



A Survey Analysis on the Need for Expansion of Public Medical Institutions

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Abstract

Purpose: This aims to find a strategic plan for the feasibility study of a medical center extension project in order for local public medical institutions to obtain public interest and profitability through a survey of residents. **Research design, data and methodology:** The structured questionnaire was distributed at random, and a total of 219 people responded as users or patients responded to the questionnaire in a self-filling manner. Through this questionnaire, the feasibility and necessity of the extension of Gangneung Medical Center(GMC) was measured. All data processing was analyzed by applying version 26.0 of IBM SPSS statistical package program. The main contents of the questionnaire included reasons for using GMC, inconveniences, overall level of medical care, satisfaction, intention to revisit, the necessity of GMC's complex ward extension project, and GMC consisted of 8 questionnaires, including the desired service for the extension of the complex ward. **Results:** As for the necessity of the GMC complex ward extension project, 95.9% of residents said they wanted the complex ward extension project, 2.3% said it was not necessary, and the remaining 1.8% had other opinions. **Conclusions:** GMC complex ward extension project is necessary.

Keywords : Public medical center, Survey, Hospital, Health services, Medical utilization

JEL Classification Codes : I10, I11, I12, I13

1. Introduction

Unlike the private sector, the public health care system is prevention-focused and can be an effective and reasonable means to improve health and medical use inequality. This can play a role in complementing Korea's private-centered medical supply system (Sohn et al., 2015).

In order to achieve this objective, the medical center is an institution that is responsible for providing essential high-quality medical services even to underprivileged areas or the underprivileged (Sun, 2016).

As of September 2021, 35 regional medical centers are deployed in cities and counties across the country. Of these,

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five regional medical care centers (Gangneung, Samcheok, Yeongwol, Wonju, and Sokcho) are in operation in Gangwon-do. The medical care center provides health care to local residents according to regional characteristics, and performs many other activities and health care projects such as health promotion and prevention education projects for local residents. Health care usage behavior refers to the act of an individual using health care services, and it refers to the act of an individual with symptoms seeking a diagnosis and treatment, and the act of preventing and finding a disease by an individual without symptoms. In other words, health care usage behavior is a concept that includes health service use and medical service use at the therapeutic level (Kasl & Cobb, 1966).

Geographically, Gangwon-do has many mountainous areas and many remote medical areas. The main roles and functions of the five regional medical care centers in Gangwon-do are to solve the geographically low accessibility and provide public essential health care services. Medical services in public hospitals should focus on providing universal medical services rather than providing medical services that benefit some people (Jeon & Kim, 2010).

However, several years ago, due to the expansion of road transportation and the opening and operation of KTX for the hosting of the 2018 Winter Olympics, local residents in Gangwon-do went to Seoul, etc., and the number of patients with Adverse Medical Tour Shopping increased. In addition, due to intensifying competition among regional hospitals, an aging population and a decrease in the fertility rate in the region, the demand for medical care has changed significantly, such as a decrease in the number of patients visiting regional hospitals. In addition, the poor professional manpower of local medical centers, obstacles to investment in facilities and equipment, and the evasion of local medical care by excellent specialists acted in a complex way, leading to great financial difficulties in providing medical care at local medical centers. In particular, management deterioration continues due to oversupply caused by the opening of new general hospitals and expansion of existing general hospitals (Lee, 2017).

In addition, the limited operation of compensation for medical expenses due to the deterioration of health insurance finances makes it more difficult for local medical centers to become financially independent (Yang, 2012). In particular, since health level and socioeconomic level are important factors related to health equity, health care use behavior is very important, and it is necessary to

identify factors that affect health care use behavior and consider it when establishing policies (Kim et al., 2014).

In particular, Gangneung is in the third most important position in Gangwon-do in terms of city size and financial scale. However, Gangneung Medical Center(GMC), located in Gangneung, has a serious problem in providing quality improvement (QI) medical care to the residents of Gangneung due to the accumulated chronic fiscal deficit and the factors that received the lowest score in evaluations of various public medical institutions. Due to these factors, GMC's medical staff, medical equipment, and operating rooms are in the worst condition among the five medical centers in the province. Public hospitals have difficulties in pursuing both publicity and profitability. If an appropriate level of profit is not generated, the hospital's financial condition deteriorates, making it impossible to provide high-quality medical services, which is the hospital's primary goal (Lee, 2009).

This study aims to improve management efficiency by analyzing the overall status and actual conditions of GMC's operation in order to fulfill its responsibilities as a regional base public medical institution of GMC. Through this, efficient management of GMC is important for the existence of local medical institutions, which are public corporations on the one hand (Lee, 2012).

Local medical centers should reflect the needs of local residents. Through the survey of local residents, public hospitals are trying to establish a development direction for strengthening public functions and at the same time to seek strategic plans for the expansion of GMC to achieve profitability.

2. Theoretical Backgrounds

2.1. Understanding of Local Medical Centers

A local medical centre is a medical institution that not only contributes to the development of local health and medical care, but also focuses on promoting and preventing the health of local residents rather than profit. The local medical centre is a medical institution that plays a pivotal role in the national public health system along with the National University Hospital, the National Medical Centre, and the public health centre. In particular, as a medical institution operated by local governments, this public hospital develops public health and medical services that are difficult to entrust to private hospitals. In addition, this has the significance of existence by taking care of the health of low-income earners and people receiving livelihood

protection in the region and achieving equity in medical services (Jeon, 2010).

2.2. Main Roles and Functions of Local Medical Centers

Regional medical centres perform the role of public medical projects in the region. In addition, regional medical centres focus on emergency and critically ill patients in the region in case of emergency such as strikes by private medical institutions or various disasters (Lee, 2012).

As the medical centre performs the role and function of the 『Regional Base Public Hospital』, efforts should be made to ensure that high-quality medical care, public health service, rational operation, and public management are mutually organically operated. The main roles and functions of local medical centres may differ depending on the geographical characteristics of the medical centres located in each region and the nature of the regional organizations.

However, the medical centre basically performs the function of protecting the medical safety net for the medically vulnerable groups such as medical benefits, and the installation of essential medical facilities such as emergency rooms and intensive care units also implements public medical policies of the state and local governments. In addition, the hospital performs occupational diseases for

industrial workers, sex education and smoking for adolescents, and treatment for the disabled and dementia and mental health (Lee, 2012).

2.3. Health and Medical Care Status and Problems of Gangneung City

2.3.1. Medical Institutions of Gangneung City

The population of Gangneung-City is about 212,957, and the gender ratio of men and women is almost the same. Among them, the number of elderly people is 40,815, the number of children and adolescents is 36,850, and the number of births is 1,020. Gangneung-Cities's main medical treatment right includes the entire Gangneung-City, and subjunctive treatment right includes 27,490 myeons in Yangyang-gun, 43,592 people in Pyeongchang-gun, and 38,429 people in Jeongseon-gun. Other medical treatment rights also include 6,012 people in Yangyang-gun, 30,544 people in Pyeongchang-gun, 8,435 people in Jeongseon-gun, and 25,000 people in Donghae-City in the border region. The total number of medical institutions in Gangneung-City is 4 general hospitals, 2 hospitals, 4 nursing hospitals, and 1 special hospital. In 2021, the designation of the tertiary general hospital among the 800-bed secondary general hospitals in Gangneung City is expected to be changed, and the shortage of beds in secondary general hospitals is sufficiently predicted.

Table 1: Number of Major Hospitals and Beds in the Region

Total		General hospitals		Hospitals		Long-term Hospitals		Special hospitals	
No. of hospitals	No. of beds	No. of hospitals	No. of beds	No. of hospitals	No. of beds	No. of hospitals	No. of beds	No. of hospitals	No. of beds
245	2,864	4	1,608	2	435	4	459	1	180

2.3.2. Analysis of Medical Demand and Supply Status in Gangneung-City

The number of people within the Gangneung-City easement area tends to decrease or maintain. However, the elderly population aged 65 and over continues to increase, and the proportion of the elderly population is 19.1% as of 2018, which is significantly higher than the national average of 14.2%. Gangneung-City's death rate rankings since 2013 were 1st for malignant neoplasms, 2nd for cerebrovascular disease, and 3rd for heart disease. In emergency fields such as trauma and cardiovascular disease, which are emergency areas of the secondary treatment area, the use of medical

institutions in Gangneung City is high because of the high relevance index (RI), a statistical index used to accurately and precisely understand medical use (Park, 2019). For example, Yangyang-gun RI: 64.19%, Donghae-City RI: 56.64%, Pyeongchang-gun RI: 34.6%, Jeongseon-gun RI: 33.43, etc.

The supply of beds is mainly in GMC, only those that provide only the acute stage after treatment such as surgery, trauma, stroke, and myocardial infarction. In other words, there are not enough beds that can provide simple physical therapy, intensive rehabilitation, and rehabilitation after treatment. Private medical institutions tend to avoid these

beds, and conversely, private medical institutions prefer to treat acute diseases with high profitability, which leads to an oversupply of beds. In this case, excessive competition in the medical market is encouraged and private hospitals are oriented toward medical services, which negatively affects the existence of local medical centres and the provision of public medical services in the future (Jeon, 2010). In conclusion, there are currently insufficient hospitals in Gangneung-City medical institutions that can provide intensive rehabilitation and post-surgery management after surgery, trauma, cardiovascular and cerebrovascular care, etc.

3. Research Contents and Methods

The specific research method to investigate the necessity of expanding the complex ward at GMC was largely a survey of patients using GMC. In addition to the demographic and sociological characteristics of the subjects, the survey contents included reasons for using GMC, inconveniences when using GMC, overall medical level of GMC, overall satisfaction with GMC, major subjects of treatment at GMC, intent to revisit GMC, and Gangneung. A total of 8 questionnaires consisted of the necessity of the expansion project of the medical centre complex ward and the desired service for the extension of the complex ward at GMC.

In this study, structured questionnaires were randomly allocated to adult male and female users or patients who visited GMC for about 7 days from February 14, 2020 to February 20, 2020. A total of 219 people responded as users or patients responded to the questionnaire in a self-filling method and collected it. Through this questionnaire, the feasibility and necessity of the extension of GMC was measured. All data processing was analysed by applying version 26.0 of IBM SPSS statistical package program.

4. Research Results

4.1. General Characteristics of Survey Subjects

As for the demographic characteristics of the survey respondents, the age was 50-59 years old (21%) and 40-49 years old (16.9%) in that order. As for the residential area, Gangneung overwhelmingly accounted for 80.4%, followed by Donghae (9.1%), Pyeongchang (5.0%), Jeongseon (3.2%), and Yangyang (2.3%). The period of residence was more than 20 years, 34.7%, and 10-20 years, 21.9%, etc.

Looking at the type of insurance that is covered by medical insurance, the national health insurance accounted for 74% of the total.

Table 2: Respondent Characteristics of GMC Users (Patients)

Classifications		Number	(%)
Variables	Detail	219	100.0
Age	under 29	37	16.9
	30 to 39 years old	34	15.5
	40 to 49 years old	37	16.9
	50 to 59 years old	46	21.0
	60 to 69 years old	33	15.1
	over 70s	32	14.6
Gender	male	78	35.6
	female	138	63.0
	non-response	3	1.4
Residence	Gangneung	176	80.4
	Donghae	20	9.1
	Jeongseon	7	3.2
	Pyeongchang	11	5.0
	Yangyang	5	2.3
Period of residence	within 1 year	19	8.7
	1~3 years	32	14.6
	3~6 years	20	9.1
	6~10 years	23	10.5
	10~20 years	48	21.9
	more than 20 years	76	34.7
	non-response	1	.5
Insurance type	national health insurance	162	74.0
	medical aids	17	7.8
	car insurance	4	1.8
	industrial accident compensation insurance	7	3.2
	non-insurance	23	10.5
	etc.	5	2.3
	non-response	1	.5

4.2. Reasons to Use GMC

The main reasons for using GMC were 'near distance (convenience of transportation)' 97 people (37.7%), 'various medical subjects' 28 people (10.9%), 'doctor's competency (professionalism)' 27 people (10.5%), 'affordable medical expenses' 24 patients (9.3%) followed.

4.3. Inconveniences When Using GMC

The complaints about GMC were 'inconvenient parking facilities' 45 people (19.7%), 'long distance (traffic inconvenience)' 41 people (17.9%), 'long waiting time (hospitalization)' 38 people (16.6%), 'hope' absence of

medical treatment' 23 patients (10.0%) were found in that order. As for the reasons for using the relevant medical institution in the previous question, it is necessary to consider improving parking facilities and securing transportation convenience as improvements to GMC, such as 'near distance (convenience of transportation)' and 'various medical subjects'.

4.4. Overall Level of Medical Care at GMC

GMC's overall medical level (treatment capacity) is 65.3 points (converted to 100 points on a 5-point scale). The 'positive' opinion is 53.9%, and the 'negative' opinion is 2.3%.

Table 3: Respondent Characteristics of GMC Users (Patients)

Cases	Very low	Low	Medium	High	Very high	Non-response	Total		100points Average (points)
							Negative (very low + low)	Positive (high+very high)	
219	0.5	1.8	42.5	44.7	9.1	1.4	2.3	53.9	65.3

4.5. Overall Satisfaction of GMC

Overall satisfaction is 67.0 points (converted to 100 points on a 5-point scale). The 'positive' opinion is 61.2% and the 'negative' opinion is 2.3%.

Table 4: Respondent Characteristics of GMC Users (Patients)

Cases	Very low	Low	Medium	High	Very high	Non-response	Total		100points Average (points)
							Negative (very low + low)	Positive (high+very high)	
219	0	2.3	35.2	53.0	8.2	1.4	2.3	61.2	67.0

4.6. Major Medical Courses of GMC

The main subjects of treatment were 'orthopedic surgery' 72 patients (29.3%), 'health checkup' 30 patients (12.2%), 'general surgery' and other 29 patients (11.8%) in that order.

4.7. Intention to Revisit GMC in the Future

The degree of intention to revisit is 68.1 points (converted to 100 points on a 5-point scale). The 'positive' opinion was 66.7% and the 'negative' opinion was 4.0%.

Table 5: Intention to Revisit GMC (Unit: Number, %)

Cases	Very low	Low	Medium	High	Very high	Non-response	Total		100points Average (points)
							Negative (very low + low)	Positive (high+very high)	
219	1.4	3.7	26.5	55.7	11.0	1.8	4.0	66.7	68.1

4.8. Need for a Complex Ward Extension Project of GMC

Regarding the necessity of the complex ward extension project, 95.9% of the residents indicated that they wanted the complex ward extension project. 2.3% residents replied it was not necessary, and the remaining 1.8% had other opinions.

4.9. Hope Service When Expanding the Complex Ward of GMC

When expanding the complex ward, the desired medical service was 'Improve the professionalism of treatment' 92 people (25.8%), 'Modern medical equipment' 71 people (19.9%), 'Improvement of internal space convenience' 43 people (12.0%), 'Addition of medical subjects' 42 people (11.8%) were opened.

4.10. Intention to Use after Completion of the Complex Ward of GMC

Regarding the intention to use the complex after the completion of the complex, 95.9% of the residents indicated that they wanted to use GMC.

Table 6: Intention to Use after Completion of the Complex Ward of GMC (Unit: Number, %)

Cases	Yes	No	Non-response	Total
219	95.9	2.3	1.8	100.0

5. Discussions

As a public hospital, local medical centers have a social responsibility to provide the medical services needed by local residents at an affordable cost while maintaining an appropriate level of quality (Lim et al., 2010). Among the 7 major cities and 11 counties in Gangwon-do, Wonju 340,000, Chuncheon 280,000, and Gangneung 220,000 are the three cities in Gangwon-do with a large population.

There is a big difference from 90,000 in the East Sea, 80,000 in Sokcho, 71,000 in Hongcheon, and 69,000 in Samcheok. Compared with major cities in Gangwon-do, Gangneung has a high elderly population and average age, and a low total fertility rate, so the population is declining.

However, Gangneung has the highest unmet medical care rate, second highest suicide rate, and high smoking and drinking rates. Conversely, the 6th place in the vaccination rate and the 7th place in the healthy living practice rate are the lowest levels, so Gangneung's basic medical services are urgently requested. Gangneung requires efforts to improve local residents' awareness of medical institutions (Lee, 2011). Therefore, in order to survive in this competition, medical centers have come to place importance on patient satisfaction and reliability (Moon, 2020).

GMC was established in 1913 for the first time in Gangwon-do, and not only is the building deteriorated rapidly. GMC is in urgent need of reinforcement in terms of facilities as it has the smallest number of beds, professional manpower structure, and medical equipment compared to other medical centers.

This is because it can be seen that this aspect can lead to a decrease in external credibility and a decrease in

awareness, resulting in a chronic deficit (Lee, 2014). It is now necessary to introduce facilities and equipment that enable local medical centers to secure a certain amount of revenue. Medical centers need to introduce innovative management techniques along with the transfer of authority to a level that can ensure customer satisfaction and profitability through service quality improvement (Yang, 2017). The facilities and environment of the public health center, patient-centered treatment, the professional knowledge and skill level of doctors, and the emotional support of the staff and nurses were important factors in using the health center (Sohn et al., 2015). Also, in terms of management structure, GMC recorded the most net loss almost every year in the management structure, so it is necessary to review innovative management improvement or restructuring measures. Comparing the status of the four general hospitals in Gangneung-City, GMC has lower facilities and standards such as the number of beds, intensive care unit, operating room, emergency room, and physical therapy room compared to the other three private hospitals, so the competitiveness of health care has been lost.

In addition, GMC has a large difference compared to other private general hospitals, and the number of subjects, number of specialists, and special treatment functions are also low.

This is because, if there are many medical institutions of the same type or similar size in the region, a decrease in performance due to mutual competition is expected (Park, 2012). Efforts are needed to provide specialized services, such as local medical centers having specialized functions of treatment that can secure a competitive advantage in competition with private hospitals (Lee, 2017).

6. Summary and Conclusions

This study comprehensively considered the health care demand and current status of Gangneung-City in Gangwon-do, Korea. The feasibility and necessity of ward extension was analyzed from the point of view of local residents at GMC, a public health center located in Gangneung City. An important issue in the nationwide spread of COVID-19 is securing sufficient medical facilities (Kim, 2021). GMC was established in 1913 for the first time in Gangwon-do, and not only is the building deteriorated rapidly. GMC is in urgent need of reinforcement in terms of facilities as it has the smallest number of beds, professional manpower structure, and medical equipment compared to other medical centers.

The main results of the survey for patients and users who

use GMC are as follows.

- The main reasons for using GMC were 97 people (37.7%), 'near distance (convenient transportation)', and 28 people (10.9%). 'various medical subjects' and 27 (10.5%) 'doctor's competency (professionalism)'.

- Inconveniences when using GMC were 45 (19.7%) 'inconvenient parking facilities', 41 (17.9%) 'long distance (inconvenient traffic)', and 38 (16.6%) 'long waiting time (hospitalization)'.

- As for the overall level of medical care at GMC, 53.9% of 'positive' opinions and 2.3% of 'negative' opinions were reported.

- As for the overall satisfaction of using GMC, 61.2% of 'positive' opinions and 2.3% of 'negative' opinions were found.

- The main subjects of treatment at GMC are 'Orthopedic Surgery' for 72 patients (29.3%), 'Health Check-up' for 30 patients (12.2%), and 'General Surgery' for 29 patients (11.8%) and others.

- Regarding the intention to revisit GMC, 66.7% of 'positive' opinions and 4.0% of 'negative' opinions were expressed.

- Regarding the necessity of the GMC complex ward extension project, 95.9% of the residents said they wanted the complex ward extension project, 2.3% said it was not necessary, and the remaining 1.8% had other opinions.

- When expanding the GMC complex ward, 92 patients (25.8%) wanted 'improvement of medical professionalism', 71 patients (19.9%) 'modernization of medical equipment', and 43 patients (12.0%) 'improving internal space convenience'.

- After the completion of the GMC complex, 95.9% of the residents indicated that they wanted to use the GMC.

In this study, the expansion or establishment of specific hospital beds and treatment departments at GMC was not investigated because it was considered inappropriate in the survey

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