



# Exploring the Development of Public Health Care through Health Care Utilization Survey

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## Abstract

**Purpose:** The purpose of this study was to provide comprehensive measures for the development of public health care through a survey on consumers' awareness of health care use from the point of view of local residents. **Research design, data and methodology:** For about one week from January 07 to January 14, 2021, questionnaires were distributed to 800 local residents and analyzed. For statistical analysis of collected data, frequency analysis and cross-analysis were performed. **Results:** Regarding public health service, 'providing medical services that can be used by all citizens and protect and promote health' had the highest response rate of 95.2% of total respondents. Regarding health care system satisfaction, 'Accessibility to general treatment' had the highest score with an average of 3.31 points. Regarding comprehensive measures for the development of public health care, 'Establishment of an infection and patient safety system' had the highest score with an average of 3.91 points. **Conclusions:** The direction of public health care and services should include management of infectious diseases during national disasters, reduction of gaps in medical use by region and class, improvement of access to emergency medical care, and quality improvement of specialized medical care.

**Keywords :** Public health, Health care utilization survey, Local medical center, Accessibility, Demands

**JEL Classification Codes:** I00, I11, I12, I14, I18

## 1. Introduction<sup>a</sup>

Medical institutions in Korea are divided into public medical institutions and private medical institutions based on establishment entity (Moon, 2020). However, with the revision of the "Public Health and Medical Care Act" in 2012, private medical institutions can also perform public health care functions. The definition of public health care has been redefined from the point of view of national and public ownership to the point of view of function (Jung, Lee, & Yoo, 2016).

Depending on the role or function of a medical institution, a private hospital may take over the function and role of a public hospital. Ultimately, cooperation and networks between public and private medical institutions are very important for the health of the people. Public-private partnerships (PPPs) are widely spread long-term arrangements between governments and strategic private partners (Bjorvatn, 2018; Ferreira & Marques, 2021). However, from perspectives of providing essential medical services, reducing the gap between medically vulnerable areas and medical use, improving access to medical care for

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low-income class, and managing national disasters and infectious diseases, functions of public hospitals also play a central role in the development of public health.

Public medical institutions refer to health care institutions established and operated by the state, local governments, or public organizations prescribed by Presidential Decree. There are various methods and forms of establishment and operation by government institutions (Kim, 2018). A representative public medical institution that is evenly distributed throughout the country in Korea is a regional medical center. As a public hospital, local medical centers have a social responsibility to provide medical services needed by local residents at an affordable cost while maintaining an appropriate level of quality (Lim, Hwang, & Suh, 2010).

In September 2020, 29 regional medical centers across the country were selected as public health and medical cooperation system establishment project organizations in Korea. It is necessary to promote public health and medical projects along with continuous management improvement efforts. In accordance with the Public Health and Medical Services Act, the government prepared the 1st Public Health and Medical Services Basic Plan (2016-2020) in 2016 and announced the Comprehensive Measures for the Development of Public Health and Medical Services to strengthen the public nature of medical care in October 2018 (Kim & Lee, 2019).

In rural areas, unlike in metropolitan area or large cities, access to high-quality medical services is low. Thus, they are moving to other areas for treatment. In particular, the geographical location greatly depends on the quality of service and the level of medical care. More than 90% of the domestic health care service system is supplied by the private sector. Medical resources are concentrated in the metropolitan area and metropolitan areas where medical profits are guaranteed, resulting in an unbalanced supply of medical services (Cho, Kang, & Kim, 2013). In particular, although private hospitals can perform public health functions in Korea, roles of public and private health care are not divided. The public nature of private medical institutions, which account for most of the medical supply system, is weak. The distribution of medical institutions is also concentrated in large cities (Kang, Lee, & Kim, 1995).

In rural areas, there is a health disparity between regions due to a lack of supply in the low-profit essential medical field and a lack of connection with local services. Rural areas need to establish a public health and medical cooperation system between local health and medical institutions to improve public health care and essential medical problems. From this point of view, there is an urgent need for national policy or national enactment support for the development of public health care. Public health policies may enhance benefits from human capital (Li, Lu, Hu,

Cheng, De Maeseneer, Meng, & Hu, 2017). Nevertheless, public medical institutions cannot continue to receive unlimited financial support. Therefore, public medical institutions should work together through mutual harmony of profitability and public nature of medical care (Yang & Park, 2020).

The government plans to eliminate the void in essential medical care by promoting the construction of regional medical centers and Red Cross hospitals in nine regions including Geochang and Yeongwol, designating regional cardiovascular and cerebrovascular disease centers in the mid-career area and fostering regional emergency medical centers (Park, 2015). There are five medical centers in Gangwon-do. Among them, Gangneung Medical Center in particular received the lowest score in the evaluation of various public health medical institutions. Thus, it is more demanding than other medical institutions in Gangwon-do to improve the quality of public health care, manage patients, and cooperate with other institutions (Park, 2005).

In 2018, chronic disease management was included in the change of compositions of evaluation criteria for the adequacy of treatment by year. However, in 2019, emergency medical services were included except for chronic disease management. In Gangneung, there are four general hospitals, one regional emergency center, one regional emergency center, and one cardiovascular certified hospital (Moon, 2020).

Gangneung Medical Center (GMC) is actively participating in the project to build an efficient public health and medical cooperation system based on the strengthening of linkage, cooperation, and coordination functions with health and medical institutions and related institutions within the middle treatment area (Choi, Jung, Kwon, Ko, Lee, & Kim, 2020).

This institution intends to develop the most appropriate public health and medical cooperation model for the region by analyzing the health and medical environment in the region and reviewing literature on local residents' medical usage status and behavior, as well as excellent domestic and overseas cooperative models and related prior research. GMC's ultimate goal is to strengthen accountability of regionally responsible medical institutions.

From a national point of view, the Ministry of Health and Welfare announced a "reliable and usable regional health care reinforcement plan" to resolve severe regional medical imbalances on November 11, 2019. It was intended to resolve regional disparities in essential medical care in order to prepare for measures to resolve regional medical imbalances. In particular, the Corona-19 environment of novel infectious disease is a public health emergency and crisis situation. To find a clear countermeasure, it is important to recognize communicating actions and communicating risks, which are cores of crisis

communication (Moon, 2020).

The main actors of crisis communication include the government, the public, experts, and journalists. However, ultimately, from the perspective of consumers who are subjects of medical services, basic data are needed for efficient public health and medical cooperation system establishment projects by strengthening the role of local health care institutions and the linkage, cooperation, and coordination functions between related institutions for Gangneung citizens to do research. Therefore, the aim of this study was to provide basic surveys and suggestions for comprehensive measures for the development of public health care through a survey on consumers' awareness of health care use from the point of view of local residents in a region of Korea. Such studies are rare at home and abroad. Results of this study are expected to greatly contribute to the development of public and local medical centers.

The purpose of this study is to provide comprehensive measures for the development of public health and medical care in Gangneung City. Detailed research goals are: 1) to conduct a perception survey on public health services in Gangneung; 2) to identify the need for comprehensive measures for the development of public health care in Gangneung; 3) to study projects and services for improving health care and the health care system of Gangneung City; and 4) to suggest a comprehensive measure for the development of public health and medical care in Gangneung City by examining the satisfaction level.

From a theoretical point of view, it is a major feature of Gangneung that it provided an opportunity to improve the disparity in medical use and the degree of access to medical care by improving the satisfaction of the citizens of Gangneung with health services and enhancing health equity. From a practical point of view, it was possible to identify the medical use patterns and preferences of the citizens by deriving the medical behavior, satisfaction, and medical access of Gangneung citizens.

## 2. Theoretical Backgrounds

The development of public health care in Korea was first initiated in 1981 with "Improvement Plan for the Public Health System" to seek development of operation of the public health system. Since then, the Public Health and Medical Care Act was enacted in 2000, stipulating that high-quality public health care should be provided in an equitable and effective manner (Lee, 2019).

In the past, interest in management of medical centers increased as the strike that decided to close the Jinju Medical Center, a public medical institution. Chronic accumulated deficits triggered the strike. Taking this opportunity, in 2005, the Ministry of Health and Welfare established a

comprehensive plan for the expansion of public health care and reorganized the public health care delivery system for the development of public health care.

According to the 「Act on the Establishment and Operation of Local Medical Centers」, the Ministry of Health and Welfare has conducted annual regional base public hospital evaluations for regional medical centers (34) and Red Cross hospitals (6) nationwide since 2006. Evaluation is carried out using computerized data such as the Health Insurance Review and Assessment Service, documents such as financial statements, and surveys from specialized institutions and field investigations. Operational evaluation consists of a total of four areas: ① quality medical care, ② public health and medical services, ③ rational operation, and ④ responsible operation.

In 2020, a recent evaluation of Ministry of Health and Welfare Press Release, Wonju Medical Center in Gangwon-do was rated A, Samcheok Medical Center and Gangneung Medical Center received a Grade B, and Sokcho Medical Center and Yeongwol Medical Center received a Grade C.

In particular, the basic principle for strengthening necessary public health functions is to strengthen necessary medical subjects (internal medicine, surgery, obstetrics and gynecology, pediatrics, urology, neurology, neurosurgery, orthopedic surgery, psychiatry) in vulnerable areas such as rural areas depending on regional supply and demand situation. Medical centers in urban areas can reduce competition with the private sector and provide medical services by strengthening specialized functions such as specialization by target and field, connection with health and welfare, and health promotion. The 2018 Comprehensive Measures for the Development of Public Health and Medical Services (Ministry of Health and Welfare, 2018) emphasized the strengthening of public health and medical responsibility for bridging regional disparities, strengthening national coverage for essential medical care, nurturing public health and medical personnel, and enhancing capacity.

In view of the current COVID-19 situation (2021), by strengthening the national coverage of essential medical care, which is being emphasized, strengthening essential serious medical care is directly related to life such as emergency, trauma, cardiovascular and cerebrovascular diseases, and expansion of medical services for the health-vulnerable class such as mothers, children, and the disabled. The goal is to establish a safety system for responding to infectious diseases and public health crises.

Accountability in the health care sector is divided into three categories: an expert model, an economic model, and a political model based on the area, location, and procedure of responsibility (Emanuel & Emanuel, 1996; Rodin, Zimmermann, Rodin, Awamer, Sullivan, & Chamberlain,

2020). Professional responsibility has traditionally been emphasized in the medical field as a responsibility to restore patient's health through direct interaction between the patient and the medical professional based on the medical professional's competence and legal and moral norms. Political responsibility refers to the duty of patients and doctors as citizens to express their opinions directly so that they can increase the public good value of medical care to medical institutions and administrations.

The presentation of such opinions is institutionally guaranteed. This is suggested as a health care accountability model that should aim for a system in which the patient-physician relationship maintained by professional accountability operates within the political accountability model. Political and economic responsibilities among various stakeholders are considered. Therefore, responsibilities of public institutions consist of social responsibility, internal responsibility, customer responsibility, and vertical responsibility to form an organic relationship with each other and to give positive influence on an organization's performance of Seoul National University Graduate School of Public Health in 2011.

Meanwhile, in Gangneung, the number of patients continues to decrease due to aging of the local population and a decrease in the overall population. In Gangneung, the development of transportation such as KTX due to the hosting of the Pyeongchang Winter Olympics, etc., has rather large effects such as accelerating the concentration of patients from Gangneung to the metropolitan area and intensifying competition between hospitals. In addition, chronic deficit of GMC is accumulated due to external threats from high level of medical demand and rapidly changing medical environment, as well as internal factors such as lack of securing and fostering excellent medical personnel and unreasonable collective agreements. GMC has the highest net loss from the current management status of medical centers in Gangwon-do due to continuous management difficulties. A high-intensity reform plan for improving the management of the medical center is being requested. This institution provides quality essential medical services for Gangneung citizens more than other public medical institutions in Gangwon-do (Choi et al., 2020).

The focus is on the expansion of local medical centers (~2025) and the modernization and enhancement of functions of public hospitals in order to strengthen public health capacity. The medical center is specifically seeking to upgrade public health capabilities by expanding infection safety facilities, implementing smart infection control including remote collaboration, and linking public medical institutions of Medical Institution Policy Division, Ministry of Health and Welfare in 2021.

### 3. Research Methods

#### 3.1. Questionnaires and Surveys

An individual's health care decision and behavior include many factors and variables. An individual's decision to use health care services is the result of a complex interaction of factors relating to the person's health and self-reported health status. It is also related to the availability of health care offer (Fernandez-Olano, Lopez-Torres, Cerda-D, Requena-Gallego, Sanchez-Casta, Urbistondo-Cascales, & Otero-Puime, 2006).

The analysis of demand for essential medical care of Gangneung citizens was finally reviewed through the 2018 community health statistics collection (Gangneung, Goseong, Donghae, Wonju, etc.) and the 2020 community health survey booklet. In addition, data such as existing research results, report results, and media reports were collected. Qualitative research on integrated support for health and medical welfare networks was synthesized by analyzing excellent model data of domestic and foreign public medical institutions' cooperation systems.

A survey question was developed and carried out to investigate the consciousness of Gangneung citizens to use public health care with the goal to provide comprehensive measures for the development of public health care in Gangneung City. In fact, there is a survey on the awareness of local residents developed through 'Regional Base Public Hospital Operation Evaluation' (Sim & Hwang, 2015).

However, in this study, based on questionnaires conducted by the Institute for Health and Social Affairs, contents of four units were mainly analyzed in accordance with the purpose of this study. General characteristics of survey subjects had five questions. Main contents of the survey, "awareness of public health services", had six questions. Satisfaction with the health care system had six questions. Projects and services for improving health care and general development of public health care had 20 questions. The need for countermeasures had 10 questions. Thus, there were a total of 47 questions.

From January 07 to January 14, 2021, after listening to sufficient explanations from surveyors trained to fill out structured questionnaires at various locations in Gangneung for about a week, closed and open-ended mixed questionnaires were self-filled by 800 Gangneung citizens. The number of recovered questionnaires was 790. Statistical analysis was performed for 753 questionnaires after excluding 37 questionnaires with missing values. In addition, for the purpose of conducting this study, results were analyzed focusing on contents of 'Awareness of public health care in Gangneung City' in the questionnaire.

#### 3.2. Data Analysis

Statistical data were mainly subjected to frequency analysis and cross analysis. As a result of deriving the Cronbach alpha coefficient to verify the reliability between questions in the questionnaire, the consistency between questions was confirmed, with a Cronbach alpha's coefficient of 0.895. For all statistical processing, IBM SPSS 22.0 statistical package program was applied.

## 4. Research Results

### 4.1. Characteristics of Research Subjects

**Table 1:** Demographic Characteristics of Survey Subjects

(Unit: No., %)

Variables		Numbers	(%)
Total		753	100.0
Residence	dong area	712	94.6
	Eup/myeon area	41	5.4
Gender	Male	258	34.3
	Female	495	65.7
Age	20's	177	23.5
	30's	144	19.1
	40's	168	22.3
	50's	171	22.7
	over 60	93	12.4
Annual average personal income (KRW)	less than 10 million	373	49.5
	less than 10 million to 30 million	148	19.7
	less than 30 million to 50 million	162	21.5
	less than 50 million to 70 million	46	6.1
	more than 70 million	24	3.2
No. of household members	1	96	12.7
	2	126	16.7
	3	195	25.9
	4	244	32.4
	over 5	92	12.2
Education	uneducated	6	0.8
	seodang/hanhak	2	0.3
	elementary school	17	2.3
	middle school	21	2.8
	high school	203	27.0
	college	184	24.4
	university	279	37.1
postgraduate	41	5.4	



Of a total of 753 subjects, 712 (94.6%) were residents in the dong area and 41 (5.4%) were residents in the eup/myeon area. In terms of gender, there were 258 (34.3%) men and 495 (65.7%) women, with female respondents being almost twice as many as male respondents. As for age, there were 321 (42.6%) subjects in their 30s or younger, 168 (22.3%) in their 40s, 171 people (22.7%) in their 50s, and 93 people (12.4%) in their 60s. 64.9%, which accounted for almost all of them.

The average annual personal income was less than 10 million won for 373 (49.5%) subjects, showing the highest ratio. There were 148 (19.7%) subjects with annual personal income of less than 10-30 million won, 162 (21.5%) subjects with annual personal income of 30-50 million won, 46 (6.1%) subjects with annual personal income of 50-70 million won, and 24 (3.2%) subjects with annual personal income of more than 70 million won (the lowest percentage). As for the number of household members, 4 people accounted for 32.4%, which was the highest, followed by 3 people at 25.9% and 2 people at 16.7%. Looking at the educational background of respondents, 37.1% were university graduates, 27.0% were college graduates, and 24.4% were high school graduates.

#### 4.2. Gangneung Citizens' Awareness of Public Health Care Services

Regarding the perception of public health care in Gangneung City, first of all, 95.2% of respondents answered 'yes' to 'to provide medical services that enable all citizens to use medical care and protect and promote health', which was the highest. Next, 80.7% answered 'yes' to 'the state provides medical services by building hospitals' and 'providing medical services for residents in medically vulnerable areas such as rural areas and remote areas'. In terms of providing medical services with money, 66.3% answered 'Yes' which was the lowest. An average of 79.7% answered 'yes' to all items of perception of public health care in Gangneung. A high response rate was shown for 'providing medical services that enable all citizens to use medical care and protect and promote health', whereas the response rate for 'providing medical services with national money' was the lowest.

**Table 2:** Gangneung Citizens' Awareness of Public Health Care Services

(Unit: No., %)

Variables		No.	The state builds hospitals to provide medical services	Providing health care with state money	Providing medical services for all citizens to use medical care and promote health	Residents of medically vulnerable areas provide medical services to	Provides medical services to specific vulnerable groups such as the disabled and the elderly	Economic hardship Providing medical services to the underprivileged
Total		753	80.7	66.3	95.2	80.7	77.2	77.8
Residence	dong area	712	80.6	65.9	94.9	80.3	76.5	77.2
	eup/myeon area	41	82.9	73.2	100	87.8	87.8	87.8
Gender	Male	258	77.9	64.0	93.4	81.4	75.6	77.5
	Female	495	82.2	67.5	96.2	80.4	78.0	78.0
Age	20's	177	79.7	75.7	95.5	79.7	79.7	82.5
	30's	144	78.5	61.1	97.2	82.6	77.8	77.8
	40's	168	86.9	64.3	96.4	83.9	78.0	78.0
	50's	171	77.8	66.1	93.0	78.9	73.7	73.1
	over 60	93	8.6	60.2	93.5	77.4	76.3	77.4
Annual average personal income	less than 10 million	373	78.0	67.6	95.2	78.3	78.3	76.9
	less than 10 million to 30 million	148	81.1	62.2	93.9	85.8	79.7	81.8
	less than 30 million to 50 million	162	85.8	69.8	95.14	79.0	71.0	75.9

	less than 50 million to 70 million	46	82.6	63.0	97.8	91.3	78.3	78.3
	more than 70 million	24	83.3	50.0	100	79.2	83.3	79.2
Number of household members	1	96	79.2	74.0	94.8	85.4	81.3	87.5
	2	126	80.2	63.5	98.4	79.4	77.0	78.6
	3	195	84.1	69.7	93.8	75.4	71.8	70.8
	4	244	79.1	61.1	96.3	81.1	75.4	75.0
	over 5	92	80.4	68.5	91.3	88.0	89.1	89.1
Chronic disease	Yes	167	79.6	65.9	95.2	82.0	79.6	83.8
	No	586	81.1	66.4	95.2	80.4	76.5	76.1
Visit to a medical institution	Yes	496	80.0	64.1	95.0	78.8	73.8	76.2
	No	257	82.1	66.3	95.7	84.4	83.7	80.9
Hospital admission experience	Yes	60	78.3	61.7	91.7	80.0	73.3	81.7
	No	693	81.0	66.7	95.5	80.8	77.5	77.5

### 4.3. Satisfaction with the Health Care System of Gangneung Citizens

Regarding experiences and perceptions or opinions held in Gangneung City's health care system, the following six items were surveyed on a scale of 5 out of 5 considering three aspects: accessibility, coverage & medical care quality.

#### 1) Accessibility 1: Access to general care

Nearby, you can receive the necessary treatment without waiting for a long time.

#### 2) Accessibility 2: Access to emergency care

Sufficient emergency room and intensive care unit are available in case of emergency.

#### 3) Warranty: Guaranteed treatment for economic hardship

Family income has no impact on treatment due to continuous medical expenses for chronic diseases. Sudden

illness and accident treatment are not affected by the lack of money.

#### 4) Medical quality 1: Use of high-quality medical personnel and medical equipment

High level of professional medical personnel such as doctors and nurses and necessary cutting-edge drugs and medical equipment are provided.

#### 5) Medical quality 2: Confidence in treatment results

You can objectively compare treatment results of doctors and hospitals so you can receive treatment with confidence.

#### 6) Medical quality 3: Decision-making of treatment that respects opinions of patients

I can ask enough questions about my symptoms and treatment plan and get explanations. My opinions are respected and treatment decisions are made.

**Table 3:** Satisfaction with the Health Care System of Gangneung Citizens

(Unit: Points)

Items	Contents	Average
<b>Accessibility 1</b>	- Access to general care · Nearby, you can receive the necessary treatment without waiting for a long time	3.31
<b>Accessibility 2</b>	- Access to emergency care · Sufficient emergency room and intensive care unit available in case of emergency	3.06
<b>Guarantee</b>	- Guaranteed treatment for economic hardship · There is no impact on the home economy due to continuous medical expenses for chronic diseases, etc., and no sudden illness or accidental treatment due to lack of money	3.10
<b>Medical quality 1</b>	- Ratio of high-quality medical personnel and medical equipment · High level of professional medical personnel such as doctors and nurses, and the use of necessary cutting-edge drugs and medical equipment	3.02

<b>Medical quality 2</b>	- Confidence in treatment results - You can objectively compare the treatment results of doctors and hospitals, so you can receive treatment with confidence	3.02
<b>Medical quality 3</b>	- Decision-making of treatment that respects the opinions of patients - I can ask enough questions about my symptoms and treatment plan and get explanations, and my opinions are respected and treatment decisions are made	3.18

As a result of survey analysis, ‘Accessibility to general treatment’ in Accessibility 1 had the highest score with an average of 3.31 points on a 5-point scale. Next, the ‘decision-making of care that respects the patient’s opinion’ of the quality of care 3 scored an average of 3.18 points. ‘The availability of high-quality medical personnel and medical equipment’ of quality 1 and ‘confidence in treatment results’ of quality 2 had the lowest score with an average of 3.02 points, respectively. The overall average score was 3.11 points, indicating that the level of satisfaction with the health care system in Gangneung was average.

#### 4.4. Businesses and Services to Improve Health Care

In Gangneung City, a total of 219 diverse opinions were presented regarding which projects or services were needed to improve health care. The highest number of opinions was the improvement of the level of care by professional medical staff at 16.4%, followed by various treatment subjects and professional services at 11.4%.

**Table 4:** Businesses and Services to Improve Health Care Services

(Unit: Number of cases, %)

No.	Public health care services	Frequency	(%)
1	Replenishment of medical staff (female obstetricians and gynecologists), improvement of the level of medical personnel, the need for explanations to understand the disease name, competence of medical staff, communication between medical staff and patients, expansion of medical personnel, improvement of the quality of professional medical staff	36	16.4
2	Various departments and finger hospitals, cancer hospitals, trauma centers, burn centers, cardiovascular centers, pain clinics opened, dermatology, plastic surgery, obstetrics and gynecology (women's hospital) medical services, dentistry, orthopedics, neurosurgery specialized hospitals	25	11.4
3	Improvement of public medical quality (doctors, nurses, facilities, etc.) and friendliness of public institution workers, development of GMC, diversity of public medical services, resolution of complaints, and improvement of waste of treatment time through unnecessary procedures	23	10.5
4	Expansion of public medical facilities, improvement of outdated buildings, purchase of state-of-the-art equipment, expansion of corona facilities, and the need for state-of-the-art medical equipment	20	9.1
5	Elderly disease prevention center, elderly care specialist, expansion of visiting service for corona test, care for the elderly living alone, Improvement of medical services for the elderly by reducing the complexity of treatment procedures, the need to promote dementia prevention, and an institution that can be linked in case of emergency	16	7.3
6	Improvement of expensive medical expenses, priority treatment service for low-income class, dental care for the elderly in low-income class, meal support for low-income children, support for the unemployed	13	5.9
7	It is difficult to improve transportation services for patients between hospitals, produce promotional materials, and come to the city by bus to receive treatment	13	5.9
8	Home Nursing Service, Hospice Quality Improvement and Cost Reduction	12	5.5
9	Expanding and revitalizing public health center capabilities, actively promoting public health centers and improving services, strengthening cooperation between public health centers and public health institutions, and expanding health centers	11	5.0



10	Expansion of physical therapy, expansion of rehabilitation institutions, establishment of rehabilitation center	10	4.6
11	Operation of health management programs considering accessibility, cost reduction, and vitalization of physical education	8	3.7
12	Prepare emergency facilities, respond to severe emergencies and improve response in case of emergency pediatric patients, respond to the corona environment, respond to quarantine, counteract infectious diseases	7	3.2
13	Improving medical services for the underprivileged (for psychiatry, the elderly) and visiting services. Expansion of second-tier medical support services	7	3.2
14	Post-treatment care	5	2.3
15	Expansion of medical insurance coverage and conversion of non-insured services to payroll services	3	1.4
16	Convenient guide procedure, systematic manual preparation, systematic treatment reservation service	3	1.4
17	Expand the scope of health insurance and establish an automatic connection system for actual expenses insurance claims	2	0.9
18	Establishment of Maternal and Child Health Service Center, Female Nursing Service	2	0.9
19	Service for the Disabled, Establishment of a Rehabilitation Center for the Disabled	2	0.9
20	Medical tourism	1	0.5
Total		219	100

#### 4.5. Necessity of Comprehensive Measures for Public Health and Medical Development

To ensure essential medical care for Gangneung citizens and to prepare comprehensive measures for the development of public health care to expand the role and function of public health care in Gangneung, we investigated how much improvement was needed for the following items. As a result of the survey, the necessity of ‘establishing an infection and patient safety system’ was found to be the highest with an average of 3.91 points on a 5-point scale.

Next, ‘reinforcement of medical services for the disabled and rehabilitation medical services’ showed an average of 3.86 points. The need for ‘strengthening emergency medical services’ and ‘trauma medical services’ was slightly lower at 3.77 and 3.73, respectively. The overall average was 3.82 points, indicating that the need for improvement to prepare comprehensive measures for the development of public health care in Gangneung was ‘generally so’.

**Table 5:** Necessity of Comprehensive Measures for Public Health and Medical Development

No.	Contents	Points
1	Establish an infection and patient safety system	3.91
2	Expand medical services for the disabled	3.86

3	Expand medical services for rehabilitation	3.86
4	Expand essential medical services for children	3.84
5	Strengthen the connection with local community health and welfare in Gangneung City	3.82
6	Cardiocerebrovascular disease medical book for Gangneung citizens strengthen the vis	3.80
7	Provides community health care and medical services in Gangneung City	3.80
8	Expand essential medical services for mothers (maternal and childbirth)	3.80
9	Strengthen emergency medical services for Gangneung citizens	3.77
10	Strengthen trauma medical services for Gangneung citizens	3.73

##### 4.5.1. Strengthening emergency medical services

As for the need for ‘strengthening emergency medical services for Gangneung citizens’, 64.1% answered ‘Mostly yes’ and ‘very much’ (44.4%+19.7%). Overall, the need for strengthening emergency medical services for Gangneung citizens was relatively high, with an average score of 3.77 points on a 5-point scale. As for the residential area, the necessity was found to be high in the order of 4.10 points for the eup/myeon area and 4.05 points for the experience of

being hospitalized.

#### 4.5.2. Strengthening trauma medical services

As for the need for 'strengthening trauma medical services for Gangneung citizens,' 62.0% (41.3%+20.7%) answered 'generally agree' and 'strongly agree'. Overall, the need for strengthening trauma medical services for Gangneung citizens was relatively high with an average score of 3.73 points on a 5-point scale. The necessity of residence was found to be high in the order of 4.10 points for the eup/myeon area and 3.88 points for those in their 40s with hospitalization experience.

#### 4.5.3. Strengthening cardiovascular and cerebrovascular medical services

As for the need for 'strengthening cardiovascular and cerebrovascular medical services for Gangneung citizens,' 64.3% (41.3%+23.0%) answered 'generally agree' and 'strongly agree'. Overall, the need for strengthening cardiovascular and cerebrovascular medical services for Gangneung citizens was found to be relatively high with an average score of 3.80 on a 5-point scale. However, the necessity of residence was found to be high in the order of 4.07 points for the eup/myeon area and 3.95 points for the experience of hospitalization.

#### 4.5.4. Provision of community health care medical services

As for the need for 'providing health care and medical services for local communities in Gangneung-si', 66.1% (47.1%+19.0%) answered 'generally agree' and 'strongly agree'.

#### 4.5.5. Strengthening connection with local community health and welfare

As for the need for 'strengthening the linkage with local community health and welfare in Gangneung-si', 66.3% (45.6%+20.7%) answered 'generally agree' and 'strongly agree'.

#### 4.5.6. Establishment of infection and patient safety system

Regarding the need for 'establishing an infection and patient safety system', 69.5% (42.0%+27.5%) answered 'generally agree' and 'strongly agree'. Overall, the necessity of establishing an infection and patient safety system for Gangneung citizens was the highest with an average score of 3.91 points on a 5-point scale. The necessity of hospitalization was found to be high in the order of 4.13 points for 'yes' and 4.10 points for residential area in eup/myeon.

#### 4.5.7. Expansion of essential medical services for

#### pregnant women

As for the need for 'expanding essential medical services for mothers (maternal and childbirth)', 62.9% (38.1%+24.8%) answered 'generally agree' and 'strongly agree'. Overall, the necessity of expanding essential medical services for mothers (maternal and childbirth) for Gangneung citizens was relatively high with an average score of 3.80 points on a 5-point scale. The necessity of residence was found to be high in the order of 4.07 points for Eup/Myeon area and 3.98 points for 'Yes' of hospitalization experience.

#### 4.5.8. Expansion of essential medical services for children

As for the need for 'expanding essential medical services for children', 64.8% (38.0%+26.8%) of respondents answered 'generally agree' and 'strongly agree'. Overall, the necessity for expanding essential medical services for children to Gangneung citizens was relatively high with an average score of 3.84 points on a 5-point scale. The necessity of hospitalization was found to be high with a score of 4.12 points for 'Yes' of hospitalization experience and 4.02 points for residential area in Eup/Myeon area.

#### 4.5.9. Expansion of medical services for the disabled

As for the necessity of 'expanding medical services for the disabled', 65.9% (39.2%+26.7%) answered 'generally agree' and 'strongly agree'.

#### 4.5.10. Expansion of rehabilitation medical services

As for the necessity of 'expanding medical services for rehabilitation', 67.2% (41.6%+25.6%) answered 'generally agree' and 'strongly agree'.

## 5. Discussions

Research studies have been conducted on health care using community health survey data to analyze the status of health institution use, service satisfaction of health institutions, and related factors to establish the role and function of health institutions and strategic basic data for effective health business planning (Kim & Park, 2013). In addition, Park (2012) has analyzed factors affecting health care policy satisfaction, strengthening the role of health insurance, and the government's perception of financial expansion for health insurance and health using data from the '2013 Korea Welfare Panel'. Demands according to characteristics of the population were analyzed.

When looking at results of the present study, in relation to the perception of public health services, the perception of public health care in Gangneung is first about what public health services are. 'Yes' for 'to provide medical services that

can be improved' had the highest response rate (95.2% of total respondents). The basic goal of public health care is to achieve distribution, access, and provision of medical care based on the minimum financial ability to pay. In order to increase the degree of achievement of policies such as 'Comprehensive Measures for Expansion of Public Health and Medical Services', which is being implemented to increase access to medical care for local residents while substantially improving the operation of public medical institutions at the same time, appropriate performance evaluation and research on influencing factors should be conducted (Cho et al., 2013). A number of possible goals may be identified in terms of equity in healthcare, including ensuring equal access, distributing health care according to need, ensuring equal distribution of health, and distributing healthcare on the basis of ability to pay (Murphy, Bourke, & Turner, 2020).

Therefore, it is important to establish a public health care system that can be used by all users while comprehensively considering accessibility, distribution, and economic payability. Moreover, more than 90% of domestic health care system services are being supplied by the private sector. Medical resources are concentrated in metropolitan areas where medical profits are guaranteed, resulting in an unbalanced supply of medical services (Cho et al., 2013). As a phenomenon of centralization in the metropolitan area and unbalanced regional development, regional disparities in medical use are also large (Park, 2012).

In terms of providing medical services with the state's money, 'yes' had the lowest response rate at 66.3%. People who prefer public health care generally want financial support. Thus, the above result was somewhat surprising. Individuals prefer the Public Health Scenario or the Health Care Scenario. Furthermore, our findings indicate that those favor the Public Health Scenario might do so for financial reasons (Trein, Fuino, & Wagner, 2021).

In general, people who prefer public health care tend to prefer prevention or health promotion over treatment. However, this is not necessarily the case. Citizens prefer preventive over curative interventions against infectious diseases even if these interventions come along with a considerable reduction of individual freedoms (Cook, Zhao, Chen, & Finkelstein, 2018). Another study has shown that citizens are willing to pay considerably more for treatment than for disease prevention (Corso, Hammitt, Graham, Dicker, & Goldie, 2002).

For the development of public health care, it is necessary to seek changes in various perspectives and systems in prevention and health promotion programs as well as treatment. Innovation in the domain of health care must be developed so that the overall population can benefit from diagnostic and therapeutic advances, so that health care professionals, particularly surgeons, can adopt new

procedures and promote the development of start-ups (Belghiti, Oget-Gendre, Berthon, & Fagon, 2021).

In results of this study, when looking at the satisfaction with the health care system of Gangneung City, access to general treatment showed the highest score of 3.31. This result is the same as that of Kim & Park (2013). However, in the study of Ryu (2017), "individuals are more likely to find nearby medical institutions that are easy to access" to manage minor diseases. The reason for the high score for access to general treatment in this study is that Gangneung Medical Center has a high geographical access without obstacles in using medical care for the low-income class.

The core area that showed the highest percentage of subjective opinions on the necessity of projects or services for the improvement of health care for Gangneung citizens was 'professionalism and kindness of medical staff'. They expected the replenishment of specialized medical staff (especially the lack of female obstetricians and gynecologists) and improvement of the level and competency of medical personnel. This corresponds to the human composition factor included in the structure of the evaluation presented by Donobedian as an approach to measuring the quality of medical care. It can be identified as the factor most desperately needed by Gangneung citizens for the improvement of health care. When viewing opinions on 'communication between medical staff and patients' in the questionnaire, it is related to the patient satisfaction survey. Thus, it can be understood as a result of the approach to measuring the quality of medical care.

In addition, a high percentage of opinions were presented for the necessity of various departments, specialized hospitals, and large hospitals. Various departments include finger hospitals, cancer hospitals, trauma centers, burn centers, cardiovascular centers, pain clinics, dermatology, plastic surgery, obstetrics and gynecology, dentistry, orthopedics, and neurosurgery.

This is consistent with a previous study (Shandera, 2019) showing that experts are important. In other words, as medical paradigm changes, such as changes in the medical environment and disease structure, the role and function of the public health care system must be re-established. To this end, it is necessary to urgently re-establish the role and function of the local public health system in the direction of strengthening the professional competence and level of public health care and pursuing public interest instead of profit-oriented. Local medical centers are base hospitals established and operated by the government to strengthen medical service functions in areas where it is difficult to provide medical care or where private medical institutions are not established (Han & Yoo, 2018).

First, systematic aspects of public health care were set as strengthening institutional improvement (activation of secondary public function hospitals and so on),

strengthening cooperation between institutions, and strengthening the use of private resources. Second, in terms of public health and medical services, the expansion of public health infrastructure, budget expansion of public health projects, and expansion of public health and medical personnel were set. Third, the operational vitalization aspect of public health care was set as the re-establishment of the role of local public health care system, reorganization from work-centered to function-centered, and expansion of public health services for the vulnerable. Against this background, public hospitals and regional medical centers, which play an important role in health and medical services centering on the local community, are equipped with general hospital-level space and specialized medical staff infrastructure. However, it is also because there might be situations in which patient-centered medical services cannot be developed (Han, 2015).

Finally, the infection and patient safety system scored the highest in the necessity of comprehensive measures for public health and medical development in Gangneung City. It seems that opinions of citizens have been gathered in the situation of the spread of infectious diseases in a national crisis. This view also appears in the study of Trein et al. (2021), which is considered to be a representative function and responsibility of a public medical institution that is difficult for a private hospital to perform. In addition, Gangneung citizens gave high scores to the disabled, rehabilitation, and children's services.

The disabled, the elderly, and children, the so-called socially considerate class, are socially underprivileged with low economic access to medical care. In particular, this socially underprivileged group has a deep relationship with unmet medical care. It means that public medical institutions should provide medical services in a situation where it is difficult to obtain medical services from the private sector as the top priority.

## 6. Conclusions

### 6.1. Summary and Conclusion

The purpose of this study was to provide a comprehensive proposal for the development of public health care through a survey on health care usage awareness from the perspective of local residents in Korea. In other words, the purpose of this study was to propose a comprehensive development direction for GMC based on the health care demand survey for residents of Gangneung-City, Gangwon-Do.

To accomplish this purpose, questionnaires were collected from 753 Gangneung citizens for about one week from January 07 to January 14, 2021 and statistical analysis

was conducted. The main questionnaire consisted of questions such as demographic characteristics, "awareness of public health and medical services, satisfaction with the health care system" and the need for comprehensive measures for the development of projects and services for health care improvement and public health care.

Consumers' perception of public health services should focus on the justification of providing medical services that enable all citizens to use medical services and protect and promote health. The gap in medical use should be resolved by maximizing the economic and geographical access of local residents to public medical use. From this point of view, in terms of satisfaction with the health care system, the main goal of public health development is to increase access to emergency care, eliminate economic obstacles in medical use, use high-quality medical personnel and medical equipment, and provide access to those with disabilities. Similar results are also found in projects and services for improving health care. Thus, guaranteeing and improving access to services with a high level of quality in terms of quality plays a major role in the development of public health services.

Lastly, as a result of the survey on the need for comprehensive measures for the development of public health care in Gangneung, the necessity of "establishing an infection and patient safety system" was recognized as the most important one, followed by "reinforcement of medical services for the disabled and rehabilitation medical services" as a result of the demand survey. It can be said that the current COVID-19 situation puts more emphasis on the function of managing infectious diseases. However, it is a point of view that differs from private hospitals. In other words, it is difficult to predict when an infectious disease will spread in the local community. However, as a national medical institution, preparing for a crisis situation due to the spread of an infectious disease is always the most important responsibility.

Next, rehabilitation services for those who were disabled and the elderly are a major function of public health care for the medically vulnerable class. There is a guarantee of basic medical rights for the socially considerate class, which is not given much importance by private hospitals. In the future, public health should be more firmly recognized as the responsibility of national medical institutions for medical services that are difficult to access in private medical institutions. In addition, the medical center should be centered on regional bases.

Reinforcement of regionally responsible medical care is an essential prerequisite for establishing the national medical delivery system and practically expanding health insurance coverage. The core of regional responsible medical care should be to restore the trust of residents in regional medical care. To this end, it is of great significance



in improving the quality of local medical services and creating a structure in which public and private hospitals, local governments, health institutions, and local communities can strengthen regional medical capabilities together. The role of GMC can be greatly expected in the future. Even if a person does not live in the metropolitan area or large cities, he or she needs to expand reliable local medical resources so that they can safely use essential medical care such as emergency and severe diseases in the area. In the end, strengthening cooperation between local health and medical institutions is a key issue.

Recently, national interest and support for community care or elderly care are increasing. However, in most hospitals, the number of hospitalization days tends to increase unnecessarily because connection is not made even after the end of acute treatment for these patients. Relevant health policies should be established in parallel so that necessary medical services can be smoothly connected to the local community even after the end of acute treatment. In conclusion, it is a public health service recognized by local residents as medical consumers. From an academic point of view, it is a major feature of Gangneung that it provided an opportunity to improve the disparity in medical use and the degree of access to medical care by improving the satisfaction of the citizens of Gangneung with health services and enhancing health equity.

Public health policy should be developed with an emphasis on managing infectious diseases during national disasters, reducing disparities in medical use by region and by class, improving access to emergency medical care, and improving the quality of specialized medical care. In particular, typical characteristics of public medical services that are distinctly different from private hospitals are infectious disease management, reduction of the gap in medical use, and improvement of access to emergency medical services. Public medical institutions must take this aspect into account and strengthen their roles and functions. As for the policy implications of the survey results, the necessity of 'establishing an infection and patient safety system' was the highest, followed by 'strengthening medical services for the disabled and rehabilitation medical services'. Prevention, and consideration, interest, and support for the underprivileged such as the disabled should be increased.

## 6.2. Research Limitations & Future Research Directions

Subjects of the survey in this study were the general public, not subjects of health care professionals. Therefore, specific and professional qualitative questionnaire contents were insufficient. Also, due to the limitation of the questionnaire, it was impossible to describe each specific and questionnaire in detail. In addition, public health care

requires strengthening cooperation between public health centers and public medical institutions. Technical matters such as connection and monitoring of discharged patients, connection with medical services, connection with health services, and connection with welfare care services should be further studied.

In a time when the importance of public health care is increasing such as disease structure and changes in the medical environment, there is a need to expand the role of public health care. As the necessity of discussing the improvement and development of public health care system in Korea (Kim, 2018) is emphasized, future research should be conducted on the basis of enhancing the accountability of public health care institutions.

Lastly, this study used a convenience random extraction method for about 800 people representing 210,000 Gangneung citizens. In order to further secure the representativeness of the entire population of Gangneung citizens, it is expected that the health and medical panel survey will be conducted through a random sampling method in which the representativeness of each class is stratified.

## References

- Belghiti, J., Oget-Gendre, C., Berthon, A. F., & Fagon, A. Y. (2021). Supporting innovation in health care: A short experience in a dedicated unit of the French Ministry of Public Health. *Journal of Visceral Surgery*, 158(3), S6-S11.
- Bjorvatn, A. (2018). Private or public hospital ownership: does it really matter? *Social Science & Medicine*, 196, 166–174.
- Cho, H. M., Kang, M. A., & Kim, Y. H. (2013). Impact of market competition on local public hospital performance: The two-stage DEA-Regression approach. *Health policy and management*, 25(4), 295-306.
- Choi, E. M., Jung, Y. S., Kwon, L. S., Ko, S. K., Lee, J. Y., & Kim, M. J. (2020). Feasibility to Expand Complex Wards for Efficient Hospital Management and Quality Improvement. *The Journal of Industrial Distribution & Business*, 11(12), 7-15.
- Cook, A. R., Zhao, X., Chen, M. C., & Finkelstein, E. A. (2018). Public preferences for interventions to prevent emerging infectious disease threats: a discrete choice experiment. *BMJ Open*, 8(2), e017355.
- Corso, P., Hammit, J., Graham, J., Dicker, R., & Goldie, S. (2002). Assessing preferences for prevention versus treatment using willingness to pay. *Medical Decision Making*, 22(5, Suppl), S92–S101.
- Emanuel, E., & Emanuel, L. (1996). What is accountability in health care? *Annals of Internal Medicine*, 124(2), 229-239.
- Fernandez-Olano, C., Lopez-Torres Hidalgo, J. D., Cerda-D, R., Requena-Gallego, M., Sanchez-Casta, C., Urbistondo-Cascales, L., & Otero-Puime, A. (2006). Factors associated with health care utilization by the elderly in a public health care system. *Health Policy*, 75(2006), 131–139.
- Ferreira, D. C., & Marques, R. C. (2021). Public-private



- partnerships in health care services: Do they outperform public hospitals regarding quality and access? Evidence from Portugal. *Socio-Economic Planning Sciences*, 73(2021), 1-15.
- Han, C. H. (2015). A Study of Design Attributes for Specialization at Medical Health Service Design of Public Hospital—Focusing on Medical Health Service Design for Gyeonggi Provincial Medical Center-. *Journal of Digital Design*, 15(2), 257-266.
- Han, S. H., & Yoo, E. J. (2018). Does the Institutional Environment Influence the Organization & Performance? Municipal Public Hospitals in Korea. *Korean Association for Local Government Studies*, 21(4), 437-463.
- Jung, Y., Lee, G. C., & Yoo, M. S. (2016). Publicness in Private Health Care Organizations: Developing a Model for Analysis and Measuring a Current Status. *Health and Social Welfare Review*, 36(4), 344-373.
- Kang, P. S., Lee, K. S., & Kim, C. T. (1995). Determinants of Health Service Utilization of Urban Health Center. *Health Policy and Management*, 5(2), 104-126.
- Kim, H. S., & Park, Y. H. (2013). Related Factors on Health Service Utilization and Satisfaction of Health Center Clients - Using '2010 Community Health Survey'-. *Korea Society of Health Service Management*, 7(3), 95-109.
- Kim, M. Y., & Lee, S. H. (2019). Recognition and role of public health care in public hospitals staffs: Analysis of consensus conference by regions. *Korean Public Health Research*, 45(2), 117-125.
- Kim, Y. H. (2018). Analyzing the Relative Importance for the Development Plan of the Public Health Care System. *Journal of Health Informatics and Statistics*, 43(4), 300-306.
- Lee, E. W. (2019). Factors Associated with Occupational Stress Among Korean Public Medical Centers Employees. *Korean Public Health Research*, 45(1), 37-47.
- Li, X., Lu, J., Hu, S., Cheng, K. K., De Maeseneer, J., Meng, Q., & Hu, S. (2017). The primary health-care system in China. *The Lancet*, 390(10112), 2584-2594.
- Lim, H. Y., Hwang, I. K., & Suh, W. S. (2010). Structural Relationship among Service Value, Brand Image, and Patients Revisits in Regional Public Hospitals in Korea. *The Korea Contents Society*, 10(11), 304-317.
- Moon, Y. (2020). Convergence Study on the Reliability of Public and Private Medical Institutions in Rural Areas—Mainly 65 years old and older-. *Journal of Convergence for Information Technology*, 10(2), 154-159.
- Murphy, A., Bourke, J., & Turner, B. (2020). A two-tiered public-private health system: Who stays in (private)hospitals in Ireland? *Health Policy*, 124, 765-771.
- Park, J. S. (2005). The Factors Affecting on the Health Service Satisfaction of Health Center Visitors. *Korean Journal of Health Education and Promotion*, 22(1), 147-160.
- Park, K. D. (2012). Study on Regional Disparities in Healthcare Utilization: Using Spatial Dependence. *The Korea Association for Policy Studies*, 21(3), 388-415.
- Park, Y. H. (2015). Factors of Welfare Recognition toward Health Insurance and Health Care: Using 2013 Korea Welfare Panel Study. *The Korean Journal of Health Service Management*, 9(3), 115-126.
- Rodin, G., Zimmermann, C., Rodin, D., Awamer, A., Sullivan, R., & Chamberlain, C. (2020). COVID-19, palliative care and public health. *European Journal of Cancer*, 136(2020), 95-98.
- Ryu, J. A. (2017). The Effect of Subjective Well-Being Promotion according to the Characteristics of Medical Institutions: Focusing on the Public Health Centers and Civilian Medical Facilities within Gu in Seoul. *Korea Journal of Population Studies*, 40(1), 83-105.
- Shandera, W. X. (2019). Have public hospitals outlived their usefulness? Is it possible to assess with health care parameters the impact of public hospitals on major American cities? *Medical Hypotheses*, 132(2019), 1-5.
- Sim, I. O., & Hwang, E. J. (2015). The Effects of Performance of Public Health Services and Personal Characteristics on Community Image of Public Hospitals. *Journal of the Korea Academia-Industrial Cooperation Society*, 16(9), 6089-6098.
- Trein, P., Fuino, M., & Wagner, J. (2021). Public opinion on health care and public health. *Preventive Medicine Reports*, 23(2021), 1-6.
- Yang, J. H., & Park, A. S. (2020). The Relationship between Management Performance and Publicness of National University Hospitals. *Journal of Digital Convergence*, 18(1), 249-255.