

## A Study on Characteristics of Patients with Physical Therapy Services in Seoul Metropolitan Government Gangbuk-gu Community Health Center

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**Purpose** This study aimed to examine general characteristics and traits of treatment areas by age of 273 patients who received physical therapy services in seoul metropolitan government gangbuk-gu community health center. **Methods** This study was based on records and computational data on 273 patients who received physical therapy services in seoul metropolitan government gangbuk-gu community health center from January 2 to December 31, 2013. **Results** The results are as follows: Regarding general characteristics of the subjects, the rate of females was higher at 66.7% than that of males at 33.3%. As for age, the rate of those in their 70 was highest at 39.5% and regarding disease name, the rate of those who had degenerative arthritis(DA) was highest at 91.2%. The rate of those who were exempted from medical fees was 76.9% and the rate of those who were not classified disabled was 83.5%. The rate of those whose treatment time was 45 minutes was 93.8%. The lumbar area was the area most treated by physical therapy; The rate of those who received physical therapy to the lumbar area was 26.7% in th their 70s or older, 9.9% in those aged between 60 and 69, and 9.5% in those aged under 60. There were no statistically significant differences in treated areas according to age ( $p > 0.05$ ). **Conclusion** Through this study, efforts to improve physical therapy services for the elderly with chronic DA who are 60 or older accounting for a majority of physical therapy service users in community service centers and to enhance users' satisfaction by applying detailed rehabilitation exercise programs for frequently treated areas in all age groups are needed.

**Key words** Community health center, Physical therapy services, Degenerative arthritis, Lumbar

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### I. Introduction

As the industrial society rapidly develops, the number of the disabled resulting from all kinds of industrial accidents are fast increasing. In addition, as the old population and the number of patients with chronic degenerative disease go up resulting from the development of medicine and qualitative improvement of living standard, desires for medical rehabilitation services are rapidly on the rise.<sup>1)</sup> To respond to it, welfare centers or public health centers, public medical institutions of Korea, are very widely distributed in cities, counties, boroughs, towns, and townships.<sup>2)</sup> In cities and provinces public hospitals are established and,

in particular, infectious disease control, vaccination, treatment of the elderly, treatment of mental disorders, and rehabilitation services are provided in order to perform complementary functions for areas where the private medical sector is weak.<sup>3)</sup>

Moreover, as chronic degenerative diseases and the elderly rapidly increase, the necessity and importance of physical therapy through public health centers is growing aimed at strengthening comprehensive public health business for saving medical costs and guaranteeing sustainable and comprehensive health management.<sup>2)</sup> Public health centers are the center of local medical system and largely consist of public health administration division and public health guid-

ance division. In regions where visiting nurse services for low-income poor people are conducted, they are comprised of local public health division and physical therapy room within the medical and pharmaceutical division.<sup>3)</sup> Physical therapy is to treat patients with disease or disability resulting from damages with therapeutic exercise, heat, coldness, water, beam, electricity, and massage.<sup>4-6)</sup> The year physical therapy rooms were first opened is 1992 when “the standard for assigning public health professional human resources to public health centers and public health center branches” was enacted and proclaimed, thereby making a public health center have at least one physical therapist.<sup>7,8)</sup> Accordingly, a majority of public health centers in local governments established physical therapy rooms (70 therapy rooms, 73.7%) in 1993.<sup>7,9)</sup> In Seoul Metropolitan government, 25 physical therapy rooms were first opened in 25 public health centers in 1994.<sup>6,10)</sup> Medical equipment of the newly opened physical therapy rooms included infrared equipment (100%), hot pack (99%), ultrasound (99%), and interferential current therapy (97.1%).<sup>4)</sup>

Meanwhile, with the advent of aging society, diseases related to arthritis are gradually increasing. There are different kinds of arthritis diseases; Degenerative arthritis is most common and other major diseases include rheumatoid arthritis and ankylosing spondylitis.<sup>11)</sup> In DA patients local degenerative changes occur as articular cartilage wears away; DA is also called degenerative joint disease or osteoarthritis.<sup>11-13)</sup> When this disease progresses, stiffness of the subchondral bone, excessive bone formation around the joints, and deformity of the joints take place, and repetitive pain, spasticity of the joints, and gradual joint motor disorder are observed. The incidence rate of DA is 80% in those aged 55 or older and almost 100% in those aged 75 or order, and about a quarter of DA patients have clinical symptoms. The prevalence rate of DA is similar in males and females. The incidence rate is higher in males than females when they are under 50, but the prevalence rate is higher in females than in males and symptoms are more severe in females than in males when they are aged 50 or older.<sup>13)</sup> Osteoarthritis is the

most common cause of locomotor dysfunction and disabling joint pain in the United States. It is also the most common rheumatic disease. The disease affects 33% of individuals over the age of 65. The most frequently affected joint are the hands, knees, and hip. The typical presentation includes joint pain, limited motion, and occasional swelling. These signs and symptoms can significantly limit activities of daily living such as walking.<sup>14)</sup> Moreover, osteoarthritis may degrade the quality of life by triggering pain and deformity of the joints when it sustains, although it does not threaten life.<sup>11)</sup> In addition, complete recovery of chronic degenerative disease in elderly people is not easy and therefore long-term management rather than technology-intensive diagnosis is necessary. To this end, functions of public health centers, forefront institutions, should be activated by decreasing medical burden of local residents, improving their health, and providing medical services to the elderly.<sup>8)</sup>

Accordingly, this study intends to analyze general characteristics of those who receive physical therapy services in gangbuk-gu community health center among 25 public health centers in seoul metropolitan government and traits of their treatment areas by age and further provide basic data for public health and medical business for the elderly with chronic degenerative disease and patients who use community health center physical therapy(CHCPT) services.

## II. Materials and Methods

### 1. Subjects and Methods

#### 1) Subjects and Term

This study was based on records and computational data and concerned 273 patients who repetitively received seoul metropolitan government gangbuk-gu community Health center physical therapy (SMGGCHCPT) from January 2 to December 31, 2013 among 3,146 patients .

#### 2) Study Tool and Content

We referred to studies by Moon<sup>1)</sup>, Moon et al<sup>6)</sup>, Moon et al<sup>10)</sup>, Chang<sup>4)</sup>, Yoon et al<sup>8)</sup>, Song et al<sup>15)</sup> and modi-

fied and complemented their tools to be suitable for the purpose of this study. General characteristics of the patients who used SMGGCHCPT (gender, age, disease name, whether they bore medical fees, disability class, and treat time) and treatment areas by age were investigated with records they noted town and computational data.

### 3) Data Analysis

The result of data investigation was analyzed using SPSS 21.0 program. Frequency analysis of general characteristics of SMGGCHCPT users was conducted by classifying the characteristics into gender, age, disease name, whether they bore medical fees, disability class, and treat time. Pearson's chi square( $\chi^2$ )test was carried out in order to verify relationship between patients' age and treatment areas. A significance level was set at  $\alpha \leq 0.05$ .

## III. Results

### 1) General characteristics of patients who received physical therapy

General characteristics of patients who received physical therapy are as follows. As for gender, the rate of females was higher at 66.7% than that of males at 33.3%. Regarding age, the rate of those in their 70s was highest at 39.5%, followed by 30.0% in their 60s, 15.4% in their 50s, 8.8% in their 80s, 2.9% in their 40s, 2.7% in their 30s, and 0.7% in their 90s. With regard to disease name, the rate of DA was highest at 91.2%, followed by arthritis at 2.9%, fibromyalgia at 2.5%, hand sprain at 1.8%, acute gastritis at 0.3%, hypertension at 0.3%, diabetes at 0.3%, and lumbar pain at 0.3%. Regarding whether patients bore medical fees, the rate of those who were exempt (those aged 65 or older, medical protection) was 76.9% and the rate of those who bore medical fees (younger than 65) was 23.1%. With regard to disability classification, the rate of those who were classified disabled was 83.5% and the rate of those who were not was 16.5%. As for treatment time, the rate of those who received treatment for 45 minutes was 93.8% and the rate of those

who received treatment for 20 minutes was 6.2% (table 1).

### 2) Treatment area by age of patients who received physical therapy Services

Age groups were divided into three groups: those under 60 years old, those aged between 60 and 69, and those aged 70 or older. As for treatment area, the rate of lumbar region was highest at 26.7% in those aged 70 or older, followed by the rate of knees at 9.5%, the rate of neck and shoulders at 9.2%, and the rate of wrists and ankles at 3.7%. The rate of lumbar region was highest at 9.9% in those aged between 60 and 69, followed by the rate of neck and shoulders at 8.4%, the rate of knees at 8.1%, and the rate of wrists and ankles at 3.7%. The rate of lumbar region was highest at 9.5% in those under 60 years old, followed by the rate of neck and shoulders at 5.9%, the rate of knees at 3.3%, and the rate of wrists and ankles at 2.2% (table 2) (figure 1). Based on the above result, an attempt to verify whether the patients' age and treatment area were associated was made but there was no significant relationship between them ( $p > 0.05$ ), (table 2).

## IV. Discussion

This study intended to look at general characteristics of patients who received SMGGCHCPT and their treatment area by age.

As for gender, the rate of females was very high at 66.7% compared to that of males at 33.3%. This result was similar to that of a study by Chang<sup>4)</sup> in which the rate of female patients was high at 65.0% relative to the rate of male patients at 35.0% and to that by Kim<sup>16)</sup> in which female patients accounted for three fourths of the total with the number of male patients at 284 (25.6%) and that of female patients at 825 (74.4%). This result was also consistent with that of a radiological examination<sup>11)</sup> in which the rate of DA patients aged 45 or younger was 2%, the rate of those aged between 46 and 65 was 30%, and the rate of those aged 65 or older was 68% and male patients

**Table 1. General Characteristics of Patients who Received Physical Therapy Services**

Classification	Item	Frequency (total N=273)	Rate(%)
Gender	Male	91	33.3
	Female	182	66.7
Age (years old)	In their 30s (30~39)	7	2.7
	In their 40s (40~49)	8	2.9
	In their 50s (50~59)	42	15.4
	In their 60s (60~69)	82	30.0
	In their 70s (70~79)	108	39.5
	In their 80s (80~89)	24	8.8
	In their 90s (90~99)	2	0.7
Disease Name	Hypertension, arthritis	8	2.9
	Acute gastritis	1	0.3
	Hypertension, diabetes	1	0.3
	Fibromyalgia	7	2.5
	Hand sprain	5	1.8
	Lumbar pain	1	0.3
	DA	249	91.2
	Lumbar sprain	1	0.3
Whether Patients Bore Medical Fees	Those who bore medical fees (those younger than 65)	63	23.1
	Those who were exempt (those aged 65 or older)	210	76.9
Disability Class	Applied	45	16.5
	Not applied	228	83.5
Treatment Time (Minutes)	20 minutes	17	6.2
	45 minutes	256	93.8

**Table 2. Treatment Area by Age of Patients who Received Physical Therapy**

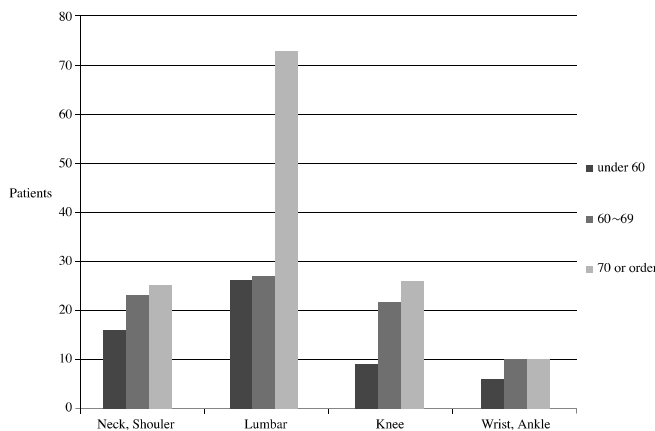
(N=273)

Age	Treatment Area								Pearson $\chi^2$ (p-value)
	Neck, Shoulders		Lumbar Region		Knees		Wrists, Ankles		
	N	%	N	%	N	%	N	%	
Those under 60 years old	16	5.9	26	9.5	9	3.3	6	2.2	11.205(0.082)
Those aged between 60 and 69	23	8.4	27	9.9	22	8.1	10	3.7	
Those aged 70 or older	25	9.2	73	26.7	26	9.5	10	3.7	
Total	64	23.4	126	46.2	57	20.9	26	9.5	

showed a similar pattern.

A majority of the patients were in their 70s (39.5%) and in their 60s (30.0%); Their rates were higher than that of those in their 50s (15.4%) (table 1). This result was consistent with that of a study by Chang<sup>4)</sup> in

which the rate of those in their 70s, 60s, and 50s was 24.1%, 30.6%, and 15.9%, respectively, with that of a study by Yoon et al<sup>8</sup> where the rate of those aged 65 or older was 72.6%, with that of a study by Kim<sup>16)</sup> where the rate of those in their 60s was 68.7%, and



**Figure 1. Treatment Area by Age of Patients who Received Physical Therapy**

with that of a study by Song et al.<sup>15</sup> in which a majority of those who used public health center physical therapy was those aged 65 or older. As shown above, the rate of those in their 60s or older among patients who use CHCPT is expected to continuously rise.

Regarding disease name, the rate of those with DA was 91.2% (table 1). This is related to a result of a study in which about 80% of those aged 55 or older had a finding of DA and almost all population had a finding of DA in those aged 75 or older and to a result of a study by Sisto and Malanga<sup>14)</sup> in which DA increased in those aged 60 or older.

Regarding whether the patients bore medical fees, the rate of those were exempt was much higher at 76.9% than the rate of those who bore medical fees (table 1). The reason is considered because diagnosis and treatment of elderly people aged 65 or older, those who receive medical protection, and disabled people is made free of charge. This result is associated with those in their 60s or older making up a high rate of the subjects at 79%. Moreover, complete recovery of elderly patients' chronic degenerative arthritis is not easy and therefore medical fee waiver for the low-income class aged 65 or older is an essential factor in providing comprehensive medical services including lifelong health management.

93.8% of the patients received treatment for 45 minutes (table 1) and this result was similar to the result of a study by Chang<sup>4)</sup> where the rate of those received treatment for 50 to 60 minutes in a public

health center was highest at 68.6%; This means that integral services are provided in public health centers by investing more time in treatment of patients compared to other medical institutions.

The patients who received physical therapy were divided into three age groups: those aged under 60, those aged between 60 and 69, and those aged 70 or older. 26.7% of those aged 70 or older, 9.9% of those aged between 60 and 69, and 9.5% of those aged under 60 had a chronic degenerative lesion in their lumbar area (table 2) (figure 1). Other frequently treated areas were in the order of the neck, shoulders, and knees. The treatment rate of the areas like the wrists or ankles was low accounting for between 2.2% and 3.7% (table 2) (figure 1). The areas where DA frequently occurs are the lumbar region, the hip joint, and the knee joint against which weight load and pressure are exerted. In particular, the patellofemoral and medial joints are well infiltrated.<sup>13)</sup> Moreover, increase in the aged population has led to common joint pain in the lumbar, neck and shoulders, knees, and hand areas. Such joint pain is the biggest cause of restriction to active daily living. The rate of those using CHCPT is increasing due to chronic pain of people of old age. Whether treatment areas differed among different age groups who received CHCPT was examined and it was found that there were no significant differences (table 2). The reason is that the rate of those who received treatment on their lumbar region was high and the rate of those who received treatment on their wrists and ankles was low in all age groups. This means that age does not greatly affect treatment areas.

As the rate of people of old age who are 60 years old or older among those who use public health centers continues to go up, public health centers, public health medical institutions, should provide medical services of good quality in close relationship with old patients with chronic degenerative disease, disabled patients, and medically vulnerable people so that health management of the low income class and old patients may be made continuously. In addition, non-profit public health medical services should be provided so that local residents can receive medical

services after discharge from secondary and tertiary medical institutions. The limitation of this study is that the subjects were confined to those who received SMGGCHCPT and it is difficult to generalize the result to overall CHCPT users. In order to resolve this limitation, research on patients who receive CHCPT across the nation should be made. Such efforts will be able to meet demands by chronic degenerative arthritis patients for whom physical therapy is essential.

#### IV. Conclusion

This study examined general characteristics and traits of treatment areas by age of 273 patients who received SMGGCHCPT and reached the following conclusions.

- 1) As general characteristics of the subjects, the rate of females was higher at 66.7% than that of males at 33.3%. The largest age group was those in their 70s at 39.5%. The most common disease of the users was DA whose rate was 91.2%. The rate of those who were exempt from medical fees was 76.9% and the rate of those who were not classified disabled was 83.5%. The rate of those who received treatment for 45 minutes was 93.8%.
- 2) Among the areas of physical therapy, the lumbar area made up the largest portion with the rate at 26.7% in those aged 70 or older, at 9.9% in those aged between 60 and 69, and at 9.5% in those aged under 60. Analysis of whether treatment areas varied among different age groups was made and there were no statistically significant differences ( $p>0.05$ ).

Currently, the number of old patients who receive CHCPT is continuously growing. Therefore, physical therapy services for elderly people aged 60 or older with chronic degenerative disease who account for a majority of CHCPT users should be enhanced and life-long health management program services for local residents should be expanded. In addition, there is no correlation between age and treatment area and therefore rehabilitation exercise programs for areas whose

treatment frequency is high in all age groups should be applied to improve users' degree of satisfaction.

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