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Perception on the Traditional Korean Medicine According to the Existence of a Chronic Disease

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Objectives: Chronic diseases (CDs) continue to increase due to advances in medicine and increase in lifespan, affecting quality of life and resulting in economic loss through treatment costs. This study addressed the perception characteristics of the effectiveness of Korean medicine (KM) based on the existence of a CD to determine the national preference for KM treatment.

Methods: Using data from the 2017 National Survey of KM Usage, we evaluated the perception on treatment effect of 16 diseases by dividing them into the CD group and the non-CD group. Response reliability was verified by applying the chi-square test (χ^2-test) analysis method of the Statistical Package for the Social Sciences (SPSS) statistical program.

Results: The analysis of the perception on effectiveness of KM for patients with CD (n = 1,050, 21.0%) and for patients with non-CD (n = 3,950, 79.0%) showed an overall similar trend for all the 16 diseases. The response rates of having some treatment effect were high for nine diseases namely, disc-related disease (CD: 70.7%, non-CD: 73.1%), osteoarthritis (CD: 72.3%, non-CD: 72.4%), frozen shoulder and shoulder pain (CD: 79.6%, non-CD: 81.4%), back pain (CD: 84.6%, non-CD: 85.0%), sprain (CD: 84.8%, non-CD: 84.1%), facial nerve paralysis (CD: 73.5%, non-CD: 71.7%), stroke (CD: 66.2%, non-CD: 62.8%), digestive disease (CD: 53.3%, non-CD: 50.0%), and common cold and rhinitis (CD: 44.7%, non-CD: 44.8%).

Conclusion: The present results found that there was little difference in the perception on effectiveness of KM for each of the 16 diseases in patients with CD and non-CD, however, 70% or more of the respondents recognized some treatment effect on musculoskeletal disorders, regardless of the existence of CD. Preferential political support for KM treatment of chronic musculoskeletal disorders is recommended.

Keywords: national survey, chronic diseases, Korean medicine, perception

INTRODUCTION

"Chronic disease (CD)" can be applied when the course of the disease lasts for more than three months, and generally, cannot be prevented by vaccines or cured by medication, nor do they simply disappear [1]. The World Health Organization (WHO) defines CDs as non-communicable diseases that have a long duration and are the result of a combination of genetic, physiological, environmental, and behavioural factors [2]. The CDs continue to increase due to advances in medicine and the extension of lifetime, impact quality of life, and economic and medical costs [3, 4].

More than one-third of the European employable population has a chronic illness and two out of three people reaching retirement age have two CDs [5]. Six out of 10 American adults have CDs, and 4 out of 10 have 2 or more CDs [6]. In the study

by Chapel et al. [7], prevalence of adult medicaid beneficiaries for enrollees aged 18–64 years were estimated to be 8.8%–11.8% for heart disease, 17.2%–27.4% for hypertension, 16.8%–23.2% for hyperlipidemia, 7.5%–12.7% for diabetes, 9.5% for cancer, 7.8%–19.3% for asthma, 5.0%–22.3% for depression, and 55.7%–62.1% for one or more chronic conditions.

In Thailand, prevalence of herbal medicine use in patients with CDs was 35.9%, and 53.7% of them used it to treat long-term health conditions [8]. In Singapore, the 1-year prevalence of complementary and alternative medicine (CAM) treatment in patients with CDs was 22.7% [9]. In the United States, CAM use among participants with chronic conditions was as follows: hypercholesterolemia (31.5%), hypertension (28.3%), diabetes (25.0%), and obesity (10.8%) [10].

Low fertility and advances in medical technology are responsible for rapid aging in population, and therefore, people aged 65 years or older are expected to constitute 20% of the total population [11]. Accordingly, a pilot project on CD management was conducted nationwide, by focusing on diabetes and hypertension to review the application of health insurance [12].

In accordance with the previous studies [8-10, 13, 14], a survey was conducted by focusing on the usage of traditional medicine or CAM by patients with CD. However, no studies have been conducted comparing the patients with and without CD.

The present study addresses the perception characteristics of the treatment effect for each disease in patients with CD and non-CD on the basis of the data of the national survey conducted by the Ministry of Health and Welfare (MoHW) in 2017. The study results indirectly show the demands and requirements of the patients with CD at a national level, and will be helpful in determining the priority of national political support. Furthermore, it will be a political reference for the country, considering the use of traditional medicine for controlling CDs.

MATERIALS AND METHODS

1. Data sources

The data analyzed in the study were obtained from the 2017 National Survey for the Usage of Korean Medicine (KM) [15]. We applied data to the National Development Institute of Korean Medicine (NIKOM), which conducts research and manages the data, and secures raw data through approval of the review committee (Approval Number: 2019-10).

The nationally approved statistics of the National Survey for the Usage of KM was conducted for the first time in the National Survey for Usage of KM and 2009 National Survey for Consumption of KM, and this survey was conducted every three years after the initial two surveys were integrated into the National Survey for Usage of KM in 2011. The 2017 survey was the fourth, and only the data on the usage of KM were utilized from the details of the integrated survey. This survey was conducted to analyze the usage of KM services, and usage of KM to provide the basic data needed for establishing the KM policy. The survey targeted all 19 years or older household members of the national sample households, and the KM outpatient and inpatient service users aged 19 years or older. The NIKOM and Gallup Korea conducted a survey on 5,000 general people, and 1,000 inpatients and outpatients.

2. Sample selection

The analyzed data were surveyed for a target general population of 5,000 during the 2017 National Survey for Usage of KM. The survey question was - 'Are you suffering from or have you suffered from CDs to be answered in ① Yes or ② No. The participants answering 'Yes' were categorized into the group - patients with CDs (n = 1,050, 21.0%), and those answering 'No' were categorized into the group - patients with non-CDs (n = 3,950, 79.0%). Both the groups were analyzed depending on the possession of CDs. In the survey, 'chronic disease' was defined as suffering from a disease diagnosed by a doctor for more than six months, such as hypertension, diabetes mellitus, arthrosis, hyperlipidemia, ischemic heart disease, and cerebrovascular disease.

3. Participants

Analysis of both the groups (CD and non-CD) was done in relation to the demographic characteristics, the experience in usage of KM, opinion on using KM, and the perception on the effectiveness of KM for each disease, by using the 2017 National Survey for Usage of KM. The demographic characteristics included gender, age group, residence, marriage, academic background, job existence, household income, health status, type of national medical security, and subscription of commercial medical insurance. The effectiveness of KM for each disease was analyzed with the following 16 diseases — disc-related diseases (e.g., herniation of intervertebral disc or spinal stenosis), osteoarthritis, frozen shoulder and shoulder pain, back pain,

Table 1. Characteristics of the study population from the survey with and without chronic diseases (Unit: Person, %)

Category		Chronic disease possession		Total	χ^2 (p)
		Yes	No		
Total		1,050 (21.0)	3,950 (79.0)	5,000 (100.0)	
Gender	Male	469 (44.7)	1,998 (50.6)	2,467 (49.3)	11.613**
	Female	581 (55.3)	1,952 (49.4)	2,533 (50.7)	(0.001)
Age	19-29	17 (1.6)	854 (17.1)	871 (17.4)	1,122.659***
	30s	47 (4.5)	813 (16.3)	860 (17.2)	(0.000)
	40s	96 (9.1)	931 (18.6)	1,027 (20.5)	
	50s	241 (23.0)	748 (15.0)	989 (19.8)	
	60 or older	649 (61.8)	604 (12.1)	1,253 (25.1)	
Residence	Metropolitan	411 (39.1)	1,669 (42.3)	2,080 (41.6)	26.948***
	Chungcheong	206 (19.6)	554 (14.0)	760 (15.2)	(0.000)
	Gyeongsang	253 (24.1)	1,127 (28.5)	1,380 (27.6)	
	Jeolla	180 (17.1)	600 (15.2)	780 (15.6)	
Marriage	Unmarried	33 (3.1)	1,045 (26.5)	1,078 (21.6)	266.576***
	Married (bereaved, divorced, and common-law included)	1,017 (96.9)	2,905 (73.5)	3,922 (78.4)	(0.000)
Academic background	Primary or lower school graduate	328 (32.1)	151 (3.8)	479 (9.6)	968.268***
	Middle school graduate	172 (16.4)	217 (5.5)	389 (7.8)	(0.000)
	High school graduate	348 (33.1)	1,616 (40.9)	1,964 (39.3)	
	University or higher school graduate	202 (19.2)	1,966 (49.8)	2,168 (43.4)	
Job	Yes	568 (54.1)	2,730 (69.1)	3,298 (66.0)	83.332***
	No	482 (45.9)	1,220 (30.9)	1,702 (34.0)	(0.000)
Household income	Less than 1,500 USD	324 (30.9)	249 (6.3)	573 (11.5)	581.478***
	1,500 USD less than 3,000 USD	267 (25.4)	722 (18.3)	989 (19.8)	(0.000)
	3,000 USD less than 4,500 USD	206 (19.6)	1,203 (31.5)	1,409 (28.2)	
	4,500 USD less than 6,000 USD	165 (15.7)	1,180 (29.9)	1,345 (26.9)	
	No less than 6,000 USD	88 (8.4)	596 (15.1)	684 (13.7)	
Health status	Very good	24 (2.6)	869 (22.0)	893 (17.9)	1,450.977***
	A little good	208 (21.9)	2,139 (54.2)	2,409 (46.9)	(0.000)
	Average	415 (38.6)	802 (20.3)	1,217 (24.3)	
	A little bad	339 (31.9)	131 (3.3)	470 (9.4)	
	Very bad	64 (5.0)	9 (0.2)	73 (1.5)	
Medical security type	Health insurance (district insurance)	510 (48.6)	1,207 (30.6)	1,717 (34.3)	191.457***
	Health insurance (workplace insurance)	513 (48.9)	2,733 (69.2)	3,246 (64.9)	(0.000)
	Medical care	27 (2.6)	10 (0.3)	37 (0.7)	
	Miscellaneous	0 (0.0)	0 (0.0)	0 (0.0)	
Commercial insurance	Subscribed	526 (50.1)	3,150 (79.7)	3,676 (73.5)	374.618***
	Unsubscribed	524 (49.9)	800 (20.3)	1,324 (26.5)	(0.000)

***$p < 0.001$, **$p < 0.01$.

USD, United State dollar.

sprain, facial nerve paralysis, stroke, hypertension, diabetes mellitus, digestive disease, common cold and rhinitis, dementia, cancer-related pain, infertility, skin disorder, and genitourinary disease.

4. Statistical analysis

The chi-square test (χ^2-test) was applied using IBM Statistical Package for Social Sciences (SPSS) for Windows, version 25 (IBM Corp., Armonk, N.Y., USA). The χ^2-test is one of the analysis methods frequently used in categorical data analysis and is often applied in the cross-tabulation analysis comparing the rates among groups. The statistical analysis was performed by separating the cases of the positive treatment effect response rate being higher than the negative treatment effect response rate from the cases of some treatment effect response rate being lower than the no treatment effect response rate for the 16 diseases.

RESULTS

1. Demographic characteristics of survey targets

The characteristics of the participants are presented in Table 1. Demographic characteristics, including gender, age group, residence, marriage, academic background, job existence, household income, health status, type of national medical security, and subscription of commercial medical insurance, based on the CDs possessed by survey targets were analyzed. Among the total 5,000 respondents, the number of respondents with CDs (hereinafter patients with CDs) was 1,050, constituting 21%, and the number of respondents with non-CDs (hereinafter patients with non-CDs) was 3,950, accounting for 79.0%.

Regarding the distribution for each age group, the number of patients with CDs was the highest in the age group of 60 years or older, with 649 persons (61.8%), followed by patients in their 50s with 241 persons (23.0%). However, patients with non-CDs showed a uniform distribution for each age group. The residences of patients with CDs were in the following decreasing order - metropolitan, Gyeongsang, Chungcheong, and Jeolla areas. Most of the residences of patients with non-CDs were in the metropolitan area, followed by the Gyeongsang, Jeolla, and Chungcheong areas. With respect to marital status, the number of married patients with CDs was 1,017, accounting for 96.9%. Unmarried and married patients with non-CDs were 26.5%

and 73.5%, respectively.

According to the analysis based on academic background, the number of patients with CDs among high school graduates and primary or lower school graduate was similar, accounting for 65% or more of the total. However, the number of university or higher school graduate patients with non-CDs was the highest, followed by high school graduates, both accounting for 90% of the total. Household incomes showed a distinct difference. The household income of patients with CDs was mostly less than 1,500 United States dollar (USD) or between 1,500 and 3,000 USD. However, for patients with non-CDs, the household income between 3,000 USD and less than 4,500 USD was the highest, followed by household income between 4,500 USD and less than 6,000 USD. The respondents of the two corresponding incomes constituted more than 60% in patients with non-CDs whereas it was slightly lesser in patients with CDs.

For the subjective health status based on a 5-point measure, most patients with CDs responded in the order of 'average' and 'a little bad'. Most patients with non-CDs responded in the order of 'a little good, very good', and 'average'. Regarding the type of national medical security, the number of district subscribers of health insurance (48.6%) was similar to the number of workplace subscribers (48.9%) in patients with CDs, and the number of workplace subscribers of health insurance (64.9%) showed a greater difference from the number of district subscribers (34.3%) in patients with non-CDs. The responses regarding subscription and non-subscription of commercial medical insurance were almost equal in patients with CDs. However, in patients with non-CDs, subscription responses constituted almost 80% that is, nearly four times the number of non-subscription responses.

2. Perception of KM effectiveness for each disease

The analysis on recognizing the effectiveness of KM applied to patients with CDs and without CDs demonstrated an overall similar perception for all the 16 diseases. For nine diseases (disc-related disease, osteoarthritis, frozen shoulder, shoulder pain, back pain, sprain, facial nerve paralysis, stroke, digestive disease, and common cold, rhinitis), the response rates of 'some effect' were higher than those of 'no effect'. For the remaining seven diseases (skin disease, genitourinary disease, hypertension, diabetes mellitus, dementia, cancer-related pain, and infertility), the response rates of 'no effect' were higher than those of 'some effect'.

Table 2. Perception of the KM effectiveness for each disease (disease with positive perception)　　　　　　　　(Unit: Person, %)

Category		Chronic disease possession		Total	χ^2 (p)
		Yes	No		
Disc related disease (herniation of intervertebral disc, spinal stenosis)	Very effective	161 (15.3)	727 (18.4)	888 (17.8)	7.36 (0.118)
	A little effective	582 (55.4)	2,162 (54.7)	2,744 (54.9)	
	Little effective	172 (16.4)	618 (15.6)	790 (15.8)	
	Ineffective	21 (2.0)	82 (2.1)	103 (2.1)	
	No idea	114 (10.9)	361 (9.1)	475 (9.5)	
Osteoarthritis	Very effective	199 (19.0)	771 (19.5)	970 (19.4)	1.18 (0.882)
	A little effective	560 (53.3)	2,089 (52.9)	2,649 (53.0)	
	Little effective	191 (18.2)	683 (17.3)	874 (17.5)	
	Ineffective	19 (1.8)	84 (2.1)	103 (2.1)	
	No idea	81 (7.7)	323 (8.2)	404 (8.1)	
Frozen shoulder · shoulder pain	Very effective	302 (28.8)	1,158 (29.3)	1,460 (29.2)	3.95 (0.413)
	A little effective	542 (51.6)	2,056 (52.1)	2,598 (52.0)	
	Little effective	116 (11.0)	424 (10.7)	540 (10.8)	
	Ineffective	12 (1.1)	68 (1.7)	80 (1.6)	
	No idea	78 (7.4)	244 (6.2)	322 (6.4)	
Back pain	Very effective	352 (33.5)	1,351 (34.2)	1,703 (34.1)	4.43 (0.351)
	A little effective	537 (51.1)	2,008 (50.8)	2,545 (50.9)	
	Little effective	108 (10.3)	344 (8.7)	452 (9.0)	
	Ineffective	12 (1.1)	58 (1.5)	70 (1.4)	
	No idea	41 (3.9)	189 (4.8)	230 (4.6)	
Sprain	Very effective	386 (36.8)	1,458 (36.9)	1,844 (36.9)	0.48 (0.976)
	A little effective	504 (48.0)	1,866 (47.2)	2,370 (47.4)	
	Little effective	91 (8.7)	365 (9.2)	456 (9.1)	
	Ineffective	12 (1.1)	49 (1.2)	61 (1.2)	
	No idea	57 (5.4)	212 (5.4)	269 (5.4)	
Facial nerve paralysis	Very effective	257 (24.5)	909 (23.0)	1,166 (23.3)	19.68** (0.001)
	A little effective	514 (49.0)	1,923 (48.7)	2,437 (48.7)	
	Little effective	131 (12.5)	643 (16.3)	774 (15.5)	
	Ineffective	13 (1.2)	87 (2.2)	100 (2.0)	
	No idea	135 (12.9)	388 (9.8)	523 (10.5)	
Stroke	Very effective	204 (19.4)	628 (15.9)	832 (16.6)	40.92*** (0.000)
	A little effective	491 (46.8)	1,853 (46.9)	2,344 (46.9)	
	Little effective	160 (15.2)	823 (20.8)	983 (19.7)	
	Ineffective	25 (2.4)	178 (4.5)	203 (4.1)	
	No idea	170 (16.2)	468 (11.8)	638 (12.8)	
Digestive disease	Very effective	103 (9.8)	373 (9.4)	476 (9.5)	18.29** (0.001)
	A little effective	457 (43.5)	1,603 (40.6)	2,060 (41.2)	
	Little effective	243 (23.1)	1,083 (27.4)	1,326 (26.5)	
	Ineffective	61 (5.8)	316 (8.0)	377 (7.5)	
	No idea	186 (17.7)	575 (14.6)	761 (15.2)	
Common cold · rhinitis	Very effective	79 (7.5)	302 (7.6)	381 (7.6)	12.84* (0.012)
	A little effective	391 (37.2)	1,469 (37.2)	1,860 (37.2)	
	Little effective	297 (28.3)	1,195 (30.3)	1,492 (29.8)	
	Ineffective	79 (7.5)	375 (9.5)	454 (9.1)	
	No idea	204 (19.4)	609 (15.4)	813 (16.3)	

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.
KM, Korean medicine.

1) Perception of KM effectiveness for each disease (disease with positive perception)

For nine diseases (disc-related disease, osteoarthritis, frozen shoulder or shoulder pain, back pain, sprain, facial nerve paralysis, stroke, digestive disease, and common cold or rhinitis), the response rates of 'some effect' were higher than those of 'no effect' (Table 2).

In regard to disc-related disease, the response rate of 'some effect' was 72.7% (CD: 70.7%, non-CD: 73.1%) (p = 0.118). Likewise, the response rate was almost same for osteoarthritis, 72.4% (CD: 72.3%, non-CD: 72.4%), regardless of patients with CDs. A response rate of 81.2% (CD: 79.6%, non-CD: 81.4%) was observed for 'some effect' of KM on frozen shoulder and shoulder pain, and the response rate for patients with non-CDs was higher by about 2%.

In cases of back pain, the response rate of 'some effect' was the highest at 85.0% (CD: 84.6%, non-CD: 85.0%). There was no substantial difference in the response rates based on CD possession, however, the response rate of patients with non-CDs was a little higher. The second highest positive response rate for effectiveness of KM was observed in cases of sprain that is, 84.3% (CD: 84.8%, non-CD: 84.1%) of the total respondents.

For the disease of facial nerve paralysis, 72.0% (CD: 73.5%, non-CD: 71.7%) had a positive response to the effectiveness of KM, and the response rate of 'some effect' was 2% or higher in patients with CDs. The result was statistically significant. Regarding responses to the question on the effectiveness of KM on stroke, 63.5% (CD: 66.2%, non-CD: 62.8%) had statistically significant positive responses, and the perception rate of 'some effect' was higher in patients with CDs.

The perception rate of 'some effect' on digestive disease was 50.7% (CD: 53.3%, non-CD: 50.0%), which was statistically significant, and was higher in patients with CDs (p < 0.01). For common cold and rhinitis, about 44.8% (CD: 44.7%, non-CD: 44.8%) showed a positive response, and the responses of 'no effect' were 38.9% (CD: 35.8%, non-CD: 39.8%) except for the response rate of 'no idea'. Hence, the positive response rate was overall higher than the negative response rate for the effectiveness of KM (p < 0.050).

2) Perception of the KM effectiveness for each disease (disease with negative perception)

Table 3 shows the results of analysis of the questionnaire response data on skin disorder, genitourinary disease, hypertension, diabetes mellitus, dementia, cancer-related pain, and infertility, with higher negative response rates for the effectiveness of KM among the 16 diseases.

For skin disease, the response rates of 'little effective' and 'slightly effective' were almost equal, however, the negative responses were more in the total number of positive responses (p < 0.001). For genitourinary disease, the responses of 'little effective' and 'ineffective' were greater than the response of 'some effect' by about 20% or more, thereby indicating a negative response rate (p < 0.001).

For hypertension, 33.2% of patients with CDs and 38.0% of patients with non-CDs showed the highest response as 'little effective'. The second highest response was 'a little effective', however, the response of 'ineffective' was over 10%, therefore, negative responses constituted nearly half of the total responses (p < 0.01).

Except for the nearly 20% response rate of 'no idea' on diabetes, negative responses accounted for twice or more responses, regardless of CD possession (p < 0.001). 'Little effective' was the highest response, followed by 'a little effective' and 'ineffective' in case of dementia. The response of 'very effective' was considerably low (p < 0.001).

For cancer-related pain, the 'no effect' response accounted for half or more than half indicating a higher negative response rate to the effectiveness of KM. The response rate of 'no idea' in cancer-related pain was the highest among all the diseases (p < 0.001). For infertility, 30.3% of patients with CDs showed the highest response as 'no idea', followed by 'little effective' (29.1%). In patients with non-CDs, the response rate for 'little effective' was 32.3% with 'a little effective' being 26.1%. However, the number of negative responses were more than positive responses (p < 0.001).

DISCUSSION

The present study analyzed the differences in perception under the premise that the perception of the effect of KM on each disease can be different depending on the knowledge and experience of the persons with or without CDs. The perception of effectiveness is concerned with securing the basic data for understanding and forecasting the social response to KM treatment by checking the existing difference, the level of perception, the difference between two groups for each disease and planning the policy related to KM to enhance further perception.

Using the national survey data managed by Statistics Korea,

Table 3. Perception of the KM effectiveness for each disease (disease with negative perception)　　　　(Unit: Person, %)

Category		Chronic disease possession		Total	χ² (p)
		Yes	No		
Skin disease	Very effective	38 (3.6)	165 (4.2)	203 (4.1)	45.34***
	A little effective	290 (27.6)	1,287 (32.6)	1,577 (31.5)	(0.000)
	Little effective	298 (28.4)	1,300 (32.9)	1,598 (32.0)	
	Ineffective	133 (12.7)	456 (11.5)	589 (11.8)	
	No idea	291 (27.7)	742 (18.8)	1,033 (20.7)	
Genitourinary disease	Very effective	18 (1.7)	90 (2.3)	108 (2.2)	38.75***
	A little effective	226 (21.5)	1,023 (25.9)	1,249 (25.0)	(0.000)
	Little effective	355 (33.8)	1,490 (37.7)	1,845 (36.9)	
	Ineffective	130 (12.4)	490 (12.4)	620 (12.4)	
	No idea	321 (30.6)	857 (21.7)	1,178 (23.6)	
Hypertension	Very effective	40 (3.8)	166 (4.2)	206 (4.1)	19.43**
	A little effective	259 (24.7)	1,016 (25.7)	1,257 (25.5)	(0.001)
	Little effective	349 (33.2)	1,502 (38.0)	1,851 (37.0)	
	Ineffective	141 (13.4)	511 (12.9)	652 (13.0)	
	No idea	261 (24.9)	755 (19.1)	1,016 (20.3)	
Diabetes mellitus	Very effective	31 (3.0)	112 (2.8)	143 (2.9)	21.47***
	A little effective	207 (19.7)	861 (21.8)	1,068 (21.4)	(0.000)
	Little effective	366 (34.9)	1,548 (39.2)	1,914 (38.3)	
	Ineffective	162 (15.4)	615 (15.6)	777 (15.5)	
	No idea	284 (27.0)	814 (20.6)	1,098 (22.0)	
Dementia	Very effective	26 (2.5)	153 (3.9)	179 (3.6)	27.02***
	A little effective	195 (18.6)	801 (20.3)	996 (19.9)	(0.000)
	Little effective	317 (30.2)	1,292 (32.7)	1,609 (32.2)	
	Ineffective	190 (18.1)	785 (19.9)	975 (19.5)	
	No idea	322 (30.7)	919 (23.3)	1,241 (24.8)	
Cancer related pain	Very effective	26 (2.5)	126 (3.2)	152 (3.0)	27.86***
	A little effective	160 (15.2)	731 (18.5)	891 (17.8)	(0.000)
	Little effective	302 (28.8)	1,285 (32.5)	1,587 (31.7)	
	Ineffective	233 (22.2)	862 (21.8)	1,095 (21.9)	
	No idea	329 (31.3)	946 (23.9)	1,275 (25.5)	
Infertility	Very effective	30 (2.9)	139 (3.5)	169 (3.4)	31.90***
	A little effective	245 (23.3)	1,032 (26.1)	1,277 (25.5)	(0.000)
	Little effective	306 (29.1)	1,276 (32.3)	1,582 (31.6)	
	Ineffective	151 (14.4)	635 (16.1)	786 (15.7)	
	No idea	318 (30.3)	868 (22.0)	1,186 (23.7)	

***p < 0.001, **p < 0.01.
KM, Korean medicine.

we analyzed the perception characteristics of each of the 16 diseases in patients with CDs and non-CDs, which included disc-related disease, osteoarthritis, frozen shoulder or shoulder pain, back pain, sprain, facial nerve paralysis, stroke, hypertension, diabetes mellitus, digestive disease, common cold or rhinitis, dementia, cancer-related pain, infertility, skin disease, genitourinary disease, and their treatment effects.

The present findings indicate that 70% or more of respon-

dents recognized the treatment effects on musculoskeletal disorders (back pain 85.0%, sprain 84.3%, frozen shoulder or shoulder pain 81.2%, disc-related disease 72.7%, and osteoarthritis 72.4%) regardless of CD possession. According to the 2017 National Survey of KM utilization for 5,000 people, five out of six medical conditions approaching KM institutions corresponded to musculoskeletal disorders (back pain, sprain, frozen shoulder or shoulder pain, osteoarthritis, and disc-related disease) [15]. It can be interpreted that the reason why a patient with musculoskeletal disorder visits a KM institution is the perception that KM is effective for musculoskeletal disorders. However, as there was no statistical significance of the responses on the musculoskeletal disorder, further verification is required.

The study results show that there was little difference in the perception of the treatment effect on the 16 diseases in patients with or without CDs. In particular, for hypertension, diabetes mellitus, and dementia corresponding to the CD category, the response rate of having some treatment effect was less than 30% (hypertension, 29.6%; diabetes mellitus, 24.3%; and dementia, 23.5%). It can be interpreted that the acceptability of KM is low for the treatment of CDs (e.g., hypertension, diabetes mellitus, dementia, hyperlipidemia, and cancer) and is to be controlled politically at a national level. In relation to the high usage rate and treatment perception for musculoskeletal disorders, it is necessary to preferentially access the control of well-grounded CDs, such as chronic musculoskeletal disorders [16-18]. Accordingly, a study comparing the treatment effect and perception of the groups receiving KM and medical treatment for patients with chronic musculoskeletal disorders is needed.

In this study, 73.5% of the patients with CD and 71.7% of patients with non-CDs responded that KM is effective for facial nerve paralysis (p < 0.001). According to previous studies, KM is effective for facial nerve paralysis at the medical discretion [19]. Moreover, according to the 2014 National Health data of Korea, 58.7% (n = 5,768) of patients with facial nerve paralysis used medical treatment, 31.4% (n = 3,087) used KM, and 9.9% (n = 970) received integrative treatment [20]. Our study indirectly measured the acceptability of KM for facial nerve paralysis disease by surveying the subjective perception of the nation. Accordingly, the basis for controlling this disease at a national level from the perspectives of KM use, treatment effect, and national requirement regardless of CD possession, is to be further investigated.

For the six diseases – genitourinary disease, hypertension,

diabetes mellitus, dementia, cancer-related pain, and infertility, the perception of having some treatment effect was less than 30%. It can be interpreted that the nation's acceptability of policy promotion, including the health insurance application and public healthcare provision for the corresponding disease, is low. It is required to consider the policy promotion in the direction of verifying effectiveness through the Research and development (R&D) support for the corresponding disease. Despite the effectiveness of KM on infertility shown in previous studies, and infertility treatment being supported as a public healthcare measure according to the government's policies in response to low fertility, the perception of treatment effectiveness was low in case of infertility (CD: 26.2%, non-CD: 29.6%) [21-23]. For this matter, either information prejudice arising from the conflict between medical treatment and KM caused insufficient national perception or it was possible for factors other than KM to intervene in successful conception. It is recommended to set the directivity of policy promotion by further verification on this matter.

This study has several limitations. First, due to the restricted amount of data usage, the actual effectiveness and perception are mixed, therefore a clear distinction is difficult. As the present study is the analysis of the results of the questionnaire survey conducted for general people, no experience in KM may result in a sample estimation rather than the perception of effectiveness through experience. Hence, if analysis is done for people with experience in using KM, the perception of the actual treatment effect on each disease can be found. In addition, interpreting the results as the perception of the total patients with CDs and non-CDs should be carefully considered. The study is a cross-sectional study, therefore it is necessary to support political decisions based on a minimum 5-year annual perception.

Despite these limitations, the advantage of the study was that the survey was conducted with the help of questionnaires prepared by sample representatives of the general people of Korea on the basis of the reliable data obtained from the Korean government agency. Hence, the study corresponded to a study enabling the identification of Korean's general perception of the treatment effect on 16 diseases. The national perception of the treatment effect can be used as an evidentiary material for the Korean government to decide the national support for KM on a specific disease.

CONCLUSION

According to the study, there was little difference in the subjective perception of effectiveness of KM for each disease in patients with CDs and non-CDs. However, it could be found that 70% or more of respondents recognized some treatment effect on the musculoskeletal disorders (back pain 85.0%, sprain 84.3%, frozen shoulder or shoulder pain 81.2%, disc related disease 74.7%, and osteoarthritis 72.4%), regardless of CD possession. Our study suggests that preferential political support is required nationally regarding KM for the treatment of chronic musculoskeletal diseases.

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CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest regarding the publication of this paper.

ETHICAL STATEMENT

Ethics approval was not required for this study.

DATA AVAILABILITY

The data will be made available upon reasonable request.

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REFERENCES

1. Bernell S, Howard SW. Use your words carefully: what is a chronic disease? Front Public Health. 2016;4:159.
2. World Health Organization. Noncommunicable diseases progress monitor, 2017. Geneva: World Health Organization; 2017. 231 p.
3. Vijg J, de Grey AD. Innovating aging: promises and pitfalls on the road to life extension. Gerontology. 2014;60(4):373-80.
4. Nazarov S, Manuwald U, Leonardi M, Silvaggi F, Foucaud J, Lamore K, et al. Chronic diseases and employment: which interventions support the maintenance of work and return to work among workers with chronic illnesses? A systematic review. Int J Environ Res Public Health. 2019;16(10):1864.
5. Detaille SI, Heerkens YF, Engels JA, van der Gulden JW, van Dijk FJ. Effect evaluation of a self-management program for dutch workers with a chronic somatic disease: a randomized controlled trial. J Occup Rehabil. 2013;23(2):189-99.
6. Centers for Disease Control and Prevention. Chronic Diseases in America [Internet]. Atlanta: Centers for Disease Control and Prevention; c2020 [cited 2020 Sep 12]. Available from: https://www.cdc.gov/chronicdisease/resources/infographic/chronic-diseases.htm.
7. Chapel JM, Ritchey MD, Zhang D, Wang G. Prevalence and medical costs of chronic diseases among adult Medicaid beneficiaries. Am J Prev Med. 2017;53(6S2):S143-54.
8. Peltzer K, Pengpid S. The use of herbal medicines among chronic disease patients in Thailand: a cross-sectional survey. J Multidiscip Healthc. 2019;12:573-82.
9. Lee GB, Charn TC, Chew ZH, Ng TP. Complementary and alternative medicine use in patients with chronic diseases in primary care is associated with perceived quality of care and cultural beliefs. Fam Pract. 2004;21(6):654-60.
10. Mbizo J, Okafor A, Sutton MA, Leyva B, Stone LM, Olaku O. Complementary and alternative medicine use among persons with multiple chronic conditions: results from the 2012 National Health Interview Survey. BMC Complement Altern Med. 2018;18(1):281.
11. Statistics Korea. 2019 elderly person statistics. Daejeon: Statistics Korea; 2019. 84 p.
12. Jung YH, Ko SJ. Distribution and types of multiple chronic conditions in Korea. Seoul: Korea Institute for Health and Social Affairs; 2014. 64 p.
13. Yoon JW, Choi SY, Lee SD. The use and its affecting factors of patients aged 30 and over with single and multiple chronic diseases and their usage outpatient Korean medicine clinics- based on the Ministry of Health and Welfare's 2011 report on usage of Korean medicine. J Soc Prev Korean Med. 2015;19(1):95-107.
14. Oh JS, Han DW, Im MH, Hong YS, Lee YH, Noh HI. The use of traditional Korean medicine and its affecting factors among patients with chronic disease in Jeju province, Korea. Korean J Orient Prev Med Soc. 2009;13(3):55-71.
15. Ministry of Health and Welfare, National Development Institute

of Korean Medicine, Gallup Korea. 2017 years national survey for usage of traditional Korean medicine. Seoul: National Development Institute of Korean Medicine; 2018. 280 p.

16. Meng CF, Wang D, Ngeow J, Lao L, Peterson M, Paget S. Acupuncture for chronic low back pain in older patients: a randomized, controlled trial. Rheumatology (Oxford). 2003;42(12):1508-17.

17. Chen L, Michalsen A. Management of chronic pain using complementary and integrative medicine. BMJ. 2017;357:j1284.

18. Vickers AJ, Vertosick EA, Lewith G, MacPherson H, Foster NE, Sherman KJ, et al. Acupuncture for chronic pain: update of an individual patient data meta-analysis. J Pain. 2018;19(5):455-74.

19. Park HS, Uhm TW, Kim NK. A study on the facial palsy patients' use of Western-Korean collaborative treatment: using Health Insurance Review & Assessment Service-National patients sample. J Korean Data Inf Sci Soc. 2017;28(1):75-86.

20. Jin DE, Jang SY, Jung YS, Choi GH, Shin HC. Herbal medicine for treating Bell's palsy: a retrospective chart review. Integr Med Res. 2020;9(4):100418.

21. Jo JY, Kim TH, Hyun MK, Kim HH, Kim DI. Traditional Korean medicine for female infertility: a review of results from infertility support programs in Korea. Eur J Integr Med. 2016;8(5):847-53.

22. Jo J, Kang MJ, Lee JM, Kim H, Jerng UM. Effects of traditional Korean medicine on anti-Müllerian hormone in patients with diminished ovarian reserve: a retrospective study. Complement Ther Med. 2016;24:118-22.

23. Kim KH, Jang S, Lee JA, Go HY, Jung J, Park S, et al. Characteristics and outcomes of female infertility treatment programs using traditional medicine in Korea: a multisite analysis. J Altern Complement Med. 2018;24(6):570-7.