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Patient's assessment of primary care of medical institutions in South Korea by structural type

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Abstract

Objective. To compare patient's assessment of primary care of medical institutions by structural type.

Design. Cross-sectional study.

Setting. Primary care clinics where family physicians work in South Korea (nine private clinics, three health cooperative clinics, three public health center clinics and five teaching hospital clinics). We collected data by questionnaire survey from April 2007 to June 2007.

Participants. Study subjects were patients who had visited their primary care clinic on six or more occasions over a period of more than 6 months as a usual source of care.

Main outcome measures. Scores in each domain of primary care, evaluated by the Korean Primary Care Assessment Tool.

Results. A total of 968 subjects were surveyed. The median of primary care average scores was the highest (78) in health cooperative clinics, the second in teaching hospitals clinics, the third in private clinics and the lowest (62) in public health center clinics. When compared with private clinics, the odds ratio for having a high primary care average score was 2.1 (95% confidence interval 1.3–3.3) for health cooperative clinics, and 0.55 (95% confidence interval 0.34–0.88) for public health center clinics.

Conclusion. Among medical institutions where family physicians work in South Korea, health cooperative clinics showed the highest primary care average score, and public health center clinics the lowest. To reinforce primary care in South Korea, where medical service delivery systems are only loosely established, health cooperative clinics could serve as an alternative.

Keywords: primary health care, quality assurance, ambulatory care facilities

Introduction

Primary care is essential. The stronger a country's primary care system, the better the combined impacts including 14 health indicators, total health systems expenditures per capita, population's satisfaction with its health system and expenditures per person for prescribed medications in purchasing power parties [1]. Furthermore, the more primary care physicians per population, the better the life chances, including total mortality rates, heart disease mortality rates, cancer mortality rates and so on [2].

According to a comparative study, the UK, Denmark, Finland, the Netherlands and Spain are countries that have strong primary care systems, while the primary care systems of the USA, Germany, Belgium and France are relatively weaker [3]. South Korea was evaluated to have the weakest primary care system among OECD countries [4]. In South Korea, 92% of medical institutions are private, whereas the public health centers and governmental hospitals form only a small part. The National Health Insurance system markedly enhances accessibility to medical services. Patients can visit any specialty clinic in community and general hospitals

without restriction. But the delivery system of medical services is poorly established, and every doctor can run a private office regardless of his or her specialty in medicine. Under the fee-for-service payment system in South Korea, even public medical institutions compete with private institutions.

The government of South Korea has tried several times to establish medical services delivery systems and the preferred doctor system as a regular source of care for solving the problem of inefficient use of medical resources. But these efforts have failed due to the resistance of the Korean Medical Association, lack of consensus in public opinion, insufficient drive of the government and scant evidence about the effectiveness of such a system in Korea [5, 6].

The three important factors of health-care systems are structure, process and outcome [7]. Of these factors, structure has influence on performance [8,9]. According to medical outcomes studies in the USA from 1986 to 1990, financial access was high in a prepaid system, whereas organization access, continuity and accountability were high in fee-for-service systems [10]. In South Carolina, a community health center was more highly evaluated by users in the areas of primary care performance, continuity, organization access, comprehensiveness and coordination than health maintenance organization (HMO) [11]. Similarly, primary care performance, including first contact, comprehensiveness, coordination, personalized care and family context care, would differ among medical institutions of different structures in South Korea. However, scant data are available to assess this supposition. We tried to test the hypothesis. This study could be utilized to improve the quality of primary care, help with effective primary care education, and provide data for public health policy planning. The results of this study could eventually contribute toward the quality of primary care in South Korea [12].

Methods

This study was approved by the Institutional Review Board of Kangnam St. Mary's Hospital, the Catholic University of Korea.

Study subject institutions

We confined study subjects to medical institutions where family physicians serve, since family medicine is the only specialty to profess primary care in South Korea, and family physicians are relatively homogenous due to a standardized residency curriculum. The family medicine specialty in South Korea was introduced in 1979 to train qualified primary care physicians [13]. Medical institutions in this study consist of private clinics, health cooperative clinics, public health centers and family medicine clinics in teaching hospitals (Table 1). The private clinics of family physicians are mostly self-owned. Health cooperative clinics run by medico-cooperative associations are non-profit medical institutions. A distinctive point of health cooperative clinics is to allow all three kinds of community participation such as medical, health services and community development approach in health programs [14]. Only five health cooperative clinics existed during the study period (2007). Public health centers are mainly used by the aged or the poor. Family medicine clinics in teaching hospitals are set up to take charge of primary medical care in secondary or tertiary centers.

Sampling method

We used secondary data collected to evaluate the validity of the Korean Primary Care Assessment Tool (KPCAT), as well as additional data gathered for this study. The method of data collection was described in detail elsewhere [15]. To be brief, we sampled medical institutions (private clinics, public health centers, teaching hospitals) according to regions and types of institutions where family physicians work. Even though health cooperative clinics occupy a negligible portion of medical institutions, we included them because their structure was interesting to us. Evaluators were patients who had visited their primary care clinic on six or more occasions over a period of more than 6 months as a usual source of care. The evaluation by frequent visitors was the prerequisite of the KPCAT questionnaire and related to the purpose of our article since frequent visits were thought to be necessary to assess provider's performance reliably. Considering the number of predictors, we estimated the need for more than one hundred patients per type of institution. So we continued gathering data for each institution until the requirement was met.

The regional distribution of participating institutions was as follows. Of nine private clinics, three were in Seoul (the capital city), three in its satellite cities and three in two local cities (Gyeongju and Pohang). Five teaching hospitals were surveyed: four were located in Seoul and one in Gyeongju City. All three public health centers were in Seoul. We surveyed three health cooperative clinics: one in Incheon City, one in Ansan (a satellite city of Seoul), and one in Ansung (a small provincial city in a rural area). We excluded 10 questionnaires from the analysis due to three or more missing items (more than 10%). Finally, a total of 968 questionnaires were used for analysis. A total of 602 (62.2%) questionnaires were gathered at private clinics, 162 (16.7%) at teaching hospital clinics 104 (10.8%) at public health center clinics, and 100 (10.3%) at health cooperative clinics.

Data collection

The interviewers were trained for standardized technique. Interviewers visited each medical institution and administered questionnaires to study subjects and helped them answer the questionnaires. The questionnaires included KPCAT items and those of general patient characteristics. Data collection was performed from 23 April 2007 to 23 June 2007. The questionnaires were answered by patients themselves. For the patients who were less than 18 years old or disabled, the guardian filled out the questionnaire.

Table I Characteristics of medical institutions where family physicians work in South Korea

	Private clinic	Teaching hospital clinic	Public health center clinic	Health cooperative clinic
No. of primary care physicians	Mostly 1	2 or more	2 or more	2 or more
No. of staff	3 or less	3 or more	3 or more	3 or more
Owner	Self-employed physician	University or hospital foundation	Local governments	Medico-cooperative association
Community participation[a]	Medical approach (±)	Medical approach (±)	Medical approach (±)	Medical approach (+)
	Health service approach (−)	Health service approach (−)	Health service approach (+)	Health service approach (+)
	Community development approach (−)	Community development approach(−)	Community development approach (−)	Community development approach (+)
Types of physician	Family physician	Family physician working with various other specialties	Family physician, but any other physicians possible	Family physician usually working with oriental medicine or dental doctors in the same institution
Physicians' job satisfaction[a]	Low to middle	Middle to high	Low	Middle
Reimbursement type	Fee for service	Fee for service (higher fee than other institutions)	Fee per visit	Fee for service with membership fee
User characteristics	The average	The wealthier	The older and poorer	The older and poorer
Relationship with other institutions	Competitive	Competitive	Competitive	Competitive

[a]Estimated by authors.

Korean Primary Care Assessment Tool (see the Appendix)

KPCAT is a validated tool based on Korean primary care definition [16] and consists of five domains [15]. The scoring system is as follows: each response on a 5-point Likert scale is converted from 0 to 4. Means of item scores in the same domain are multiplied by 25 to yield domain scores (0–100). The primary care average score is the mean of five domain scores.

Statistical analysis

Non-parametric analyzes were chosen, as the distribution of characteristics of participants and the primary care scores did not meet normality. Continuous data, such as age, income, years of education and primary care assessment score by structural type of medical institutions, were compared using the Kruskal–Wallis test, and discrete data such as gender, by using a chi-square test. We also used parametric analysis (multiple logistic regression) to adjust different characteristics of participants by structural types. Outcome variables such as the primary care domain score and average score were categorized into two groups based approximately on median values. Medical institution was treated as a dummy variable and compared to the referent group, private clinics. We used STATA version 9 as the statistical package.

Results

Among those who were eligible to participate in this survey ($n = 1259$), there were no significant differences between the participants ($n = 968$, 76.9%) and non-participants ($n = 291$, 23.1%) in terms of age and sex. The most common reason for refusing to complete the questionnaire was that the patient was too busy. The median age of participating study subjects was 54 years. Age was highest in public health centers and lowest in private clinics. Females were 62.1% and males 37.9%. The median monthly household income was the highest in hospital patients and the lowest in public health center patients. The distributions of age, household income, education duration, duration since the first visit and the number of diseases differed significantly among medical institutions, but gender did not (Table 2).

The median comprehensiveness score was the highest (75) in health cooperative clinics and that of teaching hospital clinics was the second highest. The median coordination score was the highest (67) in health cooperative clinics and teaching hospital clinics, whereas that of public health center

Table 2 General characteristics of study subjects, median (min, max) except sex

Institution	Private clinic ($N = 602$)	Teaching hospital clinic ($N = 162$)	Public health center clinic ($N = 104$)	Heath cooperative clinic ($N = 100$)	Total (%) ($N = 968$)	*P*-value[a]
Age (year)	49 (1, 88)	58 (21, 84)	71 (28, 82)	53 (2, 87)	54 (1, 88)	<0.001
Sex (frequency)						
Male	226	67	43	31	367 (37.9)	0.33
Female	376	95	61	69	601 (62.1)	
Household income (won/month)	225 (0, 2000)	250 (0, 1500)	50 (0, 800)	150 (0, 100)	200 (0, 2000)	<0.001
Education (year)	12 (0, 20)	12 (0, 21)	9 (0, 18)	9 (0, 16)	12 (0, 21)	<0.001
Length of relationship with physicians (year)	4 (1, 11)	4 (1, 17)	6 (1, 8)	6 (1, 7)	4 (1, 17)	<0.001
Number of co-morbidities	1 (0, 3)	1 (0, 3)	2 (0, 3)	1 (0, 3)	1 (0, 3)	<0.001

[a]*P*-value by Kruskal–Wallis or chi-square test.

clinics was the lowest. The median personalized care score was the highest (100) in health cooperative clinics whereas that of public health center clinics was the lowest (85). The median of family/community orientation score was the highest (75) in health cooperative clinics and the median of first-contact care was also the highest (95) in health cooperative clinics. The median of primary care average scores was the highest (78) in health cooperative clinics, the second highest in teaching hospital clinics, the third highest in private clinics and the lowest in public health center clinics (Table 3).

Each domain of primary care was categorized into two groups, high score and low score, based approximately on the 50th percentile. The cut-off point was 60 in coordination, 95 in personalized care, 65 in family/community orientation, 90 in first-contact care and 70 in the primary care average score. When compared with private clinics, odds ratios (ORs) for having a high score by medical institutions were adjusted for age, gender, education duration, household income, length of relationship with physician and the number of co-morbidities. The ORs of health cooperative clinics were significantly higher: 2.1 (95% confidence interval (CI) 1.3–3.3), 2.0 (95% CI 1.3–3.2) and 4.1 (95% CI 2.5–6.7) in the primary care average score, the family/community orientation and comprehensiveness, respectively. The ORs of health cooperative clinics were not inferior to any other institution in other domains of primary care. On the contrary, public health center clinics showed significantly lower ORs: 0.55 (95% CI 0.34–0.88), 0.12 (95% CI 0.069–0.21), 0.41 (95% CI 0.25–0.67) and 0.28 (95% CI 0.17–0.45) in the primary care average score, first-contact care, family/community orientation and personalized care, respectively. The ORs of public health center clinics were not superior to any other institution in any domain of primary care. The ORs of teaching hospital clinics were significantly higher (1.9) in the comprehensiveness domain. However, they were significantly lower (0.18) in first-contact care and (0.48) in the family/community orientation domain (Fig. 1).

Discussion

The older, the poor and the less-educated were relatively common in public health center patients (Table 1), which

Table 3 Primary care assessment score by structure; (median, inter-quartile range)

Institution	Private clinic	Teaching hospital clinic	Public health center clinic	Health cooperative clinic	Total	*P*-value[a]
Comprehensiveness	56 (31)	69 (25)	56 (31)	75 (28)	56 (38)	<0.001
Coordination	58 (42)	67 (42)	50 (46)	67 (50)	58 (42)	<0.001
Personalized care	95 (15)	95 (20)	85 (25)	100 (18)	95 (20)	<0.001
Family/community orientation	63 (19)	56 (19)	56 (31)	75 (31)	63 (15)	<0.001
First contact	90 (15)	80 (25)	75 (15)	95 (15)	90 (15)	<0.001
Primary care average score	71 (19)	71 (16)	62 (21)	78 (23)	71 (20)	<0.001

[a]*P*-value by Kruskal–Wallis test.

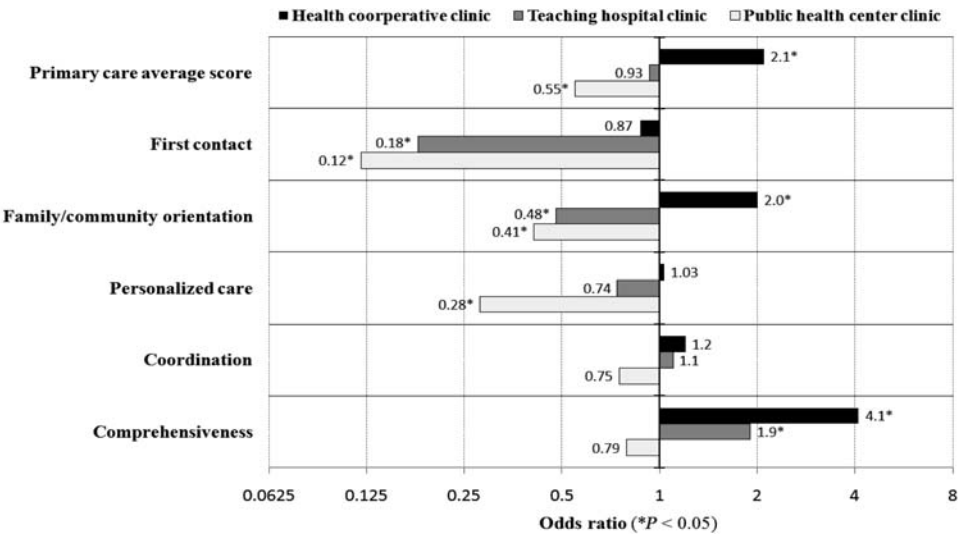

Figure 1 Odds ratio (OR) for having a high score in key domains of primary care by medical institutions, when compared with private clinics (the reference group). ORs are calculated by use of multiple logistic regression models adjusted by age, gender, education duration, household income, length of relationship with physician and number of co-morbidities. The *X*-axis is drawn to a logarithmic scale.

seemed to reflect the fact that out-of-pocket charges of medical services in public health centers are relatively low. Visitors to health cooperative clinics were relatively poor and less educated, which seemed to correspond to the target people at disadvantageous locations. The primary care average score was the highest in health cooperative clinics and the lowest in public health center clinics (Table 3, Fig. 1). Further research is needed to elucidate the detailed structural factors that made differences in the assessment score such as personnel, facilities and equipment, management and amenities, range of services, etc. [17]. Below, we shall discuss the relevant factors at an intuitive and integrative level.

When compared with private clinics, ORs for having a high score in health cooperative clinics were significantly higher in domains of comprehensiveness and family/community orientation. They were not inferior to any other type of medical institution in other domains (Table 3, Fig. 1). This result gives evidence that health cooperative clinics have operated in accordance with their original mission. In providing comprehensive medical services it is an strength that there are two or more doctors in health cooperative clinics when compared with one doctor in private clinics. This result suggests that a health cooperative clinic could serve as an alternative to enforce primary care in South Korea, where the medical delivery system is only loosely established. Health cooperative clinics are in a sense like a medical home in the USA, closely related to the primary care concept, providing more effective, efficient and equitable care to individuals and populations [18–22].

The primary care performance score of community health centers in the USA was evaluated to be higher than HMOs by users, although users of community health centers have characteristics associated with poorer ratings of care [11]. In common with health cooperative clinics in Korea, the community health centers in the USA as non-profit medical institutions provide substantial qualified primary care service according to the establishment's mission. From these results, the missions of the medical institutions seem to have great influence on primary care performance. Shared decision-making in the management of health cooperative clinics by community dwellers is another important factor conforming to their mission, which is an important discriminating factor between public health centers and health cooperative clinics in Korea.

The ORs of public health centers were not higher than those of any other institution in any domain (Table 3, Fig. 1). The public health center in Korea gives priority to the financial accessibility of the lower-income classes and community dwellers. With insufficient workforce and equipment, the public health center covers a large population. Therefore, its ability to satisfy other primary care attributes is limited. Regardless of these limitations, there is room for improvement in primary care performance of public health centers as public organizations to solve medical inequities in the lower socioeconomic classes. Considering the paucity of public medical institutions in Korea, public health centers should seek ways to provide qualified primary care services to the lower classes. Furthermore, additional efforts will be needed for the elderly and poor chronically ill patients because their health outcomes would be different [23].

Compared with clinics in hospitals and public health centers, private clinics did not show inferior scores in any domain except comprehensiveness (Fig. 1). The efforts that practicing physicians make to meet community medical needs seemed to raise the primary care performance. The factors attributed to the low scores in the comprehensiveness domain could be explained as follows. In South Korea, most practicing family physicians operate their private clinics single-handedly. Therefore, extending ranges of medical services would conflict with management efficiency.

Clinics in teaching hospitals showed lower ORs than private clinics in first-contact care and the family/community orientation domain, which could be the result of failing to obtain a community base and orientation. It is an important weakness in the education system that typical primary care models were not demonstrated to students and family medicine residents in teaching hospitals.

The primary care assessment score of all medical institutions was relatively high in personalized care and first-contact care domain, whereas it was low in the comprehensiveness and coordination domains (Table 3). A preceding Korean study that used a modified Primary Care Assessment Scale with a convenient sample showed results consistent with this: accessibility was relatively high, whereas comprehensiveness and coordination were low [24]. A high score in the first-contact domain would be due to the fact that in South Korea, everyone can, for the most part, visit any medical specialty clinic or hospital without an appointment. Low comprehensiveness would be due to the pursuit of efficient organization management in an environment of competition among all medical institutions regardless of specialties or scales. Competition among medical institutions would also be the main factor in reducing the coordination score of primary care. As efforts to improve quality in primary care institutions can result in better outcomes [25], medical institutions should try to enhance primary care performance as a whole. At the same time, effort is needed to make an efficient system for primary care, as the characteristics of practice are influenced largely by the characteristics of systems of medical services [26].

Finally, the limitations of this study must be noted. First, the scores were based on patient assessment, which reflected their experiences rather than outcomes of primary care. Patient perceptions are under the influence of many factors, and usually do not represent the whole picture. Recall bias may also intervene. However, this point of view has the advantage that actual experiences of patients were assessed, which could not be shown by any other method. Second, we selected medical institutions in advance and then gathered data from the frequent visitors, which could make the average score high. However, the trend would be same in all types of institutions, thus we think the possibility of distorted conclusions in this study is very low. Third, the adjusted comparisons did not make for direct differences by the structures of institutions. In testing statistical significance, we compared odds ratios, getting a high score with reference to private clinics, which may cause some deviation from actual facts in interpretation. However, the difference would not be enough to reverse the conclusion. Fourth, the small numbers of health cooperative clinics could bring about potential bias. However, the sampling fraction (3/5; 60%) of health cooperative clinics is quite high during the study period. Fifth, sampled public health centers were small in number and localized in area due to practical limitations. However, this fact would not distort the conclusion because public health centers across Korea are quite similar in personnel, structure, role, financing, target population, etc.

In conclusion, we found that the structural type of medical institutions influenced the primary care assessment score. Non-profit health cooperative clinics provided high-quality medical service in all domains of primary care essential attributes. It could be an alternative to reinforce primary care in South Korea, where medical services delivery systems are only loosely established.

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Appendix: Item contents of the Korean Primary Care Assessment Tool

Domain	Item content
Comprehensiveness	Medical check-up available? (e.g. physical exam, blood sugar, cholesterol, BP controls, etc.)
	Counsels for cancer prevention and screening?
	You (or your family member) get periodic Pap smear tests from your physician?
	Periodic health examination by your physician?
Coordination	Does your doctor recommend health-care resources appropriately?
	Since your doctor started treating you, have you ever visited a specialist?
	a. If yes, did your doctor recommend the specialist?
	b. If yes, did your doctor review the referral results?
Personalized care	Does your doctor treat mental health problems as well as physical health problems?
	Doctor understands patients' words easily?
	Doctor explains test results in a manner that is easy for patients to understand?

(*continued*)

Appendix Continued

	Doctor recognizes patient's important medical histories?
	Trust your doctor's decisions on treatment?
Family/community orientation	Doctor knows about the health, well-being and environmental problems of your community?
	Doctor has a concern about the persons living with you?
	Is the doctor active in promoting the health of your community?
	This clinic surveys and reflects people's opinions on health care?
First contact	Do you visit this clinic first when a new health problem arises?
	Is it easy for you to access this facility?
	Appropriateness of out-of-pocket cost?
	Your doctor sees patients regardless of their age and sex?
	Basic health care available? (e.g. dressing, suture, splint, etc.)

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