

Original Article

# A Web-based Survey Research on Clinical Practice Patterns of Korean Medicine Treatment for Degenerative arthritis of hip and finger joints

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**Objectives:** This study aimed to understand the current status of clinical practice patterns of Korean medicine in the treatment of degenerative arthritis of the hip and finger joints using web-based survey.

**Methods:** An e-mail questionnaire survey was conducted with the Korean Medicine Doctor(K.M.D) registered in the Korean Medicine Association. The survey data were analyzed using Microsoft Excel.

**Results:** Although the response rate of the survey was low, the characteristics of the respondents generally reflected the characteristics of the study population. A total of 35.2% of the respondents had heard of the guidelines; however, they did not use them for medical treatment. The reason as answered by 32.8% of the respondents was “not enough treatment time to check the manual and apply it.” More than half (78.80%) answered that they were treating patients with both degenerative hip and finger arthritis; however, the average monthly number of first-time patients was ≤5. A total of 379 (60.9%) respondents answered that “acupuncture is very important,” which was the only one that exceeded the majority compared to other treatments. As a result of the safety investigation, “Acupuncture, herbal medicine, cupping” were considered high in safety, while “Pharmacopuncture and Bee venom acupuncture” were considered low in safety.

**Conclusions:** This survey helped to determine the current clinical practice patterns of Korean medicine treatments, further providing basic data for CPGs for degenerative arthritis of the hip and finger joints.

**Key Words** : Degenerative arthritis of hip and finger joint, Korean medicine treatment clinical practice patterns, Web-based Survey Research

## Introduction

Osteoarthritis is a joint disease caused by proliferative changes in the osteochondral cartilage, such as degeneration and wear of the articular cartilage and formation of osteophytes at the joint

margins. The incidence rate is approximately 80% in patients over the age of 55 years, and it occurs in almost all patients over the age of 75 years.<sup>1)</sup> Since it does not occur suddenly owing to a one-time trauma, it is one of the diseases that is essential to identify, prevent, and manage risk

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factors before the disease progresses beyond the treatable stage for better management of the disease in an aging population.

Osteoarthritis occurs in approximately 15% of the population and the number of affected patients is increasing annually. According to the statistical data of the Health Insurance Review and Assessment Service (HIRA), the number of people treated for degenerative arthritis has increased by approximately 70,000 over the past 3 years, and the number is anticipated to increase owing to the increase in the elderly population and sociodemographic changes in an aging society. According to the health and medical statistics of the HIRA in 2016, both men and women in their 60s accounted for the largest proportion afflicted by osteoarthritis. According to the 2018 Outpatient Injury and Injury Benefit by Disease Sub-category by Statistics Korea, the number of people who underwent outpatient medical treatment for osteoarthritis and at a Korean medical institution ranked 38<sup>th</sup> and 6<sup>th</sup> respectively in the overall ranking<sup>2)</sup>. Thus, it can be observed that degenerative arthritis is a disease that patients depend on and require treatment using Korean medicine treatment than using modern medical treatment. Additionally, according to the status of frequent outpatient diseases in Korean medicine of the HIRA, as of 2020, the number of people treated for knee arthritis (13<sup>th</sup>) was highest, followed by hip arthritis and finger arthritis.

Currently, the Korean medicine clinical practice guidelines for osteoarthritis have been developed only for osteoarthritis of the knee joint, and existing clinical guidelines developed in foreign

countries are limited to osteoarthritis of the knee. Evidence-based clinical guidelines for degenerative arthritis of the hip and finger joints have not been developed. Therefore, clinical practice guidelines that require active participation of patients, including various Korean medicine treatment techniques currently widely used in Korean medicine clinics and hospitals, along with recommendations for herbal medicine, exercise therapy, manual therapy, physical therapy, qigong, and lifestyle management should be developed.

According to Sackett et al., “The practice of evidence-based medicine means integrating clinical evidence from individual clinical expertise and systematic research”<sup>3)</sup>. By presenting a standardized treatment process, the Korean medicine doctor can provide appropriate diagnosis and economical, high-quality Korean medicine treatment for patients in medical environments such as Korean medicine clinics and hospitals. Additionally, through the accumulation of objective evidence, professionalism in the Korean medical treatment of osteoarthritis is recognized in health insurance benefits, and can be used as data for decision-making in an insurance policy.

Therefore, to comprehend the diagnosis and treatment status of a degenerative hip and finger arthritis through the results of a questionnaire for Korean medical doctors in clinical practice, and to provide a basis for the development of clinical practice guidelines, the authors would like to analyze the data and report the results.

## Method

### 1. Survey development

The questionnaire used for this study was prepared to identify the actual conditions of Korean medicine treatment and to develop guidelines for its use in primary medical institutions (Korean medicine clinics). This survey was developed through an expert consensus method of three acupuncture specialists under the review of the IRB of Kyunghee University Korean Medicine Hospital, which was converted by Dream Networks Co., Ltd. so that it could be conducted online (IRB: KOMCIRB 2021-10-010 -001).

### 2. Survey method

Among the doctors registered with the Association of Korean Medicine, members with e-mail addresses were surveyed. The survey was conducted in two rounds and was conducted online via a URL through e-mail. The first and second e-mails were sent to 22,906 and 22,911 individuals on November 17, 2021, and November 24, 2021, respectively.

### 3. Survey content and question composition

The contents of the questionnaire were largely composed of the utilization status of the previously developed Korean medicine clinical practice guidelines for degenerative knee arthritis, basic information portion of the medical treatment status, diagnosis portion, treatment portion, treatment progress and safety portion, and demographic survey portion of the respondents, which included respondents' clinical experience and affiliation.

For most multiple-choice items, examples were presented to select from them, and other items were provided to gather specific opinions. Some items were designed to allow for multiple choices.

The survey on the awareness level of the clinical practice guideline consisted of one high-level and one low-level question. The high-level question was whether the developed clinical guidelines for degenerative knee arthritis were being used in the current treatment, whereas the low-level question was the reason for not using the previously developed clinical guidelines for degenerative knee arthritis.

The medical treatment status survey consisted of three questions. The first question asked whether patients were being treated for degenerative hip or finger arthritis, the second question asked what the monthly average number of the first-time patients with degenerative hip or finger arthritis was based on the past year, and the third question asked about the average treatment period for patients with degenerative hip or finger arthritis based on the past year.

The diagnosis survey consisted of three questions. The first question asked what diagnostic method was being used for patients with degenerative hip or finger arthritis; the second question asked what the frequency of use of the suggested sub-criteria was when establishing a diagnosis and treatment plan; the third question inquired what pattern identification method was mainly used.

The treatment survey consisted of seven items. We asked what other treatments were performed concurrently with general acupuncture, what the

importance of the sub-criteria presented was based on treatment experience, what the most commonly used point-finding method was, what the most commonly used acupuncture method was, what the most commonly used types of acupuncture and herbal medicines were, and finally, what the recommended period for taking herbal medicines was.

The treatment progress survey consisted of four items. To evaluate the treatment effect, we asked what evaluation index was most appropriate, and what proportion of patients improved by 20%, 50%, and 70% or more at the end of the average treatment period, respectively was.

The safety survey consisted of one item. We asked them how safe the proposed treatments for degenerative hip and finger arthritis were.

#### 4. Analysis method

The results were analyzed by calculating the response frequency and percentage of each question in the survey using IBM SPSS statistics 19.

### 1. Response Rate

The questionnaire was sent twice on November 17 and 24, 2021 via e-mails to 22,911 individuals, and 622 of them responded to the survey, showing a response rate of 2.7%.

### 2. Demographic characteristics of respondents

#### 1) Sex and Age

Of the 622 respondents, 427 people (68.60%) were male and 195 (31.40%) were female. As for the age distribution, 223 people (35.90%) were in their 30s, followed by 203 people (32.60%) in their 40s, 97 people (15.60%) in their 50s, and 82 (13.20%) individuals were in their 20s. Moreover, as few as 17 (2.70%) were 60 years or older (Table 1).

#### 2) Years of Clinical Career

Of the 622 respondents, 126 (20.30%), 138 (22.20%), 133 (21.40%), 98 (15.80%), 101 (16.20%), and 26 (4.20%) individuals had clinical career that was less than 5 years old, 5 to 10 years old, 10 to 15 years or less, 15 to less than 20 years old, < 20-30 years old, and 30 years or older, respectively (Table 1).

## Result

**Table 1.** Characteristic of Responders (Person, Percentage(%))

Sex	Male 427(68.60%)			Female 195(31.40%)			Total	
	Age group	20s 82(13.20%)	30s 223(35.90%)	40s 203(32.60%)	50s 97(15.60%)	60s & more 17(2.70%)		
Years of CC	Years<5 126(20.3%)	5≤Years<10 138(22.2%)	10≤Years<15 133(21.4%)	15≤Years<20 98(15.8%)	20≤Years<30 101(16.2%)	30≤Years 26(4.20%)	622 (100%)	
Employment	KMC 414(66.6%)	KMH 61(9.8%)	KMUH 70(11.3%)	NH 28(4.50%)	PH 22(3.50%)	WH 12(1.90%)	RI 1(0.20%)	Etc. 11(1.70%)

CC: Clinical Career, KMC: Korean Medicine Clinic, KMH: Korean Medicine Hospital, KMUH: Korean Medicine University Hospital, NH: Nursing Hospital, WH: Western Hospital, PH: Public Health, RI: Research Institute.

### 3) Employment

Of the 622 respondents, 414 (66.60%) worked at the Korean Medicine Clinic, accounting for the largest portion, followed by 70 (11.30%) worked at the Korean Medicine University Hospital, 61(9.80%) at Korean Medicine Hospital, 28(4.50%) at the Nursing Hospital, 22 (3.50%) at the Public Health, and 12 (1.90%) at the Western Hospital. Additionally, there were seven (1.10%) Army Doctor, four (0.60%) workers at national and public medical institutions, three (0.50%) respondents to others, and one (0.20%) worker at the Research Institute (Table 1).

## 3. Results of the Awareness survey on Treatment guidelines

### 1) Awareness and utilization status

Of the 622 respondents, 55 (8.80%) responded that the Korean Medicine Clinical Practice Guideline for degenerative knee arthritis developed in December 2021 was “currently being used for treatment”. In contrast, 348 (55.90%) individuals answered that they had never encountered it, accounting for more than half of the respondents, and 219 (35.20%) answered that they had encountered it; however, did not use it for medical treatment.

### 2) Reasons for not using pre-developed Korean Medicine Clinical Practice Guideline

We asked the reason why they had encountered it but did not use it for medical treatment under the condition that it was possible to double-select. A total of 204 (32.80%) individuals answered that “there is not enough treatment time to check and apply the manual”, accounting for the largest

proportion, followed by 126 (20.30%) individuals who answered that “the contents of the manual are not realistic enough to be applied to actual clinical sites”, 49 (7.90%) individuals answered “because they already know everything”, and 11 (1.80%) individuals answered “because there is no Korean medicine content”.

## 4. Survey results of the Information of Clinical practice status

### 1) Treatment of disease or not

The respondents were asked whether they were treating patients with degenerative hip or finger arthritis. The number of respondents who answered “All of them are treated” was 490 (78.80%), accounting for more than half of the respondents, followed by 84 (13.50%) answering “Treating only degenerative finger arthritis”, 27 (4.30%) individuals answered “Treating only degenerative hip arthritis”, and the number of respondents who answered “Not all of them” was 21 (3.40%).

### 2) Average number of the First-time patients per month

Respondents were asked about the average number of the first-time patients per month with degenerative hip or finger arthritis, based on the previous year. In the case of degenerative hip arthritis, the number of respondents who answered “Five or less” was 446 (71.70%), accounting for the largest proportion, followed by 97 (15.59%) answering “6 to 10”, 54 (8.68%) answering “11 to 15”, 14 (2.25%) answering “15 to 20”, and the number of respondents who answered “More than 21” was 11 (1.76%)

individuals. In the case of degenerative finger arthritis, the number of respondents who answered “Five or less” was 365 (56.68%), accounting for the largest proportion, followed by 163 (26.20%) answering “6 to 10”, 60 (9.64%) answering “11 to 15”, 19 (3.05%) answering “15 to 20”, and the number of respondents who answered “More than 21” was 15 (2.41%) individuals.

### 3) Average period of Treatment

Respondents were asked about the average period of treatment for degenerative hip or finger arthritis based on the previous year. The number of respondents who answered “1-2 months” was 178 (28.6%), accounting for the largest proportion, followed by 134 (21.5%) answering “2-3 months”, 109 (17.5%) answering “2 weeks-1 month”, 109 (17.5%) answering “3-6 months”, 34 (5.5%) answering “6 months-1 year”, 30 (4.8%) answering “1 year or more”, and the number of respondents who answered “2 weeks or less” was 28 (4.5%).

## 5. Survey results of the diagnosis

### 1) Diagnostic methods being used

We asked the respondents for the diagnosis method used of degenerative hip or finger arthritis under the condition that it was possible to double-select. The highest of responses was using “clinical symptoms and physical examination” by 560 (90.0%) individuals, followed by “X-ray” by 279 (44.9%), “CT or MRI” by 80 people (12.9%) and “DITI” by 39 (6.3%) individuals.

### 2) Utilization of items presented in relation to diagnosis and treatments

We asked about the frequency of the items

suggested by the authors when diagnosing and establishing treatment plans for degenerative hip or finger arthritis. Regarding the pain pattern described by the patient, 305 respondents answered “always”, 205 answered “frequently”, 89 answered “sometimes”, 19 answered “occasionally”, and 4 answered “not at all”. Regarding the alleviating/aggravating factors of pain, 241 respondents answered “always”, 233 answered “frequently”, 129 answered “sometimes”, 27 answered “occasionally”, and 2 answered, “not at all”. Regarding patient characteristics (P/Hx, S/Hx etc.), the number of respondents who answered “always” was 230, “frequently” was 257, “sometimes” was 109, “occasionally” was 24, and “not at all” was 2. Regarding clinical characteristics & P/E findings, the number of respondents who answered “always” was 236, “frequently” was 244, “sometimes” was 107, “occasionally” was 32, and “not at all” was 3. Regarding radiological findings, 57 respondents answered “always”, 130 answered, “frequently”, 196 answered “sometimes”, 167 answered “occasionally”, and 72 answered, “not at all”.

Regarding pattern identification, the number of respondents who answered “always” was 72, “frequently” was 148, “sometimes” was 223, “occasionally” was 129 people, and “not at all” was 50 (Table 2).

### 3) Frequently used pattern identification

We asked for the pattern identification, which is mainly used for the diagnosis and treatment planning of degenerative hip or finger arthritis, under the condition that it is possible to double-select. The number of respondents who

answered “Eight principle pattern identification (八綱辨證)” was 295 (47.4%), accounting for the largest proportion, followed by “Meridian pattern identification (經絡辨證)” by 210 people (33.8%), “Qi, Blood and Body Fluid pattern identification (氣血津液辨證)” by 154 (24.8%), “Visceral Pattern Identification (臟腑辨證)” by 153 (24.6%), “Sasang constitution (四象體質辨證)” by 80 (12.9%), “Six-meridian pattern identification (六經辨證)” by 43 (6.9%), and “Defense, qi, nutrient and blood pattern identification (衛氣營血辨證)” by 25 (4.00%) individuals.

## 6. Survey results of the Treatment

### 1) Treatment performed concurrently with acupuncture

Respondents were asked which treatment would be performed concurrently with acupuncture, if they were to treat degenerative hip or finger arthritis, under the condition that it was possible to double-select. The number of respondents who answered “Pharmacopuncture” was 438 (70.4%), accounting for the largest proportion, followed by “Herbal Medicine” by 381 (61.3%), “Electroacupuncture” by 367 (59.00%), “Moxibustion” by 364 (58.5%), “Physical Therapy(ICT, TENS, etc.)” by 341 (54.8%), “Cupping Therapy” by

315 (50.6%), “Bee venom acupuncture” by 273 (43.9%), “Chuna Manual Therapy” by 110 (17.7%), “Fire or Warm needle acupuncture” by 87 (14.0%), “Acupotomy” by 47 (7.6%), and the number of respondents who answered “Thread embedding acupuncture” was 18 (2.9%) individuals.

### 2) Importance of Treatments in Clinic

In light of the treatment experience with degenerative hip or finger arthritis, we asked respondents how important the Korean medicine treatment items suggested by the authors were. Regarding acupuncture, the number of respondents who answered “Very Important” was 379 (60.9%), “Important” was 157 (25.2%), “Slightly Important” was 47 (7.5%), “Neutral” was 31 (4.9%), “Less Important” was 2 (0.3%), “Unimportant” was 6 (0.9%), and the number of respondents who answered “Irrelevant” was 0 (0.0%) individuals. Regarding pharmacopuncture, the number of respondents who answered “Very Important” was 204 (32.7%), “Important” was 186 (29.9%), “Slightly Important” was 112 (18.0%), “Neutral” was 91 (14.6%), “Less Important” was 18 (2.8%), “Unimportant” was 7 (1.1%), and the number of respondents who answered “Irrelevant” was 4 (0.6%) individuals. Regarding bee venom

**Table 2.** Degree of the utilization of items presented in relation to diagnosis and treatments (Person, Percentage(%))

	Not at all	Occasionally	Sometimes	Frequently	Always	Total
Pain pattern described by the patient	4(0.6)	19(3.0)	89(14.3)	205(32.9)	305(49.0)	622
Alleviating/aggravating factors of pain	2(0.3)	27(4.3)	129(20.7)	223(35.8)	241(38.7)	622
Patient characteristics(P/Hx, S/Hx etc.)	2(0.3)	24(3.8)	109(17.5)	257(41.3)	230(36.9)	622
Clinical characteristics and P/E findings	3(0.4)	32(5.1)	107(17.2)	244(39.2)	236(37.9)	622
Radiological findings	72(11.5)	167(26.8)	196(31.5)	130(20.9)	57(9.1)	622
Pattern identification	50(8.0)	129(20.7)	223(35.8)	148(23.7)	72(11.5)	622

P/Hx: Past History, S/Hx: Social History, P/E: Physical Examination

acupuncture, the number of respondents who answered “Very Important” was 161 (25.8%), “Important” was 155 (24.9%), “Slightly Important” was 121 (19.4%), “Neutral” was 135 (21.7%), “Less Important” was 24 (3.8%), “Unimportant” was 14 (2.2%), and the number of respondents who answered “Irrelevant” was 12 (1.9%) individuals. Regarding moxibustion, the number of respondents who answered “Very Important” was 136 (21.8%), “Important” was 163 (26.2%), “Slightly Important” was 145 (23.3%), “Neutral” was 121 (19.4%), “Less Important” was 35 (5.6%), “Unimportant” was 10 (1.6%), and the number of respondents who answered “Irrelevant” was 12 (1.9%) individuals. Regarding herbal medicine, the number of respondents who answered “Very Important” was 176 (28.2%), “Important” was 212 (34.0%), “Slightly Important” was 115 (18.4%), “Neutral” was 103 (16.5%), “Less Important” was 8 (1.2%), “Unimportant” was 5 (0.8%), and the number of respondents who answered “Irrelevant” was 3 (0.4%) individuals. Regarding cupping therapy, the number of respondents who answered “Very Important” was 62 (9.9%), “Important” was 148 (23.7%), “Slightly

Important” was 138 (22.1%), “Neutral” was 177 (28.4%), “Less Important” was 53 (8.5%), “Unimportant” was 26 (4.1%), and the number of respondents who answered “Irrelevant” was 18 (2.8%). Regarding chuna manual therapy, the number of respondents who answered “Very Important” was 36 (5.7%), “Important” was 86 (13.8%), “Slightly Important” was 112 (18.0%), “Neutral” was 221 (35.5%), “Less Important” was 77 (12.3%), “Unimportant” was 57 (9.1%), and the number of respondents who answered “Irrelevant” was 33 (5.3%) individuals. Regarding physical therapy, the number of respondents who answered “Very Important” was 73 (11.7%), “Important” was 142 (22.8%), “Slightly Important” was 165 (26.5%), “Neutral” was 187 (30.0%), “Less Important” was 35 (5.6%), “Unimportant” was 13 (2.0%), and the number of respondents who answered “Irrelevant” was 7 (1.1%) individuals (Table 3).

### 3) Frequently used point-finding method

Respondents were asked which of the point-finding methods would be prioritized and selected when treating degenerative hip or finger

**Table 3.** Degree of Importance of Treatments in Clinic (Person, Percentage(%))

	Irrelevant	Unimportant	Less Important	Neutral	Slightly Important	Important	Very Important	Total
Atx	0(0)	6(0.9)	2(0.3)	31(4.9)	47(7.5)	157(25.2)	379(60.9)	622
Ph	4(0.6)	7(1.1)	18(2.8)	91(14.6)	112(18.0)	186(29.9)	204(32.7)	622
BVA	12(1.9)	14(2.2)	24(3.8)	135(21.7)	121(19.4)	155(24.9)	161(25.8)	622
Mx	12(1.9)	10(1.6)	35(5.6)	121(19.4)	145(23.3)	163(26.2)	136(21.8)	622
HM	3(0.4)	5(0.8)	8(1.2)	103(16.5)	115(18.4)	212(34.0)	176(28.2)	622
CT	18(2.8)	26(4.1)	53(8.5)	177(28.4)	138(22.1)	148(23.7)	62(9.9)	622
CMT	33(5.3)	57(9.1)	77(12.3)	221(35.5)	112(18.0)	86(13.8)	36(5.7)	622
PT	7(1.1)	13(2.0)	35(5.6)	187(30.0)	165(26.5)	142(22.8)	73(11.7)	622

Atx: Acupuncture, Ph:Pharmacopuncture, BVA: Bee venom acupuncture, Mx: Moxibustion, HM: Herbal Medicine, CT: Cupping Therapy, CMT: Chuna Manual Therapy, PT: Physical Therapy



arthritis. The score for answering “A-Shi point (area complaining of pain)” was the highest with 1,246 points, followed by “Anatomical structures affecting pain” with 1,116 points, “Reaction points upon palpation, such as tenderness and trigger points” with 807 points, “Acupuncture point based on pattern identification” with 284 points and the score for answering “Based on the latest knowledge such as papers and clinical guidelines” was 86 points.

#### 4) Frequently used acupuncture

We asked about the type of acupuncture that is most commonly used for the treatment of degenerative hip or finger arthritis under the condition that it was possible to double-select. The number of respondents who answered “A-Shi points acupuncture” was 537 (86.3%), accounting for the largest proportion, followed by “Meridian tendino-musculature acupuncture” by 308 (49.5%), “Twelve meridians acupuncture” by 199 (32.0%), “Four needle technique” by 149 (24.0%), “Dongssi acupuncture therapy” by 93 (15.0%), and the number of respondents who answered “Pyung-Hyung acupuncture” was 22 (3.5%) individuals. Additionally, there were also “Eight constitution acupuncture” and “Five element acupuncture”.

#### 5) Frequently used pharmacopuncture

We asked about the type of pharmacopuncture that is most commonly used for the treatment of degenerative hip or finger arthritis under the condition that it was possible to double-select. The number of respondents who answered “Bee venom acupuncture” was 328 (52.7%), accounting for the largest proportion, followed by “Jungsongouhyul

pharmacopuncture” by 250 (40.2%), “Hwangryunhaedok -tang pharmacopuncture” by 111 (17.8%), “Hominis placenta herbal-acupuncture” by 83 (13.3%), and the number of respondents who answered “Soyeom pharmacopuncture” was 77 (12.4%) individuals. Additionally, there were also “Bamboo salt pharmacopuncture” and “Cervus elaphus herbal -acupuncture”.

#### 6) Frequently used herb medicine

We asked about the type of herbal medicine that is most commonly used for the treatment of degenerative hip or finger arthritis under the condition that it was possible to double-select.

In the case of degenerative hip arthritis, the number of responses to “Ojeoksan” was the highest with 289 (46.5%) individuals, followed by “Dokhwalgisaeng-tang” by 235 (37.8%), “Daebangpung -tang” by 113 (18.2%), “Jakyakgamcho-tang” by 96 (15.4%), “Oyaksunki-san” by 94 (15.1%), “Palmijihwang-tang” by 80 (12.9%), “Dangkwisoo -san” by 78 (12.5%), “Palmul-tang” by 63 (10.1%), “Uchashinki-hwan” by 55 (8.8%), “Bojungikgi-tang” by 45 (7.2%), “GCSB-5” by 29 (4.7%), “Jaemganghwa -tang” by 27 (4.3%) individuals. Additionally, there were other “Constitutional herbal medicine” and “Gunghatang”.

In the case of degenerative finger arthritis, the number of responses to “Sopunghwalhyeol-tang” was the highest with 186 (29.9%) individuals, followed by “Youngsunjetong-Eum” by 180 (28.9%), “Gumiganghwal-tang” by 153 (24.6%), “Daeganghwal-tang” by 125 (20.1%), “Oyaksunki -san” by 123 (19.8%), “Gyejigachulbu-tang” by 94 (15.1%), “Palmul-tang” by 70 (11.3%), “Gyejakjimo -tang” by 57 (9.2%), “Bojungikgi-tang” by 53 (8.5%),

“Sipjeondaebo-tang” by 49 (7.9%), “Gyejibongnyeong-Hwan” by 40 (6.4%). Additionally, there were other “Constitutional herbal medicine” and “Samgieum”.

#### 7) Period of taking herbal medicine

Respondents were asked how long the patient would take if the herbal medicine were prescribed. The number of respondents who answered “1-3 months” was 285 (45.8%), accounting for the largest proportion, followed by “2-4 weeks (1 month)” by 230 (37.0%), “3-6 months” by 72 (11.6%), “2 weeks or less” by 22 (3.5%), and the number of respondents who answered “6 months or more” was 11 (1.8%) individuals.

### 7. Survey results of the Treatment progress

#### 1) Indicators for evaluating the effectiveness of treatment

Respondents were asked which of the evaluation indicators suggested by the authors would be prioritized and selected when evaluating the treatment effect. The score for answering “Regression of joint pain” was the highest with 1583 points, followed by “Improved joint function and increased joint range of motion” with 1070 points, “Reduction of discomfort and improvement of quality of life” with 775 points, “Reduction the need for medications (analgesics, anti-inflammatory drugs, and current standard drug therapies for pain control)” with 122 points and the score for answering “Reduction of surgical necessity due to patient's clinical improvement” was 55 points.

#### 2) Proportion of Patients with 20% or more Clinical improvement after Treatment

We asked about the proportion of patients with degenerative hip or finger arthritis that improved by 20% or more at the end of the average treatment period. The number of respondents who answered “80%” was 154 (24.8%), accounting for the largest proportion, followed by “70%” with 131 (21.1%), “50%” with 101 (16.2%), “90%” with 84 (13.5%), “100%” with 53 (8.5%), “60%” with 51 (8.2%), “30%” with 20 (3.2%), “40%” with 15 (2.4%), “20%” with 12 (1.9%), and the number of respondents who answered “10%” was 1 (0.2%) individuals (Table 4).

#### 3) Proportion of Patients with 50% or more Clinical improvement after Treatment

We asked about the proportion of patients with degenerative hip or finger arthritis that improved by 50% or more at the end of the average treatment period. The number of respondents who answered “50%” was 179 (28.8%), accounting for the largest proportion, followed by “70%” with 114 (18.3%), “60%” with 88 (14.1%), “80%” with 88 (14.1%), “30%” with 54 (8.7%), “40%” with 38 (6.1%), “20%” with 25 (4.0%), “90%” with 22 (3.5%), “100%” with 8 (1.3%), “10%” with 5 (0.8%), and the number of respondents who answered “0%” was 1 (0.2%) individuals (Table 4).

#### 4) Proportion of Patients with 70% or more Clinical improvement after Treatment

We asked about the proportion of patients with degenerative hip or finger arthritis that improved by 70% or more at the end of the average

treatment period. The number of respondents who answered “50%” was 128 (20.6%), accounting for the largest proportion, followed by “30%” with 104 (16.7%), “20%” with 79 (12.7%), “60%” with 71 (11.4%), “70%” with 67 (10.8%), “40%” with 60 (9.6%), “80%” with 50 (8.0%), “10%” with 44 (7.1%), “90%” with 10 (1.6%), “0%” with 6 (1.0%), and the number of respondents who answered “100%” was 3 (0.5%) individuals (Table 4).

### 8. Survey results of the Safety in Treatments

#### 1) Safety of Korean medicine treatment

We asked about the safety of the Korean medicine treatment for degenerative hip or finger arthritis. Regarding acupuncture, the number of respondents who answered “Very high” was 450, “High” was 119, “Medium” was 48, “Low” was 3, and the number of respondents who answered “Very low” was 2. Regarding pharmacopuncture, the number of respondents who answered “Very high” was 199, “High” was 260, “Medium” was 134, “Low” was 26, and the number of respondents who answered “Very low” was 3. Regarding bee venom acupuncture, the number of respondents who answered “Very high” was 42, “High” was 123, “Medium” was 312, “Low” was 117, and

the number of respondents who answered “Very low” was 28. Regarding moxibustion, the number of respondents who answered “Very high” was 194, “High” was 226, “Medium” was 165, “Low” was 29, and the number of respondents who answered “Very low” was 8. Regarding herbal medicine, the number of respondents who answered “Very high” was 270, “High” was 261, “Medium” was 87, “Low” was 3, and the number of respondents who answered “Very low” was 1. Regarding cupping therapy, the number of respondents who answered “Very high” was 265, “High” was 225, “Medium” was 118, “Low” was 12, and the number of respondents who answered “Very low” was 2. Regarding chuna manual therapy, the number of respondents who answered “Very high” was 113, “High” was 180, “Medium” was 256, “Low” was 58, and the number of respondents who answered “Very low” was 15 (Table 5).

## Discussion

Academic interest in evidence-based medical practice is increasing worldwide. As part of an effort to apply evidence-based judgment to actual clinical practice, interest in the development and application of clinical practice guidelines is also

**Table 4.** Proportion of Patients with ≥ (20, 50, 70%) Clinical improvement after Treatment

Improvement	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	Total
≥ 20%	0 (0.0)	1 (0.2)	12 (1.9)	20 (3.2)	15 (2.4)	101 (16.2)	51 (8.2)	131 (21.1)	154 (24.8)	84 (13.5)	53 (8.5)	622
≥ 50%	1 (0.2)	5 (0.8)	25 (4.0)	54 (8.7)	38 (6.1)	179 (28.8)	88 (14.1)	114 (18.3)	88 (14.1)	22 (3.5)	8 (1.3)	622
≥ 70%	6 (1.0)	44 (7.1)	79 (12.7)	104 (16.7)	60 (9.6)	128 (20.6)	71 (11.4)	67 (10.8)	50 (8.0)	10 (1.6)	3 (0.5)	622

increasing. Clinical practice guidelines can be defined as “statements systematically developed to assist clinicians and patients in decision-making in specific situations<sup>4)</sup>.”

Currently, Korean medicine clinical practice guidelines for degenerative arthritis are developed only for degenerative arthritis of the knee joint, and the development of clinical guidelines for other frequent diseases such as degenerative hip and finger arthritis is required. Therefore, in this study, an online e-mail survey was conducted twice on November 17 and 24, 2021 regarding the treatment status of degenerative hip and finger arthritis, and the response rate of each question was analyzed. Although the survey was delivered by e-mail twice in this study, the response rate was low at 2.7%, as the online surveys tend to have lower response rates than that for telephonic interviews or in-person surveys<sup>5)</sup>. Similar results have been reported in other papers<sup>6)</sup>. Although the response rate of the survey was not high, the characteristics of the respondents generally reflected the characteristics of the population (the entire group of Korean medicine doctors). First, in the statistics of the number of licensed Korean

medicine doctors among health and medical personnel in 2015, the male to female ratio was 79.2 : 20.7. Comparing this with the ratio of men and women of survey respondents (68.60 : 31.40), we did not observe a significant difference between them<sup>7)</sup>. According to the statistics on the medical personnel manpower in 2016, approximately 80% of Korean medicine doctors are working at Korean medicine clinics<sup>8)</sup> and in the survey results, it was approximately 67% (66.60%). Considering that the survey was conducted to develop guidelines for use in primary care institutions, it was confirmed that, although the response rate was not high, it could sufficiently represent the population. When asked about the period of their clinical career, more than half (63.9%) of the respondents answered that it was less than 15 years. It can be presumed that the reason for this is that most respondents in their 30s participated in the survey. It is thought that relatively young Korean medicine doctors have a lot of interest and are in demand for evidence-based Korean medicine and CPG, and this phenomenon was confirmed in other studies<sup>7)</sup> based on the survey. As for the distribution of

**Table 5.** Degree of Recognition for Safety in Treatments (Person, Percentage(%))

	Very low	Low	Medium	High	Very high	Total
Atx	2(0.3)	3(0.4)	48(7.7)	119(19.1)	450(72.3)	622
Ph	3(0.4)	26(4.1)	134(21.5)	260(41.8)	199(31.9)	622
BVA	28(4.5)	117(18.8)	312(50.1)	123(19.7)	42(6.7)	622
Mx	8(1.2)	29(4.6)	165(26.5)	226(36.3)	194(31.1)	622
HM	1(0.1)	3(0.4)	87(13.9)	261(41.9)	270(43.4)	622
CT	2(0.3)	12(1.9)	118(18.9)	225(36.1)	265(42.6)	622
CMT	15(2.4)	58(9.3)	256(41.1)	180(28.9)	113(18.1)	622

Atx: Acupuncture, Ph:Pharmacopuncture, BVA: Bee venom acupuncture, Mx: Moxibustion, HM: Herbal Medicine, CT: Cupping Therapy, CMT: Chuna Manual Therapy

specialists, the proportion of specialists among all Korean medicine doctors in the status of manpower by type of KOSIS nursing institutions (2020) was 12.8%. By contrast, in this survey, the proportion of specialists among respondents was 36.0%. As for the specialists' department of medical treatment, acupuncture and moxibustion medicine (13.5%) were the most common, followed by internal medicine (8.5%) and rehabilitation medicine of Korean medicine (5.8%). According to the Ministry of Health and Welfare's main work reference data (2019)<sup>9)</sup>, among all Korean medicine doctors in 2018, Internal medicine of Korean medicine specialists accounted for 35.6%, followed by acupuncture and moxibustion medicine (20.7%) and Rehabilitation medicine of Korean medicine (14.9%). It can be inferred that acupuncture and moxibustion medicine specialists are more interested in the development of the standard clinical practice guidelines of Korean medicine for degenerative arthritis.

According to the results of the Awareness Survey on Treatment Guidelines, more than half (55.90%) answered that they had never encountered the Korean Medicine Clinical Practice Guideline and 219 (35.20%) answered that they had encountered it; however, were not using it for medical treatment. The age distribution of those who answered that they had never encountered them was as follows: 20s (13%), 30s (35%), 40s (33.6%), 50s (15.5%), and 60s (2.5%). When divided by affiliated institutions, the proportion of Korean medicine doctors working at Korean medicine clinics who answered that they had encountered medical guidelines was 37.9%;

however, the proportion of Korean medicine doctors working at the hospital level(including Korean Medicine, Korean Medicine University, Nursing, and Western Hospitals) who answered that they had encountered it was 56.1%. According to this fact, there is no significant difference in information access according to age; however, there seems to be variation according to the affiliated institution, which is thought to be because Korean medicine doctors in primary medical institutions have relatively few opportunities to access information compared to the hospital level. Regarding the reasons for not using the previously developed medical guidelines, 204 (32.80%) individuals answered that "there is not enough treatment time to check and apply the manual", accounting for the largest proportion, followed by 126 (20.30%) who answered that "the contents of the manual are not realistic enough to be applied to actual clinical sites". Based on this fact, it can be inferred that they want the Clinical Practice Guideline to be made more concise. As the current clinical practice guidelines are described in detail based on several studies, there is inevitably more content. Therefore, it is difficult for doctors to quickly utilize and apply clinical guidelines. Thus, new clinical practice guidelines must be developed to address this issue. To ensure that the guidelines meet the purpose of helping clinicians and patients in decision-making and that the recommendations can be effectively spread and implemented, it may be considered to publish a handbook in which only part of the recommendation is extracted, or to provide instructions for patients through a patient pamphlet<sup>10)</sup>.

According to the survey results of the information of clinical practice status, more than half (78.80%) answered that they were treating patients with both degenerative hip and finger arthritis patients; however, the average number of first-time patients per month was five or fewer in many cases. This is thought to be because degenerative hip and finger arthritis are not as frequent as degenerative knee arthritis. For example, according to the data on the number of outpatient visits to Korean medicine institutions in 2021 through the public health and medical big data open system, the number of patients with hip joint disease (including hip arthritis) was approximately 8,700, and other joint diseases (including finger arthritis) was approximately 43,000. This was significantly lower than the number of patients with knee joint disease (including knee arthritis, approximately 290,000). However, hip and finger arthritis accounted for the second-largest proportion of cases followed by knee arthritis cases within the degenerative arthritis category. For example, according to the data on the status of frequent outpatient diseases of Korean medicine in 2020, other joint diseases (including finger arthritis) ranked 45th, and hip joint diseases (including hip arthritis) 116th. Therefore, it is undeniable that they occupy a significant position in terms of their importance in other diseases. Regarding the average period of treatment for degenerative hip or finger arthritis, the number of respondents who answered “1-2 months” was 178 (28.6%), accounting for the largest proportion. However, 27.8% of the respondents answered that “3 months or more”. Therefore, degenerative arthritis may a disease

with characteristics that require relatively long-term treatment and follow-up observation in the clinical field.

According to the survey results of the diagnosis, the highest of responses was using “clinical symptoms and physical examination” by 560 (90.0%) individuals, followed by “X-ray” by 279 (44.9%) individuals. When divided by affiliated institutions, the proportion of Korean medicine doctors working at Korean medicine clinics who answered that they use X-ray as a diagnostic method was approximately 30%; however, the proportion of Korean medicine doctors working at the hospital level (including Korean Medicine, Korean Medicine University, Nursing, and Western Hospitals) who answered that they use it was approximately 80%. There is a clear difference between the two groups and this is thought to be because the current situation of primary medical institutions such as Korean medicine clinics, where access to imaging devices such as X-rays is difficult in reality, is reflected. Therefore, it was found that “clinical symptoms and physical examination” is being used as most diagnostic tools in primary medical institutions. Similar results were also confirmed in other papers based on the survey<sup>11)</sup>. The use of imaging devices such as X-rays tends to increase with younger Korean medicine doctors. In other survey results related to acupuncture, it was reported that there was a significant difference in the method of examination according to age<sup>12)</sup>. Regarding the frequently used pattern identification, the number of respondents who answered “Eight principle pattern identification (八綱辨證)” was 295 (47.4%), accounting for the largest proportion, followed by

“Meridian pattern identification (經絡辨證)” by 210 people (33.8%). The Eight principle pattern identification (八綱辨證) is a categorical theory that induces various symptoms expressed by patients through four examinations (inspection, listening and smelling, inquiry, and palpation) into 8 basic symptoms (Yin-Yang, Exterior-Interior, Cold-Heat and Deficiency-Excess), and is used as the basis of CCC because it is simple and convenient<sup>13)</sup>. According to the data of Korean medicine doctors on the awareness and use of the Eight principle pattern identification (八綱辨證), 57.6% of the total respondents were using it, and 48.8% of them answered “often” or “almost always”, and 51.2% answered “sometimes” or “about half”<sup>14)</sup>. It is thought that these perceptions of Korean medicine doctors were reflected in the results of this survey. The Meridian pattern identification (經絡辨證) is a method for diagnosing symptoms such as pain that occurs in the area where the meridians pass through, and is one of the most frequently used pattern identification due to the characteristics of musculoskeletal disorders and pain diseases. Similar results were confirmed in other survey papers related to musculoskeletal disorders<sup>15)</sup>.

According to the survey results of the treatment, pharmacopuncture, herbal medicine, electroacupuncture, moxibustion, physical therapy, cupping therapy, etc. were used simultaneously with acupuncture, and they were often used in combination with each other. It is thought to be the result of reflecting the characteristics of primary medical institutions, where complex treatment is usually preferred rather than single treatment. we asked respondents how important

the Korean medicine treatment items suggested by the authors were. Regarding acupuncture, the number of respondents who answered “Very Important” was 379 (60.9%), which was the only one that exceeded the majority, compared with the importance of other treatments. In another survey, Korean medicine doctors answered that acupuncture was the most preferred treatment for patients with ankle sprains<sup>12)</sup>. Acupuncture has been proven to be relatively safe compared to other treatments, and patients recognize that acupuncture should be performed at Korean medicine clinics when invasive actions must be tolerated for active treatment<sup>16)</sup>. And, in terms of patient satisfaction, acupuncture also occupies the highest position. Therefore, It is thought that these facts are actively reflected in this survey. In the question asking about the frequently used point-finding methods, it was found that the point-finding method based on the location and triggering site of pain, such as A-Shi point, anatomical structures, and trigger points, was the most preferred. In the question asking about the frequently used acupuncture, it was found that A-Shi points acupuncture, Meridian tendino-musculature acupuncture were the most preferred. It can be inferred that they prefer to find out the triggering site and cause of pain by a muscular method. Additionally, the various type of acupuncture based on meridian principles, including Twelve meridians acupuncture, Four needle technique, and Dongssi acupuncture therapy, were also being used. In the question asking about the frequently used pharmacopuncture, “Bee venom acupuncture” was 328 (52.7%), accounting for the largest proportion, followed by

“Jungsongouhyul pharmacopuncture” by 250 (40.2%). Bee acupuncture appears to be primarily used because it has various effects such as anti-inflammatory, analgesic, immune regulation, blood circulation promotion, and antioxidant<sup>17)</sup>. In this survey, the most common prescription for degenerative hip arthritis patients was Ojeoksan (46.5%), followed by Dokhwalgisaeng-tang (37.8%) and for degenerative finger arthritis patients was Sopunghwalhyeol-tang (29.9%), followed by Youngsunjetong-Eum (28.9%). Ojeoksan is generally used for low back pain or shoulder pain, and it is widely used as a prescription made to treat five kinds of masses (五積) caused by cold, dampness, qi, blood, phlegm (寒濕氣血痰) accumulation<sup>18)</sup>. For this reason, it is thought that Korean medicine doctors selected the most in the survey. Sopunghwalhyeol-tang is a prescription that mainly treats joint pain caused by wind, dampness, blood stagnation (風濕瘀血) and it is also widely used to treat gout.

In the question asking about the period of taking herbal medicine, the number of respondents who answered “1-3 months” was 285 (45.8%), accounting for the largest proportion, followed by “2-4 weeks (1 month)” by 230 (37.0%). As degenerative arthritis is a type of chronic disease, it has the characteristics of a disease in which it is not easy to relieve the underlying symptoms with short-term herbal medicine. Therefore, it is thought that this fact is reflected in this survey.

According to the survey results of the treatment progress, in the indicators to evaluate the effectiveness of treatment, the patient's subjective pain reduction and visible improvement in motor ability, such as regression of joint pain, improved

joint function, and increased range of motion, were considered as the most preferred evaluation indicators. At the end of the treatment period for degenerative hip and finger arthritis, the proportion of patients whose symptoms improved by 20% or more was 80%, and the proportion of patients whose symptoms improved by 50% or more, 70% or more was 50%, accounting for the largest proportion respectively.

According to the survey results of the safety in treatments, there was a tendency to view acupuncture, herbal medicine, and cupping therapy as being safe, whereas pharmacopuncture and bee venom acupuncture were relatively low in safety. It is thought to be because the fact that side effects such as skin itching, edema, redness and, in severe cases, anaphylaxis and aspiration pneumonia at the treatment site may occur was reflected<sup>19)</sup>.

As for other opinions related to the development of Korean medicine clinical practice guidelines for degenerative hip and finger arthritis, the most common opinion was “Development of guidelines that can be applied immediately in the field reflecting the realistic situation of primary medical institutions”. Additionally, there were opinions such as “Development of treatment guidelines centered on salary items considering the elderly population and those exposed to repetitive work” and “Objectification of research data (scientific basis)”. Overall, opinions such as development and dissemination of guidelines useful in the field, proof of objective evidence, and publication of various studies and papers were collected.

Through this study, it was possible to



understand the current status of clinical practice patterns of Korean medicine in the treatment of degenerative arthritis of the hip and finger joints. By providing basic information portion of the medical treatment status, diagnosis portion, treatment portion, treatment progress and safety portion, it is expected to be helpful as a basis for developing clinical guidelines in the future.

However, this study has the following three limitations. First, the response rate of this survey was low at 2.7% because the survey method was e-mail, and the participation of young Korean medicine doctors familiar with the internet was relatively high. Therefore, there is a limitation in understanding the current status of clinical practice patterns of all Korean medicine doctors. Second, regarding the proportion of patients whose symptoms improved at the end of the treatment period, there is a limitation in that we can only rely on the subjective evaluation of each Korean medicine doctor. Therefore, it is thought that it is necessary to develop an agreed-upon index to evaluate the therapeutic effect in the future. Third, it is thought that there is a limitation in specificity and clarity because some questions comprehensively dealt with two different diseases (Hip, Finger) rather than individually.

## Conclusion

Based on the results and analysis of this survey, we propose the following.

1. The development of CPG that supplements existing clinical practice guidelines by focusing on simplicity and user convenience to enable immediate application in the field.
2. In the diagnosis portion, since access to diagnostic medical imaging equipment in primary medical institutions is low, the clinical practice guidelines should be supplemented so that a sufficient diagnosis can be made based on the physical examination and the patient's symptoms.
3. In the treatment portion, since most primary medical institutions prefer complex treatment rather than single treatment such as only acupuncture and herbal medicine, it is recommended to include a lot of information on combination treatment in the guideline.
4. Considering the real situation in which various prescriptions are being used, it is difficult to recommend standardized herbal medicine prescriptions.
5. In the safety portion, it is thought that it is necessary to present safety-based studies on pharmacopuncture and bee venom acupuncture, which Korean medicine doctors consider relatively low safety.

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