the independent variables can be described as follows:

$$\hat{y}_i^X = \hat{\alpha} + \hat{\beta} \ln(\text{inc}^m) + \sum_k \hat{\gamma}_k x_{k,i} + \sum_p \hat{\delta}_p z_p^m \qquad \text{Equation (2)}$$

If y_m is the average of y, the eventual degree of equity of the healthcare utilization with revised need for healthcare utilization can be described as follows:

$$\hat{y}_i^{IS} = y_i - \hat{y}_i^X + y^m \qquad \text{Equation (3)}$$

Meanwhile, the equation using covariance can be used to calculate the concentration index for the number of healthcare utilization.

$$C = \frac{2}{y^m} \sum_{i=1}^{n} w_i (y_i - y^m)(R_i - R^m)$$

$$= \frac{2}{u} cov_w (y_i, R_i)$$

In this formula, ym is the average of y and cov_w is the covariance. R_i is the factional rank of the individual according to income level. To test the concentration index calculated here in a statistical manner, the regression equation below can be used. The estimated value of β is the value of concentrated index and the standard

error of β becomes the estimated value of the standard error of the concentration index.

$$\frac{2\sigma_R^2}{y^m} y_i = \alpha + \beta R_i + \epsilon_i \qquad \text{Equation (4)}$$

Chapter

03

Analysis of Equity in Healthcare Utilization

Chapter 3

Analysis of Equity in Healthcare Utilization

In this chapter, the outcome of the analysis of the equity of healthcare use shall be proposed. The utilization was further divided into outpatient, emergency, and inpatient care services. For each use of the healthcare services, the level of equity of small groups for the entire population was analyzed by sex, age, educational status and disability.

Section 1. Equity in Outpatient Care Utilization

1. Gender

The number of outpatient healthcare used by gender and income was greater for women than for men in all income levels. The lower the income level, the greater the number of healthcare uses regardless of gender.

〈Table 3-1〉 Number of outpatient care visits by gender

(unit: visits)

Gender	Income quintile	Actual number of visits	Need expected number of visits	Need adjusted number of visits
Male	1	17.54	16.64	10.92
	2	10.04	10.56	9.50
	3	8.63	8.50	10.15
	4	6.90	7.12	9.80
	5	6.97	7.26	9.73
Female	1	23.63	22.67	15.51
	2	15.31	15.53	14.33
	3	12.28	12.65	14.18
	4	11.46	11.05	14.96
	5	10.08	10.86	13.78

The calculation of the concentration index for healthcare use by gender shows that the actual use index for males was -0.1966 with relatively higher utilization rate for low-income class. The horizontal inequity index with revised need for healthcare use stood at -0.0153 with a negative value, but had no statistical significance.

In the case of females, the actual care use showed pro-poor inclination with a weaker concentration level than males (-0.1770). The horizontal inequity index of the revised need for healthcare utilization was recorded at -0.0172 with a higher utilization rate in the low-income bracket having statistical significance.

〈Table 3-2〉 Concentration index of outpatient care visits by gender

Category		Concentration index	95% Confidence Interval		t-value
			Upper limit	Lower limit	
Male	Actual healthcare use	-0.1966	-0.2232	-0.1700	-14.47
	Need expected healthcare use	-0.1813	-0.1963	-0.1663	-23.69
	Need adjusted healthcare use(HI)	-0.0153	-0.0414	0.0108	-1.15
Female	Actual healthcare use	-0.1770	-0.1940	-0.1600	-20.39
	Need expected healthcare use	-0.1598	-0.1693	-0.1503	-32.98
	Need adjusted healthcare use(HI)	-0.0172	-0.0328	-0.0017	-2.17

2. Age

Here, the distinction is made between seniors and non-seniors. The number of healthcare usage by income and the concentration index of healthcare use is calculated.

In general, it is true that the low-income group used healthcare services more frequently in both seniors and non-seniors categories in healthcare utilization by income quintile. However, in the case of seniors, the income levels 2 and 3 used healthcare facilities more often than the lowest income class. When you compare the number of outpatient visits for the two groups, the difference between the actual use before and after need adjustment is greater. This could mean that it is possible that seniors are using healthcare services less than they need.

〈Table 3-3〉 Number of outpatient care visits by age

(unit: visits)

Age	Income quintile	Actual number of visits	Need expected number of visits	Need adjusted number of visits
Non-Senior	1	12.29	11.67	9.74
	2	8.89	9.20	8.82
	3	8.37	8.59	8.90
	4	8.17	8.07	9.23
	5	7.91	8.10	8.94
Senior	1	27.16	27.95	26.13
	2	28.23	28.26	26.88
	3	28.55	26.70	28.77
	4	26.26	26.10	27.08
	5	24.36	25.57	25.70

The calculation of the concentration index of outpatient healthcare use showed a negative value in the non-seniors group for actual healthcare use, which signifies that people in the lower-income bracket used healthcare relatively more than seniors. The actual healthcare usage for seniors, however, did not show much difference by income level. Meanwhile, the need-based forecasted visits showed a negative value, confirming the fact that seniors in the lower-income level are using healthcare less than they need.

The horizontal inequity index with revised need was not statistically significant in both groups, so it is not possible to conclude that the lower-income class used more healthcare services.

〈Table 3-4〉 Concentration index of outpatient care visits by age

Category		Concentration Index	95% Confidence Interval		t-value
			Upper Limit	Lower Limit	
Non-senior	Actual healthcare use	-0.0879	-0.1064	-0.0693	-9.27
	Need expected healthcare use	-0.0762	-0.0859	-0.0665	-15.42
	Need adjusted healthcare use(HI)	-0.0116	-0.0274	0.0041	-1.45
Senior	Actual healthcare use	-0.0262	-0.0520	-0.0005	-2.00
	Need expected healthcare use	-0.0210	-0.0305	-0.0114	-4.30
	Need adjusted healthcare use(HI)	-0.0053	-0.0293	0.0188	-0.43

3. Educational Level

The equity level by educational level was examined in two large groups - one with less than high school diploma and the other with at least high school diploma. In terms of income quintile, it was found that the lower the income, the higher the actual utilization of healthcare. From the educational background perspective, the group with less than high school diploma was found to use healthcare more frequently than the group with at least high school diploma.

〈Table 3-5〉 Number of Outpatient care visits by educational level

(unit: visits)

Education	Income quintile	Actual number of visits	Need expected number of visits	Need adjusted number of visits
Less than high school diploma	1	25.79	26.06	20.70
	2	24.75	23.37	22.35
	3	19.37	19.60	20.74
	4	18.07	17.82	21.22
	5	16.83	17.97	19.82

Education	Income quintile	Actual number of visits	Need expected number of visits	Need adjusted number of visits
At least high school diploma	1	10.60	10.47	8.24
	2	7.52	7.83	7.80
	3	7.62	7.37	8.37
	4	7.45	7.08	8.48
	5	7.37	7.81	7.67

The concentration index of the actual outpatient healthcare utilization by income and by educational levels showed a clearer pro-poor phenomenon for the group with less than high school diploma. This means that the low-income class using the healthcare system more frequently was concentrated in the group with less than high school diploma.

The horizontal inequity index with revised need was also concentrated in the lower income class, the group with less than high school diploma (-0.0113 vs. -0.0040), but neither value was statistically significant.

〈Table 3-6〉 Concentration index of outpatient care visits by educational level

Category		Concentration Index	95% Confidence Interval		t-value
			Upper limit	Lower limit	
Less than high school diploma	Actual healthcare use	-0.0965	-0.1167	-0.0764	-9.38
	Need expected healthcare use	-0.0852	-0.0952	-0.0753	-16.81
	Need adjusted healthcare use(HI)	-0.0113	-0.0298	0.0072	-1.19
At least high school diploma	Actual healthcare use	-0.0685	-0.0899	-0.0471	-6.28
	Need expected healthcare use	-0.0645	-0.0772	-0.0518	-9.96
	Need adjusted healthcare use(HI)	-0.0040	-0.0217	0.0137	-0.44

4. Disability

In general, the disabled group has a higher need to use healthcare facilities compared to those with no disability. However, because of restrictions in earning income such as economic activity, a greater burden in using healthcare services is expected. In other words, it is possible that disabled persons may show relatively less pro-poor tendency or less pro-rich tendency in using healthcare facilities, which means a higher utilization if the income is higher.

Comparing the disabled group and no disability group in the number of healthcare use, the disabled group had a higher number of actual healthcare utilization. What's curious is that the non-disabled group in the lower income quintile with lower income level had higher numbers of actual healthcare utilization, but in the cased of disabled group, the income quintiles 2 and 3 used healthcare facilities more frequently than income level group 1. Another interesting fact is that the difference between the actual number of utilization of healthcare and the number after revising the need was greater between the two groups, showing a greater need for the disabled group for healthcare utilization.

〈Table 3-7〉 Number of outpatient care visits by disability

(unit: visits)

Disability	Income quintile	Actual number of visits	Need expected number of visits	Need adjusted number of visits
No disability	1	22.55	21.07	15.93
	2	14.67	15.29	13.82
	3	13.27	12.98	14.74
	4	11.16	11.44	14.17
	5	10.58	11.45	13.58
Disabled	1	28.14	33.95	24.39
	2	35.61	32.52	33.30
	3	34.38	30.90	33.69
	4	27.88	27.70	30.39
	5	25.16	25.96	29.41

A close look at the differences among groups using concentration index showed that the use of healthcare in the group with no disability was more concentrated in the low-income bracket. Also, the degree of healthcare utilization after revising the need was concentrated in the lower-class with statistical significance for the group with no disability, but the disabled group showed a positive value after revising the need.

〈Table 3-8〉 Concentration index of outpatient care visits by disability

Category		Concentration Index	95% Confidence interval		t-value
			Upper limit	Lower limit	
No disability	Actual healthcare use	-0.1747	-0.1908	-0.1587	-21.34
	Need expected healthcare use	-0.1546	-0.1637	-0.1456	-33.48
	Need adjusted healthcare use(HI)	-0.0201	-0.0347	-0.0055	-2.70
Disabled	Actual healthcare use	-0.0554	-0.1021	-0.0088	-2.33
	Need expected healthcare use	-0.0693	-0.0906	-0.0481	-6.40
	Need adjusted healthcare use(HI)	0.0139	-0.0281	0.0559	0.65

Section 2. Equity in Emergency Healthcare Utilization

1. Gender

It was found that the lowest income group in both males and females out of all income levels used the emergency healthcare facility the most. However, no significant difference was identified in other income levels. Such tendency was also witnessed in the number of healthcare utilization after revising the need.

〈Table 3-9〉 Number of emergency care visits by gender

(unit: visits)

Gender	Income quintile	Actual number of visits	Need expected number of visits	Need adjusted number of visits
Male	1	0.12	0.12	0.08
	2	0.09	0.08	0.09
	3	0.06	0.07	0.07
	4	0.07	0.07	0.08
	5	0.06	0.06	0.08
Female	1	0.10	0.10	0.08
	2	0.07	0.08	0.07
	3	0.09	0.07	0.09
	4	0.07	0.07	0.08
	5	0.07	0.07	0.08

The concentration index converting the number of emergency healthcare utilization by income level and by gender showed pro-poor values in males compared to females (-0.1407 vs. -0.0838) in actual healthcare use. The number of emergency healthcare utilization after revising the need still showed negative

values, but with no statistical significance.

〈Table 3-10〉 Concentration index of emergency care visits by gender

Category		Concentration Index	95% Confidence Interval		t-value
			Upper limit	Lower limit	
Male	Actual healthcare use	-0.1407	-0.2087	-0.0726	-4.05
	Need expected healthcare use	-0.1381	-0.1508	-0.1255	-21.41
	Need adjusted healthcare use(HI)	-0.0026	-0.0740	0.0689	-0.07
Female	Actual healthcare use	-0.0838	-0.1417	-0.0259	-2.84
	Need expected healthcare use	-0.0796	-0.0878	-0.0714	-19.12
	Need adjusted healthcare use(HI)	-0.0042	-0.0618	0.0534	-0.14

2. Age

Comparing the numbers of healthcare utilization by income quintile between the two groups - seniors and non-seniors - showed that seniors used emergency healthcare more frequently than non-seniors. From the senior group, those belonging to the income level 2 used the healthcare the most in actuality.

〈Table 3-11〉 Number of emergency care visits by age

(unit: visits)

Age	Income quintile	Actual number of visits	Need expected number of visits	Need adjusted number of visits
Non-seniors	1	0.09	0.09	0.07
	2	0.06	0.07	0.06
	3	0.08	0.07	0.08
	4	0.06	0.06	0.07
	5	0.06	0.06	0.07
Seniors	1	0.13	0.13	0.12
	2	0.16	0.13	0.16
	3	0.11	0.12	0.11
	4	0.10	0.12	0.10
	5	0.12	0.11	0.13

The concentration index of emergency healthcare utilization by age showed that the actual use of healthcare for non-seniors showed pro-poor tendency, using emergency healthcare more frequently than low-income class. However, in the case of seniors, the actual emergency healthcare utilization marked a negative value, yet statistically not significant. A negative value was also marked in the revised need healthcare utilization, another statistically insignificant value.

〈Table 3-12〉 Concentration index of emergency care visits by age

Category		Concentration Index	95% Confidence Interval		t-value
			Upper limit	Lower limit	
Non-seniors	Actual healthcare use	-0.0570	-0.1071	-0.0069	-2.23
	Need expected healthcare use	-0.0708	-0.0779	-0.0637	-19.50
	Need adjusted healthcare use(HI)	0.0138	-0.0362	0.0638	0.54
Seniors	Actual healthcare use	-0.0393	-0.1219	0.0434	-0.93
	Need expected healthcare use	-0.0259	-0.0416	-0.0102	-3.24
	Need adjusted healthcare use(HI)	-0.0134	-0.0951	0.0684	-0.32

3. Educational Level

When comparing emergency care use between the group with less than high school diploma and the group with at least high school diploma, the number of emergency care visits was higher in the lower educational level group than the other group. In each group, by income quintile, the lower income level seemed to be utilizing emergency healthcare more frequently.

〈Table 3-13〉 Number of emergency care visits by educational level

(unit: visits)

Educational level	Income quintile	Actual number of visits	Need expected number of visits	Need adjusted number of visits
Less than high school diploma	1	0.12	0.13	0.10
	2	0.12	0.11	0.11
	3	0.09	0.10	0.10
	4	0.09	0.09	0.11
	5	0.08	0.08	0.10
At least high school diploma	1	0.08	0.08	0.07
	2	0.07	0.07	0.07
	3	0.07	0.07	0.07
	4	0.07	0.06	0.07
	5	0.06	0.07	0.07

The concentration index of the actual healthcare utilization showed a negative value in the group with less than high school diploma, revealing a concentration in the low-income bracket. In the group with at least high school diploma, concentration in the low-income class also significant in the actual healthcare utilization did not appear.

The horizontal inequity index of the healthcare utilization after

revising needs also proved to be statistically insignificant in both groups.

〈Table 3-14〉 Concentration index of emergency care visits by educational level

Category		Concentration Index	95% Confidence Interval		t-value
			Upper limit	Lower limit	
Less than high school diploma	Actual healthcare use	-0.0985	-0.1651	-0.0320	-2.90
	Need expected healthcare use	-0.0936	-0.1062	-0.0811	-14.65
	Need adjusted healthcare use(HI)	-0.0049	-0.0724	.0627	-0.14
At least high school diploma	Actual healthcare use	-0.0518	-0.1089	.0052	-1.78
	Need expected healthcare use	-0.0511	-0.0597	-0.0425	-11.71
	Need adjusted healthcare use(HI)	-0.0007	-0.0573	.0559	-0.02

4. Disability

In terms of the disability perspective, the disabled group used emergency healthcare facility much more frequently than those with no disability. Looking at the data by income quintile, the lowest-income group used emergency healthcare more frequently in the group with no disability, but the disabled group with a higher income level used healthcare services more frequently than the relatively lower income classes.

〈Table 3-15〉 Number of emergency care visits by disability

(unit: visits)

Disability	Income quintile	Actual number of visits	Need expected number of visits	Need adjusted number of visits
No disability	1	0.11	0.10	0.09
	2	0.07	0.08	0.07
	3	0.07	0.07	0.08
	4	0.07	0.07	0.07
	5	0.06	0.07	0.07
Disabled	1	0.14	0.18	0.11
	2	0.14	0.18	0.12
	3	0.15	0.16	0.14
	4	0.23	0.13	0.25
	5	0.12	0.12	0.15

The concentration index of the number of emergency healthcare utilization shows a relatively strong negative value (-0.1004) in the actual number of healthcare use for those with no disability, confirming the more frequent use of the lower income class of the emergency healthcare facility. However, in the disabled group, the concentration index of the actual use of healthcare proved to be a positive value, a pro-rich phenomenon, although statistically insignificant. Also, the value was still positive even after revising the need.

〈Table 3-16〉 Concentration index for emergency care visits by disability

Category		Concentration Index	95% Confidence Interval		t-value
			Upper limit	Lower limit	
No disability	Actual healthcare use	-0.1004	-0.1476	-0.0532	-4.17
	Need expected healthcare use	-0.0763	-0.0833	-0.0693	-21.46
	Need adjusted healthcare use(HI)	-0.0241	-0.0716	0.0232	-1.00
Disabled	Actual healthcare use	0.0322	-0.1042	0.1687	0.46
	Need expected healthcare use	-0.0845	-0.1112	-0.0579	-6.23
	Need adjusted healthcare use(HI)	0.1167	-0.0210	0.2545	1.66

Section 3. Equity of Inpatient Care Utilization

1. Gender

Taking a look at the frequency of inpatient care visits by gender and by income, the income 1 bracket with the lowest income males used inpatient care more than females, but in other income groups, females generally used inpatient care services more frequently than males.

〈Table 3-17〉 Number of inpatient care visits by gender

(unit: visits)

Gender	Income quintile	Actual number of visits	Need expected number of visits	Need adjusted number of visits
Male	1	0.21	0.21	0.13
	2	0.11	0.12	0.11
	3	0.11	0.10	0.12
	4	0.10	0.09	0.13
	5	0.08	0.09	0.12
Female	1	0.18	0.18	0.14
	2	0.15	0.14	0.15
	3	0.12	0.13	0.13
	4	0.13	0.13	0.15
	5	0.11	0.12	0.13

The concentration index for actual inpatient care utilization showed a stronger negative value in males compared to females, showing a concentration of emergency care use in the low-income group for males. After revising the need for inpatient care, both males and females showed negative values. This is not statistically significant, however, so this does not reveal the gap in the degree of healthcare use among different income level groups.

〈Table 3-18〉 Concentration index of inpatient care visits by gender

Category		Concentration Index	95% Confidence Interval		t-value
			Upper limit	Lower limit	
Male	Actual healthcare use	-0.1807	-0.2412	-0.1201	-5.85
	Need expected healthcare use	-0.1803	-0.1966	-0.1639	-21.61
	Need adjusted healthcare use(HI)	-0.0004	-0.0653	0.0645	-0.01
Fem	Actual healthcare use	-0.1035	-0.1484	-0.0586	-4.52

Category		Concentration Index	95% Confidence Interval		t-value
			Upper limit	Lower limit	
ale	Need expected healthcare use	-0.0777	-0.0856	-0.0698	-19.33
	Need adjusted healthcare use(HI)	-0.0256	-0.0705	0.0188	-1.13

2. Age

The analysis of the number of inpatient care stays by age and by income showed a greater number of hospitalization by seniors compared to non-seniors. In case of income quintile, lower-class group used inpatient healthcare, but in the non-seniors group, the gap in the number of inpatient healthcare utilization by income level was not found in a consistent manner.

〈Table 3-19〉 Number of inpatient care visits by age

(unit: visits)

Age	Income quintile	Actual number of visits	Need expected number of visits	Need adjusted number of visits
Non-seniors	1	0.13	0.12	.11
	2	0.10	0.10	0.10
	3	0.11	0.10	0.11
	4	0.10	0.10	0.11
	5	0.09	0.10	0.10
Seniors	1	0.23	0.25	0.23
	2	0.30	0.26	0.29
	3	0.24	0.24	0.24
	4	0.20	0.23	0.20
	5	0.23	0.23	0.25

Moreover, the concentration index for the number of inpatient stays revealed that seniors showed pro-poor tendencies even for actual healthcare use or after revising the need for inpatient healthcare use, but the values were not statistically significant, so it was safe to conclude that no difference in healthcare utilization existed among income levels.

〈Table 3-20〉 Concentration index of inpatient care visits by age

Category		Concentration Index	95% Confidence Interval		t-value
			Upper limit	Lower limit	
Non-seniors	Actual healthcare use	-0.0559	-0.0980	-0.0139	-2.61
	Need expected healthcare use	-0.0513	-0.0588	-0.0439	-13.48
	Need adjusted healthcare use(HI)	-0.0046	-0.0466	0.0374	-0.22
Seniors	Actual healthcare use	-0.0301	-0.0976	0.0375	-0.87
	Need expected healthcare use	-0.0239	-0.0376	-0.0102	-3.41
	Need adjusted healthcare use(HI)	-0.0062	-0.0728	0.0604	-0.18

3. Educational Level

The number of inpatient stays by educational level and income quintile showed that those with less than high school diploma used more inpatient care than the other group. Those with at least high school diploma did not show a greater number of inpatient stays by income.

〈Table 3-21〉 Number of inpatient care visits by educational level

(unit: visits)

Educational level	Income quintile	Actual number of visits	Need expected number of visits	Need adjusted number of visits
Less than high school diploma	1	0.20	0.23	0.15
	2	0.22	0.21	0.20
	3	0.21	0.18	0.21
	4	0.16	0.16	0.18
	5	0.15	0.15	0.18
At least high school diploma	1	0.13	0.12	0.11
	2	0.09	0.10	0.09
	3	0.11	0.10	0.11
	4	0.09	0.09	0.10
	5	0.09	0.09	0.10

The concentration index for the number of hospitalization by educational level showed pro-poor result in both groups -one with less than high school diploma and the other with at least high school diploma. However, after revising the needs, both groups showed positive values in horizontal inequity index in using all healthcare facilities with no statistical significance.

〈Table 3-22〉 Concentration index of inpatient care visits by educational level

Category		Concentration Index	95% Confidence Interval		t-value
			Upper limit	Lower limit	
Less than high school diploma	Actual healthcare use	-0.0780	-0.1325	-0.0235	-2.81
	Need expected healthcare use	-0.0932	-0.1046	-0.0818	-16.00
	Need adjusted healthcare use(HI)	0.0152	-0.0388	0.0693	0.55
At least high school diploma	Actual healthcare use	-0.0586	-0.1080	-0.0093	-2.33
	Need expected healthcare use	-0.0596	-0.0702	-0.0490	-11.03
	Need adjusted healthcare use(HI)	0.0010	-0.0479	0.0500	0.04

4. Disability Factor

In the case of the group with no disability, the number of hospitalization was greatest in the lowest-income groups like most cases, but in the disabled group, no significant difference in the number of actual hospitalization by income quintile was found.

〈Table 3-23〉 Number of inpatient care visits by disability

(unit: visits)

Disability	Income quintile	Actual number of visits	Need expected number of visits	Need adjusted number of visits
No disability	1	0.18	0.17	0.13
	2	0.13	0.13	0.13
	3	0.11	0.11	0.12
	4	0.11	0.11	0.13
	5	0.10	0.10	0.12
Disabled	1	0.19	0.26	0.18
	2	0.33	0.26	0.31
	3	0.29	0.27	0.27
	4	0.15	0.22	0.18
	5	0.28	0.23	0.30

Using the number of inpatient health care visits by disability factor, the concentration index was calculated. As a result, in the group with no disability, a strong pro-poor trend was shown, whereas in the disabled group, no statistically significant difference among difference income levels between actual and revised-need healthcare use was shown.

〈Table 3-24〉 Concentration index of inpatient care visits by disability

Category		Concentration Index	95% Confidence Interval		t-value
			Upper limit	Lower limit	
No disability	Actual healthcare use	-0.1290	-0.1680	-0.0901	-6.49
	Need expected healthcare use	-0.1064	-0.1148	-0.0980	-24.76
	Need adjusted healthcare use(HI)	-0.0226	-0.0621	.0169	-1.12
Disabled	Actual healthcare use	0.0085	-0.1048	0.1218	0.15
	Need expected healthcare use	-0.0342	-0.0595	-0.0089	-2.65
	Need adjusted healthcare use(HI)	0.0427	-0.0669	0.1523	0.76

Chapter

04

Analysis of Equity in Out-of-pocket Payment

Chapter 4

Analysis of Equity in Out-of-pocket Payment

In this chapter, we would like to propose the result of the analysis of the equity in healthcare expenses. Healthcare utilization is divided into outpatient, emergency, and inpatient services. For each use of the healthcare services, the level of equity of small groups for the entire population was analyzed in terms of gender, age, educational status and disability.

Section 1. Equity in Outpatient Care Payment

1. Gender

In both males and females, the low-income group and the highest income group spent the most outpatient healthcare payment, while the group in the middle spent the least amount for outpatient healthcare. Need-based forecasted healthcare payment decreased as the income increased. In the case of revised need, both males and females showed an increase in outpatient healthcare payment with the increase in income (Refer to Table 4-1).

〈Table 4-1〉 Out-of-pocket payment for outpatient care by gender

(Unit: KW)

Gender	Income quintile	Actual healthcare payment	Need expected healthcare payment	Need adjusted healthcare payment
Male	1	280,285	387,898	147,445
	2	261,718	266,608	250,169
	3	243,720	223,780	274,998
	4	216,816	196,775	275,099
	5	272,715	200,117	327,657
Female	1	349,691	471,956	215,642
	2	318,904	357,744	299,068
	3	307,924	309,118	336,715
	4	321,758	275,146	384,520
	5	391,166	275,016	454,057

The concentration index of actual outpatient healthcare for both males and females were not statistically significant. The concentration index for the need-based forecasted healthcare payment had both pro-poor tendencies. The index for the revised need-based healthcare payment stood at 0.1327 for males and 0.1409 for females, showing pro-rich tendencies and statistically significant.

〈Table 4-2〉 Concentration index of out-of-pocket payment for outpatient care by gender

Category		Concentration Index	95% Confidence Interval		t-value
			Lower Limit	Upper Limit	
Male	Actual healthcare payment	-0.0111	-0.0525	0.0304	-0.52
	Need expected healthcare payment	-0.1438	-0.1554	-0.1321	-24.22
	Need adjusted healthcare payment (HI)	0.1327	0.0923	0.1731	6.44
Female	Actual healthcare payment	0.0234	-0.0080	0.0547	1.46
	Need expected healthcare payment	-0.1176	-0.1243	-0.1109	-34.36
	Need adjusted healthcare payment (HI)	0.1409	0.1104	0.1715	9.04

2. Age

In both senior and non-senior groups, the actual outpatient healthcare payment increased with the increase in income, but the need-based forecasted healthcare payment decreased. Revised need-based healthcare payment increased with income rise in both senior group and non-senior group (Refer to Table 4-3).

〈Table 4-3〉 Out-of-pocket payment for outpatient care by age

(Unit: KW)

Age	Income quintile	Actual healthcare payment	Need expected healthcare payment	Need adjusted healthcare payment
Non-seniors	1	246,094	323,538	187,631
	2	240,950	268,921	237,103
	3	255,891	248,797	272,168
	4	253,776	240,517	278,333
	5	328,749	243,544	350,280
Seniors	1	338,360	467,670	324,746
	2	352,597	468,151	338,502
	3	508,030	452,335	509,751
	4	469,679	449,496	474,239
	5	601,951	432,566	623,441

The concentration index for the actual outpatient healthcare payment stood at 0.0585 and 0.1152 respectively for both groups, which showed pro-rich tendencies. The concentration index for the revised need-based healthcare use showed pro-rich tendencies with the indices marking 0.1182 for non-seniors and 0.1316 for seniors with high-income classes spending more for healthcare (Refer to Table 4-4).

〈Table 4-4〉 Concentration index of out-of-pocket payment for outpatient care by age

Category		Concentration index	95% Confidence Interval		t-value
			Lower limit	Upper limit	
Non- senior	Actual healthcare payment	0.0585	0.0271	0.0899	3.65
	Need expected healthcare payment	-0.0597	-0.0675	-0.0519	-15.04
	Need adjusted healthcare payment (HI)	0.1182	0.0881	0.1483	7.70
Seniors	Actual healthcare payment	0.1152	0.0808	0.1496	6.57
	Need expected healthcare payment	-0.0164	-0.0238	-0.0090	-4.35
	Need adjusted healthcare payment (HI)	0.1316	0.0978	0.1654	7.63

3. Educational level

The average outpatient healthcare payment by educational level and by income quintile is shown in <Table 4-5>. In both groups - one with less than high school diploma and the other, with at least high school diploma, high-income classes spent more outpatient healthcare payment more than the low-income bracket. In the case of the revised need-based healthcare use, both groups witnessed an increase in outpatient healthcare payment with the increase in income.

〈Table 4-5〉 Out-of-pocket payment for outpatient care by educational level

(Unit: KW)

Educational Level	Income quintile	Actual healthcare payment	Need expected healthcare payment	Need adjusted healthcare payment
Less than high school diploma	1	322,188	453,091	264,651
	2	374,369	419,887	350,036
	3	420,094	381,820	433,827
	4	393,770	364,012	425,312
	5	467,373	358,891	504,036
At least school diploma	1	231,126	302,664	180,279
	2	219,884	243,208	228,493
	3	244,048	231,680	264,185
	4	237,858	230,435	259,240
	5	326,224	250,990	327,050

The concentration index of the actual outpatient healthcare payment for the group with less than high school diploma stood at 0.0673 with 0.0704 for the other group, showing a pro-rich tendency. The concentration index for the need-based forecasted healthcare payment was pro-poor for both groups and the index of the revised need-based healthcare payment was pro-rich recording 0.1183 for the group with less than high school diploma and 0.1106 for the group with at least high school diploma.

〈Table 4-6〉 Concentration Index of Out-of-pocket Payment for Outpatient care by Educational Level

Category		Concentration Index	95% Confidence Interval		t-value
			Lower limit	Upper limit	
Less than high school diploma	Actual healthcare payment	0.0673	0.0323	0.1024	3.76
	Need expected healthcare payment	-0.0510	-0.0574	-0.0445	-15.46
	Need adjusted healthcare payment (HI)	0.1183	0.0844	0.1522	6.84
At least high school diploma	Actual healthcare payment	0.0704	0.0360	0.1048	4.02
	Need expected healthcare payment	-0.0402	-0.0499	-0.0304	-8.10
	Need adjusted healthcare payment (HI)	0.1106	0.0778	0.1433	6.61

4. Disability

Those with no disability did not show a consistency with the income quintile, while the disabled group showed an increase in actual outpatient healthcare payment with the increase in income. After the need is revised, both groups witnessed an increase in outpatient healthcare payment when income increased (Refer to Table 4-7).

〈Table 4-7〉 Out-of-pocket payment for outpatient care by disability

(Unit: KW)

Disability	Income quintile	Actual healthcare payment	Need expected healthcare payment	Need adjusted healthcare payment
No disability	1	309,778	414,264	189,548
	2	282,288	307,926	268,394
	3	271,950	263,185	302,798
	4	273,389	240,433	326,988
	5	332,761	244,328	382,466
Disabled	1	352,370	489,417	300,978
	2	317,007	474,028	281,005
	3	582,845	447,445	573,426
	4	411,178	409,161	440,042
	5	526,469	369,963	594,531

The concentration index of outpatient care payment for the group with no disability was statistically not significant, whereas the actual outpatient care payment for the disabled group tended to be pro-rich with an index of 0.0871. The concentration index of the need-based forecasted expenditure was pro-poor for both groups and the index for the revised need-based healthcare payment stood at 0.1291 for the group with no disability and 0.1444 for the disabled, showing a rather pro-rich tendency where high income earners spent more healthcare payment than low income earners (Refer to Table 4-8).

〈Table 4-8〉 Concentration index of out-of-pocket payment for outpatient care by disability

(Unit: KW)

Category		Concentration Index	95% Confidence Interval		t-value
			Lower limit	Upper limit	
No disability	Actual healthcare payment	0.0136	-0.0130	0.0402	1.00
	Need expected healthcare payment	-0.1155	-0.1223	-0.1087	-33.22
	Need adjusted healthcare payment (HI)	0.1291	0.1032	0.1550	9.78
Disabled	Actual healthcare payment	0.0871	0.0067	0.1674	2.13
	Need expected healthcare payment	-0.0573	-0.0795	-0.0352	-5.08
	Need adjusted healthcare payment (HI)	0.1444	0.0696	0.2192	3.79

Section 2. Equity in Emergency care Payment

1. Gender

The change in the emergency care payment with the income increase did not show consistency in males, but low-income class people had a higher payment for emergency healthcare, whereas for women, the actual emergency outpatient healthcare payment was significantly higher in the lowest income level than other groups. Need-based forecasted healthcare payment tended to decrease with the increase in income for both genders. The revised need-based healthcare payment, no specific pattern was witnessed with the income level (See Table 4-9).

〈Table 4-9〉 Out-of-pocket payment for emergency care by gender

(Unit: won)

Gender	Income quintile	Actual healthcare payment	Need expected healthcare payment	Need adjusted healthcare payment
Male	1	4,624	6,255	2,487
	2	5,245	4,305	5,058
	3	2,859	3,695	3,282
	4	3,949	3,344	4,724
	5	3,914	2,989	5,043
Female	1	6,852	7,123	4,341
	2	4,113	4,924	3,800
	3	4,461	4,058	5,014
	4	3,440	3,558	4,493
	5	4,193	3,384	5,421

The concentration index of the actual emergency healthcare payment was statistically insignificant for both men and women. The concentration index of the healthcare payment after revising the need for healthcare use was a positive value for both men and women, but still statistically insignificant.

〈Table 4-10〉 Concentration index of out-of-pocket payment for emergency care by gender

Category		Concentration Index	95% Confidence Interval		t-value
			Lower limit	Upper limit	
Male	Actual healthcare payment	-0.0550	-0.1630	0.0531	-1.00
	Need expected healthcare payment	-0.1528	-0.1653	-0.1403	-23.94
	Need adjusted healthcare payment (HI)	0.0979	-0.1280	0.2085	1.73
Female	Actual healthcare payment	-0.1118	-0.2412	0.0176	-1.69
	Need expected healthcare payment	-0.1613	-0.1719	-0.1507	-29.88
	Need adjusted healthcare payment (HI)	0.0495	-0.0958	0.1948	0.67

2. Age

Emergency healthcare payment spent by seniors and non-seniors did not show a consistent pattern by income levels. The need-based forecasted healthcare payment decreased with the increase in income. After revising the need, the lowest income group (quintile 1) in the non-seniors group spent distinctively less emergency outpatient healthcare payment than other groups, but seniors did not show a consistent trend (See Table 4-11).

〈Table 4-11〉 Out-of-pocket payment for emergency care by age

(Unit: KW)

Age	Income quintile	Actual healthcare payment	Need expected healthcare payment	Need adjusted healthcare payment
Non-seniors	1	3,177	4,555	1,993
	2	3,330	3,345	3,355
	3	3,771	3,154	3,988
	4	2,775	3,012	3,135
	5	3,805	2,789	4,387
Seniors	1	6,311	9,277	5,697
	2	11,213	9,729	10,148
	3	9,024	8,555	9,133
	4	6,690	8,132	7,222
	5	10,098	7,625	11,137

The concentration index for the emergency healthcare payment actually paid was not statistically significant for both groups. However, the need-based forecasted healthcare utilization showed to have pro-poor tendency, resulting in the concentration index of the revised need-based emergency healthcare use to stand at 0.1141 for non-seniors, a pro-rich number, yet the index for the

senior group was not statistically significant (Refer to Table 4-12).

〈Table 4-12〉 Concentration index of out-of-pocket payment for emergency care by age

Category		Concentration Index	95% Confidence Interval		t-value
			Lower limit	Upper limit	
Non-seniors	Actual healthcare payment	0.0164	-0.0679	0.1008	0.38
	Need expected healthcare payment	-0.0977	-0.1078	-0.0876	-18.87
	Need adjusted healthcare payment (HI)	0.1141	0.0290	0.1993	2.63
Seniors	Actual healthcare payment	.0271	-0.1300	0.1843	0.34
	Need expected healthcare payment	-0.0440	-0.0619	-0.0261	-4.82
	Need adjusted healthcare payment (HI)	0.0711	-0.0889	0.2311	0.87

3. Educational Level

The average emergency healthcare payment by educational level depending on income quintile is illustrated in <Table 4-13>. Both groups - one with less than high school diploma and the other with at least high school diploma - did not show a consistent expense in emergency healthcare payment with the income level. The need-based forecasted healthcare payment dropped with the increase of income. Even after revising the need for healthcare use, both groups did not show any consistent tendency according to income increase.

〈Table 4-13〉 Out-of-pocket payment for emergency care by educational level

(Unit: KW)

Educational level	Income quintile	Actual healthcare payment	Need expected healthcare payment	Need adjusted healthcare payment
Less than high school diploma	1	5,030	7,822	3,116
	2	7,865	7,014	6,760
	3	6,509	5,548	6,870
	4	4,696	4,797	5,808
	5	5,442	4,360	6,990
At least high school diploma	1	4,047	4,596	3,044
	2	3,336	3,568	3,361
	3	3,564	3,353	3,804
	4	3,582	3,229	3,946
	5	3,430	3,214	3,809

The concentration index of emergency care payment actually paid by both groups - one with less than high school diploma and the other with at least high school diploma - was not statistically significant. The index for the need-based projected care payment was pro-poor for both groups and the index of revised need-based care use was not statistically significant for both groups.

〈Table 4-14〉 Concentration index of out-of-pocket payment for emergency care by educational level

Category		Concentration Index	95% Confidence Interval		t-value
			Lower limit	Upper limit	
Less than high school diploma	Actual healthcare payment	-0.0497	-0.1989	0.0996	-0.65
	Need expected healthcare payment	-0.1298	-0.1447	-0.1149	-17.08
	Need adjusted healthcare payment (HI)	0.0801	-0.0798	0.2401	0.98
At least high school diploma	Actual healthcare payment	-0.0257	-0.1142	0.0628	-0.57
	Need expected healthcare payment	-0.0761	-0.0871	-0.0651	-13.55
	Need adjusted healthcare payment (HI)	0.0504	-0.0381	0.1390	1.12

4. Disability

The emergency healthcare spent actually paid by both groups - one with no disability and the other with disability - did not show a consistency with the income increase. The need-based forecasted healthcare payment dropped with the increase of income. After revising the need, both groups did not show a consistent relationship between income and emergency care payment (Refer to Table 4-15).

〈Table 4-15〉 Out-of-pocket payment for emergency care by disability

(Unit: KW)

Disability	Income quintile	Actual healthcare payment	Need expected healthcare payment	Need adjusted healthcare payment
No disability	1	5,663	6,283	3,555
	2	4,124	4,393	3,907
	3	3,290	3,708	3,758
	4	3,646	3,357	4,465
	5	4,156	3,137	5,195
Disabled	1	8,260	10,896	5,695
	2	1,695	9,761	266
	3	9,111	7,841	9,602
	4	20,273	6,882	21,722
	5	2,272	6,270	4,334

The concentration index of the actual emergency healthcare payment for both the disabled and those with no disability was statistically insignificant. Even after revising the need-based healthcare use, the concentration index remained no income statistically insignificant, suggesting that income group was at

an advantage over the others (See Table 4-16).

〈Table 4-16〉 Concentration index of out-of-pocket payment for emergency care by disability

Category		Concentration index	95% Confidence Interval		t-value
			Lower limit	Upper limit	
No disability	Actual healthcare payment	-0.0736	-0.1727	0.0254	-1.46
	Need expected healthcare payment	-0.1484	-0.1566	-0.1403	-35.88
	Need adjusted healthcare payment (HI)	0.0748	-0.0328	0.1824	1.36
Disabled	Actual healthcare payment	0.0198	-0.2167	0.2562	0.16
	Need expected healthcare payment	-0.1227	-0.1609	-0.0845	-6.30
	Need adjusted healthcare payment (HI)	0.1425	-0.0965	0.3814	1.17

Section 3. Equity in Inpatient care Payment

1. Gender

In the case of males, the higher the income, the lower the inpatient healthcare payment. In other words, the lowest income bracket spent most inpatient healthcare payment. Females, however, did not show a consistent direction in terms of income. Need-based forecasted care payment for inpatient healthcare decreased for both genders as income increased (Refer to Table 4-17).

〈Table 4-17〉 Out-of-pocket payment for inpatient care by gender

(Unit: KW)

Gender	Income quintile	Actual healthcare payment	Need expected healthcare payment	Need adjusted healthcare payment
Male	1	148,592	160,480	76,464
	2	80,445	91,515	77,282
	3	69,274	71,529	86,097
	4	71,771	59,964	100,159
	5	71,647	58,215	101,784
Female	1	109,423	147,657	72,632
	2	133,856	114,488	130,234
	3	94,779	101,868	103,778
	4	122,737	96,801	136,802
	5	93,116	93,371	110,611

The concentration index of the actual inpatient care payment actually paid by males stood at -0.1305, with pro-poor tendency in the lower income class. In the case of females, the concentration index was statistically not significant. The horizontal inequity index of the revised need-based care payment for the inpatient healthcare payment were statistically not relevant for both genders, but it was noted that the payment moved to the pro-rich direction compared to the actual care payment.

〈Table 4-18〉 Concentration index of out-of-pocket payment for inpatient care by gender

Category		Concentration Index	95% Confidence Interval		t-value
			Lower limit	Upper limit	
Male	Actual healthcare payment	-0.1305	-0.2380	-0.0229	-2.38
	Need expected healthcare payment	-0.2218	-0.2388	-0.2048	-25.53

Category		Concentration Index	95% Confidence Interval		t-value
			Lower limit	Upper limit	
	Need adjusted healthcare payment (HI)	0.0913	-0.0127	0.1954	1.72
Female	Actual healthcare payment	-0.0277	-0.1004	0.04499	-0.75
	Need expected healthcare payment	-0.0957	-0.1038	-0.0877	-23.26
	Need adjusted healthcare payment (HI)	0.0680	-0.0025	0.1385	1.89

2. Age

The criteria for dividing the groups into seniors and non-seniors was 65 years of age. Both groups spent more actual healthcare expenses in the higher income classes, while the need-based forecasted healthcare payment decreased with the increase in income. The revised need-based healthcare payment rose with the increase in income for both groups (Refer to Table 4-19).

〈Table 4-19〉 Out-of-pocket payment for inpatient care by age

(Unit: KW)

Age	Income quintile	Actual healthcare payment	Need expected healthcare payment	Need adjusted healthcare payment
Non-seniors	1	73,877	89,065	60,031
	2	66,737	75,936	66,020
	3	76,020	72,372	78,867
	4	87,583	70,233	92,569
	5	71,888	68,478	78,629
Seniors	1	154,204	218,264	144,456
	2	205,309	218,223	195,601
	3	204,555	206,602	206,469
	4	227,657	206,799	229,374
	5	251,163	192,649	267,030

The concentration index for the actual healthcare payment for both senior and non-senior groups was all positive values, but statistically not significant. The concentration index for need-based forecasted healthcare payment were all pro-poor for both groups.

The concentration index for the revised need-based healthcare use was found to have an inequity, relatively advantageous to the affluent class for both groups with 0.0843 for non-seniors and 0.1134 for seniors. In the case of seniors, in particular, the pro-rich tendency was stronger than the non-senior group (See Table 4-20).

〈Table 4-20〉 Concentration index of out-of-pocket payment for inpatient care by age

Category		Concentration index	95% Confidence Interval		t-value
			Lower limit	Upper limit	
Non-seniors	Actual healthcare payment	0.0312	-0.0375	0.1000	0.89
	Need expected healthcare payment	-0.0531	-0.0627	-0.0435	-10.86
	Need adjusted healthcare payment (HI)	0.0843	0.0172	0.1515	2.46
Seniors	Actual healthcare payment	0.0886	-0.0047	0.1818	1.86
	Need expected healthcare payment	-0.0248	-0.0353	-0.0143	-4.64
	Need adjusted healthcare payment (HI)	0.1134	0.0218	0.2050	2.43

3. Educational Level

The hospitalization payment by educational level and by income is shown in <Table 4-21>. The payment by the two groups,

one with less than high school diploma and the other with at least high school diploma, for hospitalization by income level did not show consistencies. However, in general, the expenses for hospitalization by the group with less education was more than the group with at least high school diploma. In the case of revised need-based care payment, both groups spent more inpatient care payment with the increase in their incomes.

〈Table 4-21〉 Out-of-pocket payment for inpatient care by educational level

(Unit: KW)

Educational level	Income quintile	Actual healthcare payment	Need expected healthcare payment	Need adjusted healthcare payment
Less than high school diploma	1	115,539	181,267	77,542
	2	148,440	160,725	130,985
	3	192,131	136,962	198,439
	4	119,840	123,228	139,882
	5	140,295	114,117	169,448
At least high school diploma	1	88,410	98,862	68,140
	2	54,407	77,962	55,036
	3	80,890	71,369	88,113
	4	82,359	71,543	89,407
	5	86,844	73,179	92,256

The concentration index for the actual inpatient care payment was a positive value, yet statistically not significant. The concentration index for the need-based forecasted care payment showed both statistically relevant negative values for both groups. The index for the revised need-based care payment revealed that relatively affluent classes spent more on care payment at 0.0987 for those with less than high school diploma and 0.0910 for those with at least high school diploma.

〈Table 4-22〉 Concentration index of out-of-pocket payment for inpatient care by educational level

Category		Concentration Index	95% Confidence Interval		t-value
			Upper limit	Lower limit	
Less than high school diploma	Actual healthcare payment	0.0019	-0.0770	0.0732	-0.05
	Need expected healthcare payment	-0.1006	-0.1117	-0.0895	-17.71
	Need adjusted healthcare payment (HI)	0.0987	0.0262	0.1711	2.67
At least high school diploma	Actual healthcare payment	0.0259	-0.0625	0.1142	0.57
	Need expected healthcare payment	-0.0650	-0.0770	-0.0531	-10.70
	Need adjusted healthcare payment (HI)	0.0910	0.0059	0.1760	2.10

4. Disability

In the case of people with no disability, the actual inpatient care payment was higher in the low income. In the case of disabled persons, those in the lowest income paid the least for inpatient care.

Persons with no disability with revised need for care use spent an increased amount of inpatient care payment in the high income class, but the lowest income group paid relatively less for inpatient care in the disabled group (See Table 4-23).

〈Table 4-23〉 Out-of-pocket payment for inpatient care by disability

(Unit: KW)

Disability	Income quintile	Actual healthcare payment	Need expected healthcare payment	Need adjusted healthcare payment
No disability	1	117,517	142,699	70,087
	2	104,757	98,046	101,981
	3	72,610	84,046	83,834
	4	97,989	75,707	117,552
	5	83,507	75,841	102,936
Disabled	1	123,240	212,351	114,826
	2	209,868	206,409	207,395
	3	340,747	220,740	323,944
	4	118,776	181,096	141,617
	5	227,682	199,046	232,573

The concentration index of the actual inpatient care payment was a negative value among persons with no disability. In the case of disabled group, the payment was a positive value, quite the opposite, but both values were not statistically significant.

The horizontal inequity index of revised-need inpatient care payment revealed to be pro-rich standing at 0.0808 for the group with no disability, while the disabled group showed a positive value, though statistically not insignificant (Refer to Table 4-24).

〈Table 4-24〉 Concentration index of out-of-pocket payment for inpatient care by disability

Category		Concentration Index	95% Confidence Interval		t-value
			Lower limit	Upper limit	
No disability	Actual healthcare payment	-0.0569	-0.1223	0.0085	-1.71
	Need expected healthcare payment	-0.1377	-0.1464	-0.1290	-31.06
	Need adjusted healthcare payment (HI)	0.0808	0.0176	0.1440	2.50
Disabled	Actual healthcare payment	0.0669	-0.0876	0.2214	0.85
	Need expected healthcare payment	0.0227	-0.0548	0.0094	-1.39
	Need adjusted healthcare payment (HI)	0.0896	-0.0611	0.2403	1.17

Chapter

05

Conclusion and Policy Recommendation

Chapter 5

Conclusion and Policy Recommendation

The health care system is known to be one of the most decisive factors in promoting people's health. For this reason, we place great importance in the performance of the health and medical system (Whitehead, 1992). The allocation factor is considered to be one of the important pillars in assessing the performance of the health care system in a welfare country under the democratic system (Lu et al., 2007). In other words, the achievement of horizontal equity within a system or a structure becomes an important criterion.

Korea has experienced a rapid economic growth over the last few decades. This is also true in the health insurance sector, recording a fast quantitative growth. The mandatory health insurance system was applied to businesses for the first time with over 500 workers from 1977 to 1989. It was applied to all Korean nationals in a mere 12 years. The Korean health insurance system levies a health insurance premium to its people in proportion to their income, but the utilization of healthcare service is provided with the principle of equity regardless of income. However, despite the government efforts to achieve equity in healthcare use through a legal national health insurance system, criticism that a great number of problems exist over the equity of utilizing the Korean healthcare service still prevails.

The inequity of health naturally exists in all situations such

as breaking out of illness and death as well as before and after provision of healthcare services. Korea is also witnessing the continuous inequity in the use of healthcare service (Kim et al. 2003; Kim, 2005). The healthcare service plays its role only after the illness breaks out, so we cannot say that the size of the inequity in Korean health is entirely caused by the unequal provision of healthcare services. In reality, researchers in Western Europe have assessed that the role of healthcare service does not play a big role in the inequity of healthcare service. However, while the healthcare payment is almost free of charge with the state-run healthcare system in the UK or Sweden, people in Korea still pay for almost half the healthcare payment. It is expected that the inequity contributes relatively a great deal to the inequity of healthcare services.

This study measured the degree of equity in the use of healthcare and its payment based on such study outcomes and attempted to find policy alternatives. The following are the study outcomes:

First, in the case of outpatient healthcare, the actual healthcare utilization (CI) and the healthcare utilization revised based on need (HI), have negative values, showing a greater use by the low-income class in using healthcare service even after revising the need. However, after revising the need, compared to actual healthcare utilization, the absolute value dropped, revealing that the need of the low-income class was higher than higher-income classes.

By small groups, females and the group with no disability showed pro-poor tendencies even after revising the need. Other groups did not have a statistically significant value.

Second, the analysis of the equity for emergency healthcare use revealed that the low-income class used it more, but compared to the outpatient service, the concentration level of the low-income class was low. Even after revising the need, the value was still negative, but statistically insignificant.

In the small group analysis, the concentration level in low-income class was lower for emergency services compared to outpatient service utilization. In the senior groups, the more educated were less likely to show up not only in the revised need but also in actual healthcare use. In the disabled group, in particular, the value was not statistically significant. The result was a positive value in actual healthcare use. Despite the fact that the need for the healthcare use in the disabled group was high in the low-income class, the concentration index of the actual utilization had a positive value. This means that the actual utilization of emergency healthcare service is less in the low-income disabled group than the need.

Third, it was shown that the low-income class actually used the most with inpatient service, but this could not be found after the need was revised. By small group, inpatient and emergency healthcare service utilization were similar, but the inpatient healthcare utilization for low-income disabled group used less inpatient service than needed.

Important causes influencing the equity of inpatient healthcare utilization were illness variables such as chronic illness and the quality of health-related life. Other causes were subscription to a private insurance, the types of health insurance and educational background.

Fourth, based on the frequency of using healthcare service, outpatient utilization out of outpatient/emergency/inpatient healthcare services was found to be the most pro-poor. Inpatient and emergency services were not of statistical significance and emergency healthcare was ever less pro-poor.

Fifth, in the case of outpatient healthcare payment, the concentration index of the actual one showed positive value, yet statistically not significant. After revising the need, it was revealed that the high-income group spent relatively more healthcare payment.

By small group, only the male group did not have statistically significant value. The concentration index of the actual healthcare expense was all negative and the rest of the small groups all had statistically significant positive values in actual healthcare payment and revised need healthcare payment.

Sixth, in the case of emergency healthcare expenditure, the need for using healthcare service was found to be relatively higher in the low-income bracket, but the actual expenditure or the healthcare payment after revising the need for the healthcare use was statistically insignificant. The analysis outcome for small group was similar.

Seventh, in the inpatient healthcare payment category, the actual healthcare payment generally showed a positive value, yet statistically not significant. The revised need-based healthcare payment, showed pro-rich tendency. By small group, with the exception of males and the disabled group, all groups had pro-rich values after the need was revised in utilizing healthcare services.

Eighth, out of outpatient, emergency and inpatient healthcare

services, outpatient healthcare showed to be the most pro-rich and no statistically significant inequity was found in emergency healthcare service.

Korea has been carrying out its own National Health Insurance system since 1989, 12 years after health insurance was first introduced in 1977. Korea has been making consistent efforts to strengthen the security of its healthcare service. However, if the main objective of providing health insurance as a social security system is to provide access to required healthcare service regardless of the ability to pay, the current out-of-pocket expenses or the current healthcare service supply method centering on private service can be an obstacle in achieving its goal (Kim, 2005).

The Korean government set up one of its national health promotion policy visions to achieve public health equity (Ministry of Health and Welfare·Korea Institute of Health and Social Affairs, 2010). To reach the goal, the government has proposed the direction of the policy mainly focusing on preventive services, such as family doctor system, in order to manage chronic illnesses, health management service, and customized health management service provided at the public health center (Korea Centers for Disease Control and Prevention, 2009).

The survey outcome, however, illustrates that efforts must be made not only in establishing policies for preventive services, but also in improving the equity of the healthcare utilization. In specific groups, such as the elderly and the disabled vulnerable to weak economic base, the relatively high economic barrier can be an obstacle in using required healthcare services. Whitehead

(1992), WHO Commission on Social Determinants of Health (2007) has already suggested the development of a program concentrating on the vulnerable groups including the low-income class in order to alleviate the health inequity. Besides, the establishment of a policy is also proposed to narrow the health gap between the poor and the rich. Lastly, it has advised the development of a health policy aiming at not only improving health level in general, but also keeping the equity of the health status in mind.

For these reasons, Korea also needs to develop a program to alleviate the inequality in healthcare use among population in establishing a health inequity policy. In particular, the policies and methods making use of the service insufficiently must be considered, so as to enhance access of the groups that have the need for healthcare use.

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