



Research Paper

A Qualitative Study on Practitioners Participating in the COVID-19 Telemedicine Centre of Korean Medicine

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ABSTRACT

Introduction: This qualitative study explored the integration of Korean medicine, particularly herbal medicine, in non-face-to-face care during the rapid increase in coronavirus disease 2019 patients in South Korea. This initiative was implemented voluntarily without governmental support.

Methods: We conducted in-depth interviews with twelve Korean medicine doctors from the Korean Medicine Telemedicine Centres in Daegu and Seoul, analysing the data using qualitative content analysis.

Results: The findings were categorised into four themes: (1) establishment of the Korean Medicine Telemedicine Centre amidst the conflict between Korean and Western medicine and a strong internal motivation; (2) patients as viewed by Korean medicine doctors and what patients want from Korean medicine treatment; (3) hope and the value of Korean medicine found again through new experience; (4) changes to be prepared for future Korean medicine to take a step forward.

Conclusions: This study highlights the potential of Korean medicine telemedicine as a viable healthcare model beyond the coronavirus disease 2019 pandemic, addressing both its opportunities and challenges in infectious disease management. To ensure its long-term integration, future efforts should focus on developing standardised treatment protocols, advancing telemedicine technologies, and fostering collaboration between Korean medicine and Western medicine within a more inclusive healthcare system.

Introduction

Coronavirus disease 2019 (COVID-19) is a respiratory infectious disease caused by a novel coronavirus that rapidly spread worldwide following its initial outbreak in Wuhan, China, in December 2019 (Sun et al., 2020). According to a report by the World Health Organisation, COVID-19 was the second leading cause of death globally in 2021 (WHO, 2024). As of January 19, 2025, over 770 million confirmed cases and 7 million deaths have been reported globally (<http://covid19.who.int>).

The Western Pacific Region, including East Asia, maintained relatively low mortality rates (Sachs et al., 2022). However, during the early stages of the outbreak, uncertainty regarding the virus's transmission created challenges in formulating an effective response (Koffman et al., 2020). In South Korea, the first confirmed case was

reported on January 20, 2020, followed by a rapid surge in infections, particularly in Daegu (Kim, 2022; Kim et al., 2021). Initial national efforts focused on contact tracing and transmission control, but the sudden rise in cases overwhelmed the local healthcare system, resulting in shortages of medical personnel and facilities. In response, the government classified patients based on the severity of the disease, operated community treatment centres for those with mild symptoms, and temporarily permitted telemedicine consultations (Kang et al., 2020; Lee et al., 2020). While these measures were appropriate and necessary, the limited availability of medical resources inevitably left some patients, particularly those with mild symptoms, unable to access medical assistance while self-isolating.

South Korea has a dual medical system in which conventional and traditional Korean medicine (KM) services are provided separately by

Abbreviations: COVID-19, coronavirus disease 2019; KM, Korean medicine; KMD, Korean medicine doctor

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medical doctors and Korean medicine doctors (KMDs) (Park et al., 2021). However, during the COVID-19 pandemic, KMDs were systematically excluded from the national healthcare framework for infectious disease management, restricting their ability to contribute to public health efforts. To address this exclusion, the Association of Korean Medicine (AKOM) established the COVID-19 Korean Medicine Telemedicine Centre (KM Telemedicine Centre) on March 9, 2020, in Daegu (Jang et al., 2021; Kwon et al., 2020). Volunteer KMDs provided teleconsultations and prescribed herbal medicine to patients with mild symptoms and those in recovery. By June 30, 2020, they had treated 18.1% of all confirmed COVID-19 patients in South Korea (AKOM, 2021). This initiative offered a distinctive experience for both patients and KMDs, highlighting the role of KM in pandemic healthcare delivery.

Research on COVID-19 has explored various aspects, including traditional and integrative medicine (Kumar et al., 2022; Lam et al., 2021; Lyu et al., 2021), as well as the role of telemedicine in infectious disease management (Hollander and Carr, 2020; Lurie and Carr, 2018). However, few studies have investigated the experiences of healthcare providers who treated patients with herbal medicine via telemedicine during public health crises. Unlike government-led interventions, this initiative originated from the KMD community, highlighting the potential role of KM in emergency healthcare. While the mild case management guidelines generally proposed at the time were reasonable (WHO, 2020), they did not fully alleviate the public's fear surrounding the novel infectious disease, underscoring the need for comprehensive patient-centred support. Examining such initiatives is crucial for understanding how alternative healthcare approaches can complement mainstream pandemic responses, particularly in resource-limited settings.

The COVID-19 pandemic has profoundly impacted healthcare systems, societies, and economies (Moynihan et al., 2021; Yao et al., 2024). Understanding and reflecting on various healthcare responses to pandemics is crucial. This study aims to explore the experiences of KMDs who participated in medical consultations at the KM Telemedicine Centre using qualitative content analysis. By capturing their insights, we seek to contribute to discussions on the role of KM and telemedicine in managing infectious diseases. The experiences of KMDs in this study highlight both universal and context-specific challenges faced during the pandemic.

Methods

Study Design

This study utilised a qualitative content analysis methodology to analyse the experiences of individual KMDs who participated in the establishment and operation of the KM Telemedicine Centre, which was set up in response to the initial surge of COVID-19 cases in a specific region of South Korea (Fig. 1). The aim was to gain an in-depth understanding of the phenomena in the context of the KMDs' experiences and to interpret the latent content. An inductive approach based on data obtained from in-depth interviews with the research participants was utilised (Graneheim et al., 2017). The analysis process involved coding the text based on the meaning of the content, while identifying similarities and differences. These were then interpreted and abstracted according to their content, resulting in the categorisation of themes. This study was conducted with consideration of the Consolidated Criteria for Reporting Qualitative Research (Tong et al., 2007).

Participants

This study involved participants from the KM Telemedicine Centre, which was established and operated by the AKOM on March 9, 2020. Initially set up in Daegu, the first region outside China to experience a large-scale COVID-19 outbreak, the centre operated until April 5, 2020. On March 31, 2020, the Seoul Centre was established, and telemedicine

services were transferred there to ensure continuity of care. Voluntarily participating KMDs provided telephone consultations and prescribed herbal medicine to patients with mild COVID-19 symptoms and those in the recovery phase. They also conducted follow-up consultations and monitored patients' conditions via telephone.

The inclusion criteria for this study required participants to be KMDs with experience in providing medical treatment and consultations at the KM Telemedicine Centre in Daegu or Seoul. Additionally, they were required to voluntarily agree to participate by providing written consent. Participants were excluded if they had physical or mental difficulties that prevented them from participating or if time or location constraints hindered their involvement.

Participants were recruited using purposive sampling, specifically employing a snowball sampling approach. Initially, the study's purpose and process were presented to the director of the KM Telemedicine Centre, who introduced a KMD deemed most suitable for an interview. Additional participants with diverse experiences were recruited through referrals from the centre's operator or previous interviewees until data saturation was reached. No statistical approach was used to determine the sample size; interviews were concluded based on data saturation (Saunders et al., 2018) when no new information emerged.

A study (Pogorzelska et al., 2023) on telemedicine during the COVID-19 pandemic was conducted with 20 participants. In this study, we recruited 12 participants using purposive sampling and snowball sampling methods. According to previous studies on appropriate sample sizes in qualitative research, Lincoln and Guba (1985) suggested that 12–20 participants are suitable. Parse (1990) proposed that saturation, where the same themes are repeatedly observed, can be reached with a sample size of 2–10 participants. Additionally, Guest et al. (2006) analysed 60 interviews to determine when thematic saturation occurs and found that most key themes emerged within the first 12 interviews. Considering these prior studies and the findings of Pogorzelska et al.'s study, the sample size of 12 participants in this study is deemed appropriate in accordance with the research objectives and established qualitative research sampling criteria.

Data Collection and Analysis

Before beginning the study, we explained the purpose and the process of the research. We also clarified that interviews would be recorded and that the subjects could withdraw from the research at any time if they wished. The two researchers (HY Jang and SY Kim) who conducted the interviews and data analysis for this study have not only participated in qualitative research conferences and workshops to learn about interview techniques and qualitative data analysis methods, but they also have experience in conducting studies using qualitative research methods. For data collection and analysis, the researchers conducted continuous discussions to collect sufficient data through interviews for an accurate and in-depth analysis. Individual in-depth interviews of the participants were conducted individually or collectively by the two researchers. Interviews were conducted face-to-face in principle, but telephone and video methods were used depending on the COVID-19 situation. The number or time of interviews for the research was not set in particular, but the researcher considered the participant's schedule depending on the data saturation. Each interview did not exceed 2 hours, considering the time when it could be conducted comfortably, but it could be adjusted according to the participant's preference and willingness.

In-depth interviews were conducted using open and semi-structured questions. The interview questions were discussed and decided in advance by the researchers. Opinions of the KMD, who had experience conducting medical treatments/consultations at the centre, and the researcher (EK Lee), involved in the centre's operation, were sought in developing the preliminary questionnaire, which was supplemented during the interview. The preliminary questionnaire included the following sections, which were used to highlight the participant's

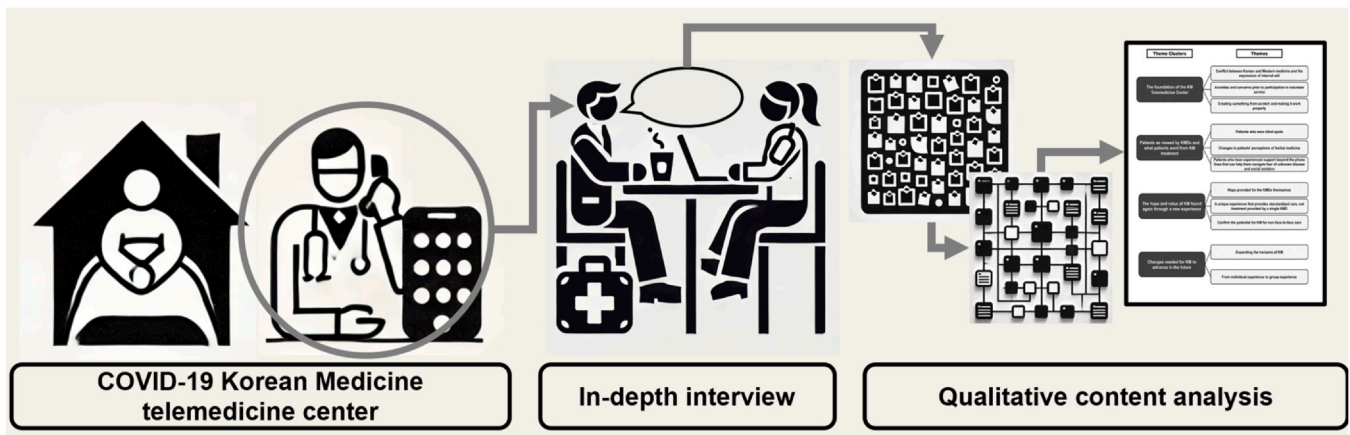


Fig. 1. Overview of the methodological process of the study. The pictograms in this figure were initially generated using ChatGPT and subsequently modified by the authors.

experience: (1) demographic characteristics; (2) motivation and path for participation; and (3) overall experiences with non-face-to-face consultation and herbal prescription, and perceived insights gained from them.

After the first interview, the data were transcribed in the language expressed by the participants, and the recording file and transcription file were then compared and reviewed. The transcript was shared within the research team, and in case of any deficiencies, additional interviews or text messages were planned for verification. However, no further interviews were conducted. Two researchers read the transcribed data several times, and if necessary, listened to the recorded data to understand the overall theme of the interview. The primary codebook was developed using repeated content and meaningful statements from the transcribed data. Next, open coding was conducted using the NVivo software. Each code was grouped into similar content and combined into potential themes. Two researchers repeatedly conducted and reviewed the process of reclassifying and categorising the topics and analysed the content in depth.

Rigour (Validity and Reliability)

Lincoln and Guba's four criteria were employed to ensure the trustworthiness of the study (Lincoln and Guba, 1981). Strategies for enhancing truth value included encouraging participants to provide comprehensive accounts of the research phenomenon and fostering a comfortable environment for expression. Applicability was confirmed through the presentation of the participants' general characteristics and detailed descriptions of the research phenomenon. Content analysis methods were utilised to maintain consistency. Additionally, original data for each theme were presented to aid reader comprehension. The researchers maintained neutrality throughout the study, minimising the influence of bias, prejudice, and assumptions on the participants' experiences.

Ethical Considerations

Prior to the research, this study was approved by the Institutional Review Board of Gachon University (1044396-202006-HR-119-01). The purpose and process of this research were fully explained to the research participants, and written consent was obtained. The entire research process was conducted in accordance with an Institutional Review Board-approved research plan and with the ethical standards of the Declaration of Helsinki.

Results

Participants in this study were recruited using a snowball sampling method, and all recruited participants met the inclusion criteria. Consequently, twelve individuals participated in interviews, and data collection was discontinued once information saturation was reached. The average age of the interviewees was 36.8 ± 11.1 (range, 27.0–57.0), and 58.3% were male. The average clinical practice experience was 9.7 years, ranging from KMDs who had recently obtained their license to those with 32 years of clinical experience. Four KMDs were taking a break to open a clinic or find a job, three were working as resident physicians at KM hospitals, two were primarily treating patients at their own KM clinic or KM hospital, respectively, and one KMD was working as a full-time director at AKOM. Except for one KMD, all interviewees responded that they had previous experience in medical volunteering before volunteering at the KM Telemedicine Centre. Six interviewees (50%) volunteered only at the Daegu centre, which was mainly operated in March; three interviewees (25%) volunteered only at the Seoul centre, which was operated after April; and the remaining three interviewees volunteered at both the Seoul and Daegu centres (Table 1). The interviewees participated in various tasks at the KM Telemedicine Centre for at least 1 week and up to 5 months based on the time of the interview. In addition, they not only provided telemedicine service based on telephone consultation, but they also performed tasks such as process design for telemedicine, coordination between various groups organised for centre operation, education on clinical practice guideline (CPG) and charting, herbal medicine delivery, chart auditing, documentation of conference results, and handling adverse events during the treatment process (Fig. 2).

In this thematic analysis, we identified the following four themes: (1) the foundation of the KM Telemedicine Centre; (2) patients as viewed by KMDs and what patients want from KM treatment; (3) the hope and value of KM found again through a new experience; and (4) changes needed for KM to advance in the future. Each theme is presented in Figure 3 and is described below with example quotations.

The Foundation of the Korean Medicine Telemedicine Centre

This theme focused on understanding the thoughts of the interviewees concerning why and how the KM Telemedicine Centre was founded with the involvement of KMDs. The internal and external conflicts during the surge in COVID-19 cases in the Daegu area leading up to the founding of the KM Telemedicine Centre, were included.

Table 1
General characteristics of participants (N = 12).

Category	Responses	
Age (years): mean ± SD [range]	36.8 ± 11.1 [27.0–57.0]	
Sex (Male/Female): n (%)	7 (58.3%)/5 (41.7%)	
Clinical practice experience (years)	9.7 ± 11.5 [0.3–32.0]	
Experience in medical volunteer work: n (%)	11 (91.7%)	
Occupation at the time of participation in medical volunteer work	Physician or Professor in KM hospital	2 (16.7%)
	Resident physician in KM hospital	3 (25.0%)
	Self-employed physician in KM clinic	2 (16.7%)
	Temporary break to prepare for the clinic	4 (33.3%)
	Full-time director of the AKOM	1 (8.3%)
Centres participating in practice: n (%)	Seoul centre	3 (25.0%)
	Daegu centre	6 (50.0%)
	Seoul and Daegu centre	3 (25.0%)
Period of participation in medical volunteer work	1-wk (n = 1); 2-wk (n = 2); 4-wk (n = 4); 2-mo (n = 3); 4-mo (n = 1); 5-mo (n = 1)	
Area of residence	Seoul	7 (58.3%)
	Daegu	5 (41.7%)

AKOM, Association of Korean Medicine; KM, Korean medicine; SD, standard deviation.

Conflict Between Korean and Western Medicine and the Expression of Internal Will

There were many reasons for establishing the KM Telemedicine Centre. One respondent said that the conflict between Korean and Western medicine, which was well-known in the Korean medical community, intensified during the national crisis (i.e., COVID-19 pandemic). Despite the shortage of hospital beds for patients, KM hospitals could not accommodate them due to opposition from Western medicine. The KM community expressed anger, helplessness, and shame over the fact that KMDs could not participate in COVID-19-related medical activities, including sample collection and treating the public, due to opposition from Western medicine doctors. Not wanting to leave a precedent that KMDs did not play a role in public health during a national crisis, the KMDs showed a willingness to participate and a sense of mission to do something as legitimate healthcare providers. This led to the foundation and operation of the KM Telemedicine Centre by the AKOM. Further, CPGs and evidence generated by the initiative of the Chinese government indicated that the collaboration between Western medicine and traditional Chinese medicine (TCM) led to a shorter hospitalisation period for patients with COVID-19 and a lower rate of critical illness. Consequently, the challenge of establishing the KM Telemedicine Centre has received positive momentum. Please note that ‘#’ at the end of the following quotes represents the participant number.

“The deep-rooted conflict between Western and Korean medicine was expressed quite explosively in the context of the national crisis.” (#1)

“In fact, in China, treatment based on TCM filled in the health gap for a large number of Chinese patients (omitted), which gave us the confidence to carry on. At this point, there is no proven treatment in Western medicine anyway.” (#1)

“I applied for the dispatch as a public health doctor, but it was declined. I had to do something, so I started it. It was not out of a strong spirit of service.” (#3)

“I just could not sit there and watch...As a KMD, I thought a lot about the opportunities to contribute to society. (omitted) In my life ahead, the most important keyword that defines me would be ‘KMD.’ However, I could not seem to find what I could do.” (#4)

“After getting rejected for participation in the various activities of healthcare providers, I felt a great sense of shame.” (#6)

Anxieties and Concerns Prior to Participation in Volunteer Service

Participants mentioned that they had many worries and concerns not only for themselves, but also for the people around them, before participating in the volunteer service. In addition to the concerns about the lack of information on the risk of acquiring COVID-19, there were also concerns about this being the first time anyone was operating such a centre during a pandemic caused by an infectious disease.

“We were new to this.” (#12)

“No one has ever experienced it.” (#7)

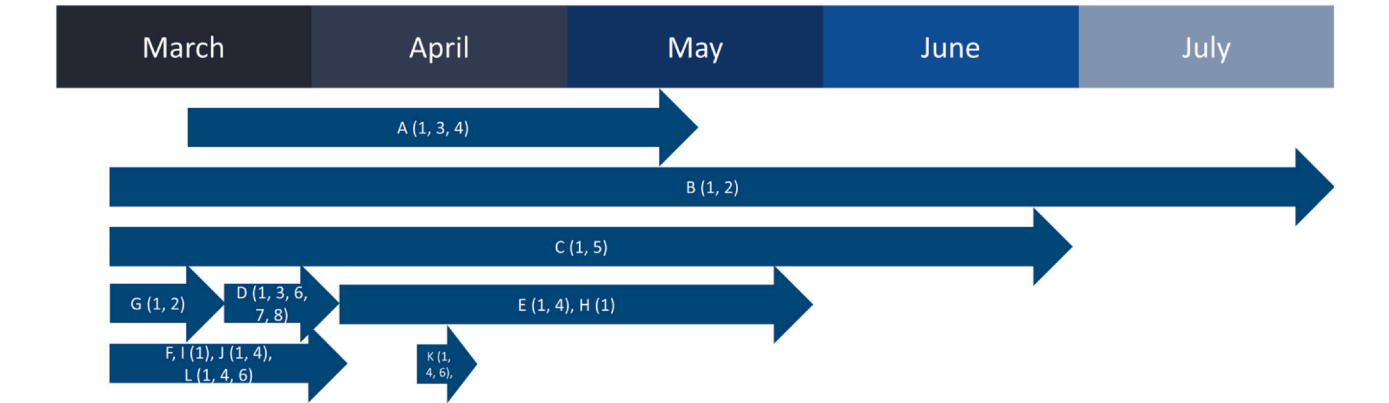


Fig. 2. Summary of participation period and tasks performed during volunteer activities. The letters A through L represent each of the 12 interviewees, and the numbers correspond to the following volunteer activity tasks: 1, diagnosis and treatment; 2, process design for telemedicine; 3, coordination between groups; 4, education on clinical practice guidelines and charting; 5, herbal medicine delivery; 6, chart auditing; 7, documentation of conference results; 8, handling adverse events.

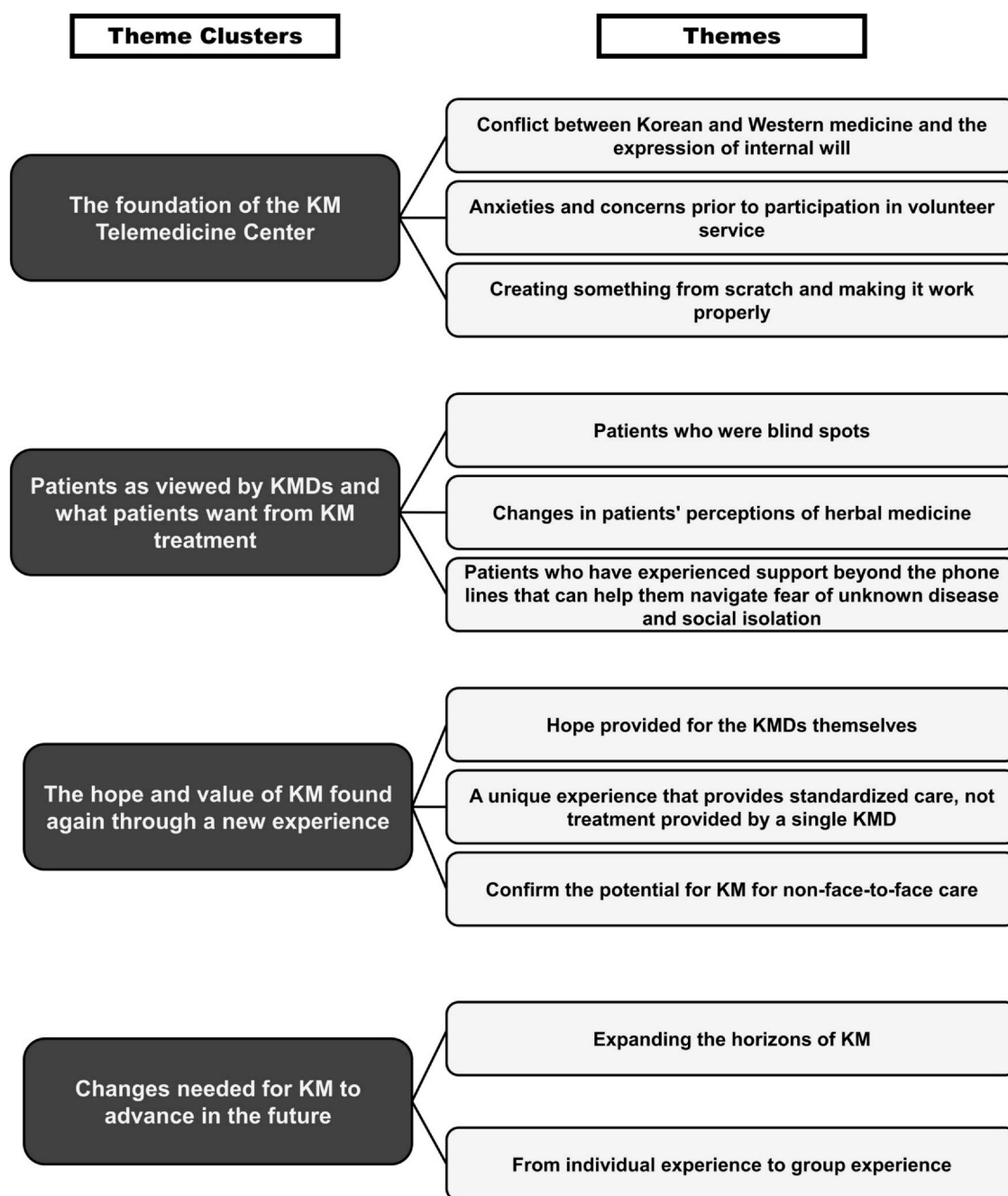


Fig. 3. An overview of the analysis process of qualitative analysis.

Most participants mentioned that the driving force in the process of continuing the service was the desire to do something amid concerns about their responsibilities as doctors and their role in public health. Other than that, motivation was from the sense of reward and camaraderie gained from providing care to patients.

Creating Something From Scratch and Making it Work Properly

Participants engaged in volunteer service to perform a variety of roles for different periods. In the early days (March 2020) until the KM Telemedicine Centre was founded, several attempts were made to establish the centre's operation system. Through trial and error, it was stabilised in a short period (within 1–2 weeks). The task of confirming the condition of COVID-19 patients only through telephone consultation was a form of treatment that had never been experienced, which caused considerable physical and mental fatigue for participants. Because the centre was operated by volunteer KMDs, the participation period inevitably differed.

Therefore, the newly assigned KMDs had to rely on the treatment charts of the previous KMDs for subsequent treatment sessions with each patient. To enable multiple KMDs to treat one patient, the implementation of a centre-exclusive electronic medical chart, which was the component that required the most attention and caused stress to many participants, was needed.

"The first time is always the hardest. It's the hardest to create something from scratch, but now it's not just about making something from scratch, and the system has evolved over a month or two. Now, it has become a manual." (#7)

Patients as Viewed by Korean Medicine Doctors and What Patients Want From Korean Medicine Treatment

This theme analysed participants' views on the role of KM in patient care and the treatment provided by the participants.

Patients Who Were Blind Spots

Most of the patients who received treatment at the KM Telemedicine Centre were those with relatively mild cases who self-quarantined at home or at a residential treatment centre because they could not go to the hospital due to the rapid increase in the number of COVID-19 patients in the Daegu area. This situation caused patients to feel relatively neglected compared to patients receiving full-scale treatment at hospitals, and the KM Telemedicine Centre was an alternative that they could choose from in a blind spot.

Patients who received treatment had various expectations from KM. The patients wanted alternative treatment to play a role that the unsatisfactory existing treatment could not, as seen in the following quote.

"There was no particular medication at the residential treatment center. All we could get were expectorants or fever remedies prescribed by a doctor over the phone. I believe that treatment here would not cause a relapse after taking medication for a few days, as with Western medicine." (#6)

There were also patients who wanted to receive medical treatment with the goal of supplementing their physical strength and strengthening their immunity to prevent recurrence, as seen in the following statement.

"Rather than seeking a cure, patients expected more support in boosting their immunity and reinforcing their stamina." (#4)

There were patients who received treatment without much expectation; that is, they felt like they were "grabbing at straws," as seen in the following statement.

"From what I've seen, their expectations were not that high. Many of them changed their minds as they got better after taking the herbal medicine." (#10)

Conversely, some patients had strong expectations that herbal medicine could reduce severe morbidity and mortality.

"Herbal medicine reduces the chances of becoming critically ill. That is why patients have high expectations." (#1)

Changes in Patients' Perceptions of Herbal Medicine

The patients treated by the participants were mainly patients who complained of mild physical symptoms and mental difficulties after acquiring COVID-19, as well as patients with sequelae of COVID-19. Participants stated that herbal medicine was widely recognised by patients for its role as a 'supplementary medicine' for recovering physical strength and an 'immunity booster' to prevent recurrence, providing them with a sense of satisfaction regarding these functions. Contrastingly, there were patients who rediscovered the value of herbal medicine as 'therapeutic medicine' rather than 'supplementary medicine' during treatment. Common physical symptoms reported by patients included cough, sore throat, loss of taste, anosmia, decreased energy, loss of appetite, indigestion, and dry skin. Herbal medicine quickly alleviated respiratory symptoms such as runny nose and cough, replaced conventional insomnia medications, and restored digestive functions. The COVID-19 sequelae (cough, systemic pain, diarrhoea, anorexia, etc.), which were not considered treatment targets in Western medicine at the time, were also managed. Participants felt that these changes induced by herbal medicine aligned more with the concept of 'recovery' than 'cure,' as mentioned in the following statement.

"Herbal medicine is well known as a supplementary medicine. However, as patients experienced herbal medicine working as a therapeutic medicine or at the boundary between supplementary medicine and therapeutic medicine, they realized that there were a variety of herbal medicines." (#5)

"Western medicine doctors often use expressions such as "confirmed" or "cured," but in the field of KM, the term "recovery" is used more often, which I find more appropriate." (#8)

Patients Who Have Experienced Support Beyond the Phone Lines Can Help Them Navigate Fear of Unknown Disease and Social Isolation

Participants focused on the mental health challenges faced by patients, such as anxiety, insomnia, depression, stress, and hypochondria. In particular, owing to the social atmosphere at the time of the spread of COVID-19 in the Daegu area, patients experienced social phobia, social criticism, and frustration at becoming failures. Consequently, participants emphasised the need to take care of not only physical problems but also mental and social problems during treatment.

"The patients could not go to the hospital. They were afraid of being rejected for treatment...They were worried about spreading the disease without knowing it. There were patients who had a lot of stress, worry, and anxiety about going to the hospital and going outside, as if they were traumatized about re-confirmation with the disease..." (#5)

"A disease is not just about its symptoms. The disease may leave traces physically as well as socially and mentally, which could be just as significant. The aftermath of COVID-19, in particular, seems to be rather severe, in addition to the physical symptoms of the disease." (#5)

Participants stated that they provided counselling support to patients who felt isolated, reassuring them of their connection to the outside world while offering comfort. This was consistent with the fact that many of the discomforts that patients complained of were mental problems, and that the treatment provided by KMDs focused on 'recovery.' Consultation and provision of herbal medicine seemed to have a synergistic effect (materialisation of consolation).

"The consolation over the phone call did not just end there and led to the action of taking the herbal medicine. This may have provided more positive feedback for the patients, boosting the effect of the herbal medicine; that is, the pharmacological effect of the medicine, along with the compliance and emotional trust of the patients." (#8)

"It must have been difficult for you.' Patients need such common words of consolation, and these are what they want to hear." (#11)

Some participants mentioned that they alleviated the anxiety of isolated patients by providing medical knowledge. Participants also mentioned that providing consultation over the phone every 3 days allowed for brief feedback on patients' conditions, which enabled continuous follow-up for critical patients and contributed to increasing adherence to herbal medicine.

The Hope and Value of Korean Medicine Found Again Through a New Experience

This theme explored the meaning and value that participants attributed to their involvement in volunteer service.

Hope Provided for the Korean Medicine Doctors Themselves

Externally, the volunteer service helped patients by addressing some of the gaps in public healthcare in Daegu while providing KMDs with the opportunity to boost their self-esteem by confirming their ability to contribute to public health as healthcare providers. This provided time for patients and KMDs to 'comfort each other.'

Despite many challenges in providing volunteer service, participants found meaning in this experience through a sense of reward, pride, self-esteem, confidence, and camaraderie—stating that the process demonstrated that KM practice herbal medicine treatment could serve as a valuable therapeutic intervention for infectious diseases.

"I learned this (KM) and became a person who can contribute to society to some extent (laughter)." (#8)

"I felt that there were a lot of things that I could help with KM. I mean, there are a lot of things we can do." (#4)

“For several decades ahead, I will live under the title of a KMD, and it will be my identity. (omitted) Whenever I have to worry about the future or look back, this period will come to mind first, and I think this period can serve as a standard. (It is) the touchstone of my life!” (#5)

A Unique Experience That Provides Standardised Care, not Treatment Provided by a Single Korean Medicine Doctor

The participants had a series of experiences that differentiated from daily treatment in their respective clinics or hospitals. To cope with the unprecedented and unknown disease, CPGs were quickly created, treatment protocols at the KM Telemedicine Centre were proposed, and case presentations on daily treatment and feedback from specialists were conducted. The KM Telemedicine Centre basically provided ‘Qingfei Paidu decoction,’ a prescription strongly recommended for COVID-19 patients in China. However, some doctors were concerned that this prescription could cause side effects such as insomnia and heart palpitations from the ephedrine component due to relatively high doses of *Ephedrae Herba*. Accordingly, the formulation was diversified so that the dose of *Ephedrae Herba* could be used selectively, which was positively recognised by the participants. As such, many participants recognised that a major benefit of herbal medicine is its lower likelihood of causing side effects, and they took great care to minimise any that might occur. Conversely, some argued that while minimising side effects is an essential aspect of medicine, avoiding an appropriate treatment due to fear of side effects is unreasonable. Although participants had differing views on this, they generally strived to make decisions that aligned with the patient's condition and needs. The following statements show the thoughts of some of the KMDs.

“If Ephedrae Herba is removed from this prescription, then I wonder if the purpose of using this medicine will be lost.” (#9)

“If the patient is uncomfortable, is it necessary to increase the dose of Ephedrae Herba to such an extent?” (#10)

“There were also opinions that it should be used with caution because there are side effects, and some doctors said that the side effects of Qingfei Paidu decoction were temporary and that it should be used boldly because the first thing to do was to improve respiratory symptoms.” (#4)

In addition, while discretion in using various herbal prescriptions for treatment based on the patients' symptoms was allowed, in practice, standardised treatment protocols were followed rather than individual treatment. This was essential due to the short-term participation of volunteers, but it also served as a factor in increasing work for long-term volunteers, as they were in charge of repeated participant training. The participants' concerns regarding the standardised treatment process were alleviated as the number of available prescriptions gradually increased, and most of them expressed that the manual was helpful in their treatment process, as seen in the following statements.

“I thought it would be difficult at first (sequential treatment of one patient by several doctors), but I think I was able to do it well because I was doing treatment according to a standardised manual.” (#1)

“It was a basic guideline that could accumulate data in a unified form and could be used by anyone.” (#6)

Confirm the Potential of Korean Medicine for Non-face-to-face Care

For participants, non-face-to-face care was a rare experience given the medical landscape in Korea. In particular, it was a challenge that required a highly organised approach, as multiple doctors had to sequentially follow up on a single patient's treatment process. Most participants recognised the need for a telemedicine model to prepare for infectious diseases or age-related conditions. They also noted that, despite being their first attempt, they overcame many difficulties.

“Such an experience will be repeated. In preparation for that, we need to have a certain telemedicine model at all times. Non-face-to-face treatment should supplement face-to-face treatment rather than replace it.” (#1)

Since four diagnostic methods—inspection, listening, smelling, enquiry, and palpation—are essential in the KM-based diagnostic process, there were initial requests to introduce additional technologies such as video telemedicine systems. However, due to the urgency of the situation, only telephone consultations were feasible. Participants reported increased mental and physical strain in identifying patients, communication difficulties, challenges in obtaining comprehensive information, problems with building patient trust, a lack of support systems, and stress due to rapidly changing conditions when managing the critically ill. Despite these difficulties, participants recognised that the typical diagnosis and treatment process of KM has unexpected strengths in non-face-to-face treatment. Some of these strengths are highlighted in the following statements.

“For COVID-19, there is no cure anyway, and only symptomatic treatment is provided. When it comes to symptomatic treatment, KM has certain strengths.” (#8)

“Western medicine doctors cannot prescribe treatments based on limited information. However, KMDs can, which gives them a significant advantage. Western medicine doctors cannot do anything without their diagnostic devices. Since we have a habit of making pattern identification diagnoses based on symptoms, we can easily guess whether this patient's nose is swollen or not the moment we hear the symptoms that this patient complains of.” (#9)

In addition to herbal medicine, personalised non-face-to-face treatments—such as incense sachets (aromatherapy pouches containing aromatic herbal medicine) for patients with olfactory dysfunction and meditation programs—were developed and provided, resulting in high patient satisfaction.

Changes to be Prepared for Future Korean Medicine to Advance

Expanding the Horizons of Korean Medicine

For participants who were sceptical about the feasibility of managing infectious diseases with herbal medicine and non-face-to-face treatment over the phone, the experience of the KM Telemedicine Centre heightened their self-awareness of the need for changes. In particular, this experience provided an opportunity to develop a greater interest in infectious disease control and to demonstrate to the public that KM-based approaches and treatment interventions are both necessary and effective.

“The general public now has a negative perception of KM due to a lot of disparagement from Western medicine doctors. I am a little proud that I played a part in changing the perception of KM.” (#10)

“I find it really meaningful that we participated in the treatment of 20% of the total patients (in the Daegu area) during the peak of the outbreak in May.” (#2)

From Individual Experience to Group Experience

Participants emphasised that the experience of providing treatment at the KM Telemedicine Centre should be transformed into a collective rather than an individual experience for KMDs. Additionally, opposed the idea of self-imposing limits on the potential of KM and the capabilities of KMDs. Thus, participants actively expressed a strong desire to spread the will to change gained through this experience to all KMDs.

“We consider ourselves a minority in the medical community. One of the biggest disadvantages of being a minorities is that our language lacks influence. For example, when making a diagnosis or treatment plan, we

now need to express it in a language widely understood by others. When we use terminology exclusive to our field, it tends to be dismissed as a personal experience or fragmented without becoming part of the mainstream, which I deeply regret.” (#8)

“When events like the KM Telemedicine Center activities occur, our experiences are only consumed as personal anecdotes and end up fragmented, without being expressed in a certain format as an end result. That is what we find regrettable.” (#8)

“We have no idea how far our area is or how far we can go... However, we, as KMDs, have imposed limitations on ourselves and have not explored many possibilities. (Omitted) I may have spoken too grandly about our involvement in COVID-19 treatment, but why on earth shouldn't KMDs participate in the treatment of COVID-19?” (#9)

Discussion

This study explored the experiences of KMDs who provided non-face-to-face medical services during the early stages of the COVID-19 pandemic, revealing both the challenges and opportunities of KM telemedicine in infectious disease management. Through the analysis of four key themes—the establishment of the KM Telemedicine Centre, patient perceptions of KM and their expectations from treatment, the rediscovery of KM's value through this unique experience, and the changes required for the future advancement of KM—this study highlights the adaptability of KMDs in overcoming the limitations of traditional diagnostic methods while maintaining effective patient care. The findings indicate that telemedicine not only contributed to bridging gaps in healthcare accessibility but also played a role in reshaping patient perceptions of herbal medicine and reinforcing KMDs' professional identity in public health. We would like to discuss the themes derived from this study.

Participants in this study confirmed that infectious disease management is feasible through non-face-to-face treatment via telephone. This study suggests that the KM-based approach was particularly effective in assessing patient's conditions, as it enables practitioners to assess symptoms using traditional diagnostic methods. This finding aligns with Park et al. (Park et al., 2022), who reported that patients were effectively treated using a traditional KM approach during the COVID-19 pandemic. Similarly, Cho et al. (Cho et al., 2022) highlighted that, over the course of a year, 8.6% of KM institutions in Korea provided telephone consultations and prescriptions, reflecting the feasibility of remote KM-based care.

Additionally, this study reinforces the role of telemedicine in infectious disease management. This aligns with previous research (Cohen et al., 2020), which highlighted the critical role of telemedicine, particularly during the COVID-19 pandemic, in improving accessibility and continuity of care. Telemedicine has been shown to enhance treatment accessibility by allowing patients in remote areas to receive consultations from infectious disease specialists (Pham and Badowski, 2019). Moreover, regular expert teleconsultations have been associated with improved adherence to treatment protocols, leading to better patient outcomes (Marx et al., 2022). Beyond its role in patient care, telemedicine also creates new opportunities for infectious disease physicians. As Nabha & Mehta Steinke (Nabha and Mehta Steinke, 2024) pointed out, infectious disease telemedicine allows specialists to work remotely, reducing commuting time, enabling a more flexible work schedule, and ultimately improving work-life balance. In Korea, telemedicine was prohibited before the COVID-19 pandemic. However, during the pandemic, non-face-to-face treatment was temporarily authorised to ensure access to healthcare services when in-person visits were restricted. As a result, in June 2023, the Ministry of Health and Welfare (MOHW, 2023) initiated a pilot project to integrate

telemedicine into the healthcare system. Building on the findings of this study and previous research (Cohen et al., 2020; Pham and Badowski, 2019; Marx et al., 2022; Nabha and Mehta Steinke, 2024), a systematic approach to expanding and optimising telemedicine services should be established within the KM healthcare system.

During the crisis, the KM Telemedicine Centre developed a semi-standardised protocol. This semi-standardised protocol maintained the autonomy of the KMDs who changed daily, while also allowing multiple KMDs to treat the same patient through a uniformly structured process. Participants basically prescribed 'Qingfei Paidu Decoction,' a strongly recommended treatment for COVID-19 patients in China (Wei, 2020; Xin et al., 2020). However, they adjusted the formulation to allow for an optional reduction in the dose of *Ephedrae Herba* to minimise side effects such as insomnia and palpitations associated with Qingfei Paidu Decoction. Beyond the basic prescriptions, additional prescriptions could be used at the discretion of the KMDs depending on the patient's condition. However, adherence to CPGs was recommended as a standard practice whenever possible. This semi-standardised protocol facilitated consistent data collection within a controlled environment, laying the groundwork for structured treatment protocols. Simultaneously, it enabled the creation of prescriptions tailored to individual patient conditions and needs, showcasing a strength of KM “patient care.” This aligns with previous studies (Lee et al., 2021; Park et al., 2022), which reported improvements in symptoms when herbal medicine treatments were personalised based on the individual conditions of COVID-19 patients.

In addition, during this process, advice from a group of experts who participated in the development of COVID-19 CPGs helped with treatment, and this group was informed of the KMDs' experiences in treating patients, thus creating room for mutual influence. Through this process, a small amount of evidence was generated in an urgent infectious disease management situation, which also showed that this evidence could be quickly disseminated to medical sites. As such, in a situation where it was difficult to sufficiently accumulate evidence at the time, efforts were made in the field of KM to continuously generate and integrate data. Since then, studies have continued to report how prescriptions other than Qingfei Paidu Decoction have been applied in clinical practice (Kim et al., 2022) and how treatment guidelines differ between China and Korea (Ang et al., 2020; Yang and Jeong, 2023).

In Korean society, herbal medicine is generally perceived as a supplement for physical strength recovery or an immunity booster. However, in this study, patients who received non-face-to-face treatment rediscovered its value as a therapeutic medicine rather than just an adjunctive treatment. Patients complained of typical physical symptoms such as cough, sore throat, loss of taste, anosmia, fatigue, loss of appetite, indigestion, and dry skin. Herbal medicine was observed to rapidly relieve respiratory symptoms such as cough and runny nose while also improving digestive function. In China, TCM has been used both preventatively and therapeutically to treat COVID-19 (KIOM, 2020; Xin et al., 2020). A study by Park et al. (Park et al., 2022) showed that after 11 days of herbal medicine treatment, all reported symptoms improved, and the patient was discharged after 15 days. In addition, ongoing research continues to demonstrate that herbal medicine can effectively alleviate COVID-19 symptoms (Ang et al., 2022; Sharma et al., 2023). These findings align with the positive treatment experiences of patients as reported by the interviewees in this study. Beyond acute-phase treatment, herbal medicine has also been used to manage COVID-19 sequelae, including cough, systemic pain, diarrhoea, and loss of appetite—conditions that were not primary treatment targets in Western medicine at the time. The study indicated that 87.4% of patients experience at least one lingering symptom after recovering from COVID-19 (Carfi et al., 2020), demonstrating the long-term burden of aftereffects. An analysis of consultation requests at the KM Telemedicine Centre found that 86.5% of users sought treatment for post-

COVID-19 sequelae, and reports indicate that symptoms improved following prescriptions of herbal medicine tailored to individual symptoms (Jang et al., 2021). Additionally, studies suggest that herbal medicine may serve as a viable treatment option for managing post-COVID-19 sequelae (Lee et al., 2021). As such, ongoing research continues to explore the efficacy of herbal medicine in treating COVID-19 and its aftereffects, emphasising the need to establish a systematic framework for future KM treatment strategies.

During the national crisis caused by COVID-19, the deep-rooted conflict between Korean and Western medicine in Korean society was expressed violently. Despite the urgent need for hospitalisation to save lives during the rapid surge in cases, hospitalisation at KM hospitals was not permitted. Although reports from China indicate that the integration of Western and TCM in treating severe acute infections led to shorter hospitalisation periods compared to Western medicine alone (Liu et al., 2020), KMDs in South Korea were not only denied opportunities for active treatment but were also excluded from even the most fundamental public health efforts, such as diagnostic specimen collection and epidemiological investigations. This decision was made despite a shortage of personnel for these tasks and the willingness of KMDs to volunteer their services. As a result, their potential contributions as healthcare professionals during the crisis were disregarded (AKOM, 2021). This highlights the need for reasonable and balanced policies that support a more diverse health care workforce to ensure the right to health at the national level. Following the COVID-19 pandemic, there is growing recognition of the need for comprehensive preparations for future health crises. As part of these efforts, a national healthcare policy should be established to enable Western and KM to respond collaboratively to future public health crises in a balanced manner.

Based on the findings of this study, the following recommendations are proposed. A systematic plan should be established to expand the application of non-face-to-face treatment within the KM community. To this end, technical support, such as the introduction of a video consultation system, is essential to improve the challenge of obtaining comprehensive medical information, which was identified as a difficulty in prescribing through telephone consultations in this study. Additionally, to effectively perform non-face-to-face treatment, continuous education for KMDs should be provided, covering key aspects such as building patient trust, establishing processes to monitor treatment compliance, and implementing patient safety evaluation strategies. Furthermore, structured operational guidelines should be developed and implemented to enhance acceptance among both patients and practitioners.

This study has several limitations. First, because the KM Telemedicine Centre was not officially part of the national quarantine system, it could not be integrated with existing treatment methods. Therefore, there is a limitation in that the experience of non-face-to-face treatment does not include processes that occur in connection with existing treatment methods. Second, because the KM Telemedicine Centre was planned in a short period of time in an urgent situation, some changes were implemented in the operating system depending on the time of participation. In the interview, the participants had different experiences depending on the participation period, but examining the operation method based on the period was not covered in the analysis because it was different from the purpose of this study. However, we tried to interview KMDs who served in various roles over various periods of time as much as possible. Third, since this study primarily focused on telephone-based consultations, it does not consider other telemedicine methods such as video consultations or AI-assisted diagnostic tools, which could further expand the applicability of telemedicine in KM. Lastly, since the study was conducted within the KM system, the findings may not be directly generalisable to other healthcare models, particularly those based on Western medicine. Differences in telemedicine regulations,

healthcare infrastructure, and physician-patient interactions across countries could limit the broader applicability of the results.

Conclusions

This study examined the experiences of KMDs providing non-face-to-face medical services during the early COVID-19 pandemic, highlighting both the opportunities and challenges of KM telemedicine in infectious disease management. Despite limitations in traditional diagnostic approaches, KMDs adapted their practices to deliver effective care, which in turn contributed to a shift in patient perceptions of herbal medicine and reinforced the professional role of KMDs in public health.

These findings emphasise that KM telemedicine is not merely a temporary alternative but a viable model for healthcare delivery that can complement conventional medical approaches. The experience of KMDs during the pandemic demonstrates that herbal medicine can be effectively integrated into remote care, offering symptom management not only for mild physical symptoms in the early stages of infectious diseases but also for psychological issues caused by isolation and post-COVID-19 sequelae. However, to maximise its potential, future efforts should focus on developing standardised treatment protocols, leveraging advanced telemedicine technologies, and securing policy support to enhance its role in both routine care and public health crises.

Furthermore, this study highlights the need for a more inclusive healthcare system that allows for collaboration between KM and Western medicine, particularly in crisis response. Policymakers should recognise the contributions of KM in emergency public health settings and consider integrating it more systematically into telemedicine initiatives. By addressing these challenges, KM telemedicine can evolve from an emergency response measure to a sustainable healthcare strategy, expanding patient access to holistic treatment and strengthening public health resilience.

Ethics approval

This research was reviewed and approved by the institutional review board of Gachon University (registration number 1044396-202006-HR-119-01).

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CRediT authorship contribution statement

Jeong Seung-Yeon: Investigation. **Lee Eun-Kyoung:** Conceptualization. **Kim Song-Yi:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Methodology, Investigation, Funding acquisition, Formal analysis, Conceptualization. **Jang Hye-Young:** Writing – review & editing, Writing – original draft, Validation, Methodology, Investigation, Formal analysis.

Declaration of Competing Interest

The authors declare that they have no conflicts of interest.

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Informed consent statement

Informed consent was obtained from all participants.

Clinical trial registration number

Although our research involves human participants, it may not fall under the category of the clinical trial. Early in our study, we considered registering with a registry like ClinicalTrials.gov, but found that our study did not meet the definition of a clinical trial as outlined by ClinicalTrials.gov. While qualitative research can sometimes be classified as a clinical trial, this typically applies only when it directly involves health-related outcomes tied to a therapeutic intervention. Our study not only included a therapeutic intervention but also did not collect health-related outcomes from the participants.

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