

Development of a Korean Medicine Online Program on Mental Health

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Objectives: The coronavirus disease 2019 has deteriorated mental health, particularly in mothers with elementary school children. Although the country has developed several health promotion programs to preserve mental health, no program has incorporated Korean medicine. Thus, this study focuses on developing vital Korean medicine mental health care programs.

Methods: The program follows the Korean medicine health promotion program principles. Guidelines, reports, research, and previous programs were analyzed to form interventions and lecture content.

Results: Pellets, hot packs, meditation, lavender oil, and green tea were selected as final intervention strategies. Mental health-related guidelines were analyzed to produce stress management lecture materials. In addition, an operational methods and evaluation tool manual was created.

Conclusion: We designed a health promotion program capitalizing on Korean medicine to improve mental health. This program will be assessed and accordingly improved through practical applications.

Keywords: covid-19, mental health, korean medicine

INTRODUCTION

The coronavirus disease 2019 (COVID-19) outbreak has preponderated national depression levels, and social psychological problems have surged during this ongoing disaster [1]. Those affected are prone to mental health problems due to detrimental psychosocial COVID-19 effects [2]. In particular, families with children in kindergarten and elementary schools suffer from care gaps [3]. Due to public and private care institution closures, care services were unavailable, and all classes were conducted remotely [4]. Compared to pre-COVID-19, women's share of housework and care has substantially increased, increasing depression and parenting stress [5, 6]. While the government is implementing mental health projects to prevent mental problems caused by COVID-19, only a few programs use Korean medicine. Therefore, we developed an online public health program to prevent, manage, and alleviate mental health

problems in mothers using Korean medical interventions.

The K-Health program was initiated as program development, program verification by employing a pilot project application, program diffusion process [7]. For the program of this study, a draft program was developed through literature review and expert opinions, and a project guide, educational materials, and evaluation indicators were developed for the operation of the pilot project in the future. This project was intended to improve the mental health of women who were physically and mentally exhausted owing to COVID-19 and were experiencing mental problems, particularly depression.

The K-Health program was developed through a pilot project application and diffusion process. A draft program was designed from literature reviews and expert opinions and consists of a project guide, educational materials, and evaluation indicators for future application. This project is intended to improve and alleviate mental health issues, particularly depression, in

women who are physically and mentally exhausted from COVID-19.

MATERIALS AND METHODS

1. Development principles

This study aimed to develop a stress relief program for mothers of elementary school children. The plan developed in Lee et al.'s report [7], "Development of Korean medicine health promotion program (K-Health program) and research on community connection plan," was selected as a model for program development. Previous K-Health programs indicated excellent results but were difficult to apply due to the system's lack of standardization; thus, the government strove correct this [8]. In this study, we developed a standard K-Health program model to address these problems.

Our novel K-Health program is designed to complement life cycle and community connections. Specifically, we created an evidence-based program to promote residents' overall health rather than just specific disease prevention. The provision of detailed manuals, syllabi, and post-evaluations, was also considered. According to this model, program development should be in the following order: literature and existing program review, program content development, public health center review with opinion gathering, content revision and supplementation, and expert group review. Subsequently, our pilot project was conducted and confirmed through field experts' suggestions and consideration (Table 1).

2. Development procedure

1) Data collection

A draft was developed through a literature review, including standard Korean medicine clinical practice guidelines, related reports, academic research, and existing program review. Finally, the finalized program was confirmed by considering opinions from public health center officials and related experts regarding research models and treatment interventions.

(1) Korean Medicine Clinical Practice Guidelines (CPG) [9]

A literature review of domestic and foreign-related prior and current studies was conducted to determine treatment interventions for the K-Health program. Korean Medicine CPG confirmed treatment interventions based on systematic and scientific evidence. Since this program aims to improve mental health in mothers with elementary school children, we selected Korean Medicine CPG for hwabyung, which closely reflects the situation.

(2) Report

Government press releases and published institutional reports were also investigated. The Ministry of Health and Welfare website's list was referred to for press releases. In addition, reports were collected from related organizations and Google searches (www.google.co.kr) (Table 2).

(3) Academic research

We reviewed three subjects to discover efficient intervention methods. A systematic literature review targeted preventive interventions in Korean medicine that can be administered in health projects. Four domestic (RISS, KISS, Scienceon, and

Table 1. K-Health program development process

Step	Contents
Literature review	- Review of various similar literature and previous programs in public health centers
Program content development	- Configure the program contents according to the target and purpose of the project - Develop the program based on evidence
Collecting opinions of public health center officials (1st)	- Construct realistic and sustainable programs by reflecting opinions from the field - Receive a review on whether the developed program is realistically practicable
Content correction and supplementation	- Reflect the revisions based on reviews and opinions of public health center officials
Collecting opinions of public health center officials (2nd)	- Review and gather the opinions for the revised proposal - Additional modifications which is essential to the program
Revision and supplementation of expert groups (academics)	- Consult a professional society or expert group to review the accuracy and validity of the content
Pilot project in progress	- Perform pilot projects based on the developed program
Collecting on-site opinions	- Revise and complete the program by reflecting the evaluation results of the pilot project - Collect the difficulties and problems experienced by those involved in the actual project

Table 2. Searching databases for report published by government

Classification	Name	URL
Press release	Ministry of Health and Welfare	http://www.mohw.go.kr/
Report	Korea Health Promotion Institute	https://www.khealth.or.kr/
	National Mental Health Information Portal	http://www.mentalhealth.go.kr/
	National Trauma Center	https://www.nct.go.kr/
	National Mental Health Center	http://www.ncmh.go.kr/

Table 3. Searching strategy for preventive Korean medicine intervention

Classification	Criteria
Population	Human, there is no limit to the disease, including healthy people.
Intervention	All Korean medicine interventions are included (herbal medicine, acupuncture, chuna, pharmacopuncture, qigong, meditation, cupping, moxibustion), and complementary and alternative medicine interventions available at public health centers are also included (aromatherapy, exercise, diet, education, etc). If Korean medicine interventions are included, complex interventions are also included.
Comparison	No restriction
Setting	Hospitals, clinics, and community studies are also included.
Study design	Case report, observational study, cohort study, clinical trial
Publication type	original article with peer-reviewed
Language	No restriction
Search period	No restriction
Database	Medline via PubMed, Embase via Science Direct, Cochrane Library, China National Knowledge Infrastructure

OASIS) and four foreign (PubMed, Embase, Cochrane Library, and CNKI) databases were used. There were no diseases type restrictions, and aromatherapy, exercise, diet, and education interventions available at public health centers were included. Regarding complex interventions, only cases involving Korean medical interventions were identified. Other detailed search strategies are described in Table 3.

Aromatherapy prevents and treats diseases by using aromatic oils extracted from plants, and it was included in our program because it can be easily self-performed. A literature review was performed to identify the types and methods used. In addition, tea was selected as it is relatively familiar and easier to practice than other interventions. Only green tea-related studies were considered when conducting a preliminary domestic study search among various black, green, and herbal teas. Thus, the literature review focused on green tea.

(4) Existing program review

“Cases of Online Implementation of the Integrated Community Health Promotion Project in 2020 [10]” and “Information of the Integrated Community Health Promotion Project in 2021-Korean Medicine Health Promotion [8]” were investi-

gated to review existing programs.

2) Pilot program development

We developed a pilot program by reviewing CPG, reports, academic research, and existing programs. Public health center officials and expert groups then reviewed the program and suggested revisions (Fig. 1).

RESULTS

1. Data analysis and intervention selection

1) Korean Medicine Clinical Practice Guidelines

As a result of our investigation, Bunsimgieum and Shihogay-onggolmoryo-tang herbal medicines and acupuncture, pharmacopuncture, moxibustion, and cupping were recommended. In addition, relaxation, meditation, emotional freedom, and psychotherapy were recommended for stress prevention and management. Acupuncture was replaced with pellet therapy, a type of acupressure sticker, and a hot pack was used instead of moxibustion. Meditation and deep breathing were chosen and

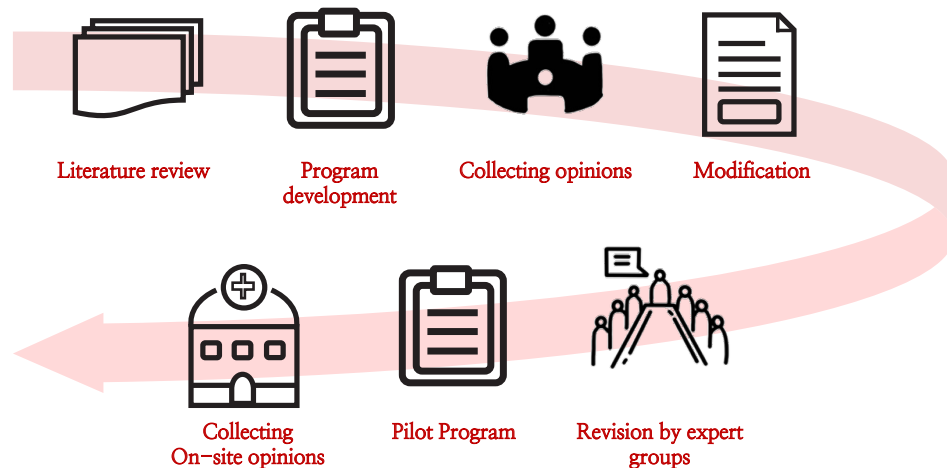


Figure 1. Whole development process.

Table 4. List of report

Target	Name	Contents
For public	Mental health guidelines for COVID-19 psychological prevention	Provision of promotional materials for the general public, for adults taking care of children, for self-quarantine, for general medical staff, and for medical staff treating infectious diseases
	Mental health guidelines along with social distancing in daily life	Embracing daily changes, taking responsibility, community harmony, caring for body and mind
	Infectious disease stress mind care guide	General information on infectious diseases and infectious disease stress, mental health coping for quarantined people, representative numbers of psychological support organizations
	Mental health guide	Trauma-related mental health evaluation scale, daily coping and stabilization techniques for overcoming stress and tension relief, and community connection methods due to persistent post-traumatic stress symptoms
	Disaster mental health guide (infectious disease)	Promotion of the Ministry of Health and Welfare's corona virus integrated psychological support team, mental health crisis counseling phone guide, nearby mental welfare centers
For expert	A guide to care for people with infectious disease	Stress response to infectious disease, coping with infectious disease stress, guidance on where to get help
	Guidelines for psychological support for COVID-19	Mental health problems in case of infectious disease disaster, COVID-19 psychological support operating system, disaster mental health evaluation, psychological first aid, safety of mental health specialists

reflected in the recording file as body-mind interventions.

2) Report

Our survey confirms seven main data components related to COVID-19 mental health. The general public suggested six, and one was from experts. All guidelines were published to improve the general public's mental health, except for COVID-19 psychological support guidelines for experts (Table 4).

3) Academic research

A literature review was performed according to a specific search strategy; the PRISMA flow diagram is as follows: 17,061 papers were examined, and those unassociated with Korean medicine intervention were filtered out. Finally, the 61 paper findings were summarized and analyzed, revealing the 18 most common health topics (Fig. 2). Our systematic review determined no disease directly related to Hwabyung. However, since the program's target was adult women, yoga and meditation were adopted as adults frequently use them.

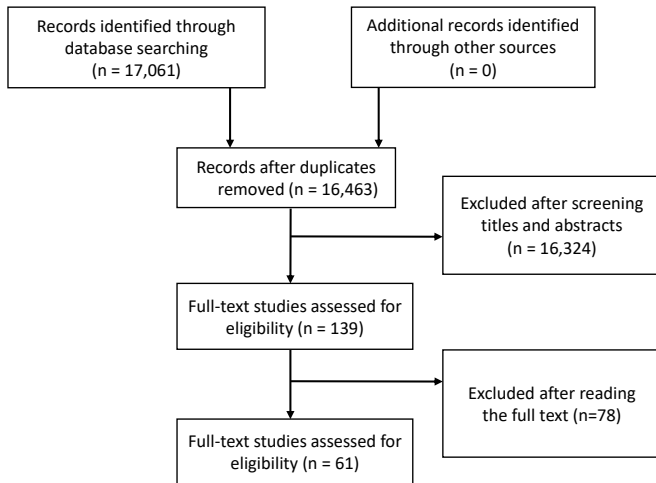


Figure 2. Flow chart.

Aromatherapy types and evaluation methods were assessed. Subject, age, intervention period, intervention method, oil type, and measurement tool results were also analyzed. Seven interventions were used, and dry (13 times, 43.3%) and neck-lace inhalation (9 times, 30.0%) were mentioned often. For oils, lavender (19 times, 28.4%), jojoba (5 times, 7.5%), and sweet orange (4 times, 6.0%) were frequently used. The dry inhalation method and lavender oil were selected as they were the most common methods in aroma-related clinical studies [11].

Regarding green tea, a literature review using domestic and overseas databases was conducted. However, only foreign papers were included, and their contents were not significantly different from previously published systematic reviews. A 2018 systematic literature review analyzed the stress- and anxiety-reducing effects of L-theanine, a main green tea component. Studies have concluded that taking 200-400 mg/day of L-theanine may help reduce stress and anxiety; therefore, green tea was selected for this study [12].

4) Existing program review

The “2020 Online Implementation Casebook for Integrated Community Health Promotion Project” provides examples of online health promotion projects (phone calls, text messages, real-time streaming, applications, supplies, etc.) at public health centers. According to the report, 13 phone calls, 4 real-time streaming, 5 text messages, 5 healthcare apps, 13 platform apps, 10 videos, 11 minimal face-to-face, and 25 items were provided. The most frequent programs provided health-related items and had participants directly interact, followed by Social Network

System platforms such as KakaoTalk or Naver Band. In addition, methods such as making a phone call to the participant directly, minimum face-to-face check-up services, or allowing them to watch a video were widely used. However, real-time streaming increases related party work burden, and many subjects were unfamiliar with the online environment; thus, health promotion projects via this method were low. Furthermore, health management apps are not often used because they require users to download a separate app.

The only company that used Korean medicine was the “non-face-to-face online health promotion company Yangju On-health,” conducted by the Yangju Public Health Center. Similar to “My Baby’s Emotional Talk Classroom,” this method involved online evaluation after providing live lecture videos once a week through a platform app. Infants and children aged 2-7 months were selected as subjects for their health promotion projects, and the center sent business operation products and pre- and post-program questionnaires.

“2021 Community Integrated Health Promotion Project Guide-Korean Medicine Health Promotion” is a detailed project operation guide that presents the project outline, implementation system, details, administrative matters, reference materials, and appendices. The report was referenced during the actual program production to be used efficiently.

This study will administer a preliminary online questionnaire before program initiation and deliver necessary project items to the subjects’ homes in advance. Subsequently, subjects will directly participate in real-time streaming services, receive training through videos, and practice using the items provided. In addition, a group chat room on the platform app will be created, and daily missions will continuously be uploaded to encourage more active participation.

2. Pilot program

1) Creating the program format

We selected pellets, hot packs, meditation, and deep breathing for self-performed intervention. Lavender oil and green tea were chosen for practical use (Table 5).

2) Outcome measurement

The 2019 Standard Guidelines for Mental Health Examination Tools [13] and the Korean Medicine CPG for Hwabyung [9] were referenced as evaluation tools. Hwabyung, a cultural syndrome in Korea, can be caused by suppressed anger accumula-

Table 5. Program format

Classification	Contents
Number	1 hour per week (5 times for 5 weeks)
Method	Online real-time training and continuous management through platform app
Subject	Mothers with elementary school children
Study design	Non-randomized controlled trial
Intervention	Education and group counseling, meditation, pellet treatment, and hot packs
Evaluation	GAD-7, CESD-10, PSS, Hwabyung standard, and Hwabyung VAS
Resource	Public health doctor (lecture), staff (health center), assistant staff

Table 6. Outcome measurement

Title	Tool	Evaluation	Number
2019 standard guidelines for mental health examination tools	CESD-10	Depression	10
	GAD-7	Anxiety	7
	PSS	Stress	10
Clinical Practice Guideline of Korean Medicine	Hwabyeong VAS	Physical symptoms	5
	Hwabyeong Standard	Personality, symptoms	31

tion [14]. Generalized anxiety disorder (GAD)-7 and perceived stress scales (PSS) from the center for epidemiological studies depression scale (CESD)-10 guidelines were used as mental health screening tools. The Korean version of these scales was used to evaluate depression, anxiety, and stress. In addition, Hwabyung improvement was measured using the Hwabyung standard and visual analog scale (VAS) (Table 6).

3) Educational material development

We produced depression and stress lecture materials, keywords frequently apparent in related reports. Stress definition, internal/external factors, daily sensibility, age-specific factors, stress symptoms, relief methods and their definitions, physical changes, coping strategies, and resilience were defined. During the program's last week, participants shared real-life experiences in parenting, puberty, family, housework, and work stress and collaborated on possible solutions.

3. Expert advice

For prevention and management interventions extracted from the literature review, priorities were selected through expert advice, and interventions were determined. Subsequently, public health center officials, health policy experts, and clinical doctors reviewed whether the derived interventions could be employed in actual practice. The following consultations

received were regarding the program draft, and the resulting responses and revisions are shown in Table 7.

4. Final program confirmation

Our program considered depression, anxiety, and parenting stress from COVID-19 as a Hwabyung. We aim to prevent and manage stress by developing and teaching self-regulation techniques. Participants will experience various programs such as online education, meditation, group counseling, and self-practice using pellets and hot packs. Online education classes through the Zoom application will be held for 1 hour twice a week at 10 am and 10 pm under a Korean medicine doctor's guidance. Classes on the same subject will be held four times a week, and participants can attend lectures at their convenience. When analyzing the program's results, we plan to determine whether to include a participant in the lecture only to target those who participated in the five-week program (Table 8).

DISCUSSION

This study aims to develop an online K-Health program that can reduce parenting stress in mothers with elementary school children due to COVID-19. The program was designed to adhere to the "Korean Medicine Health Promotion Program Development Model." Evidence-based interventions were selected

Table 7. Question and answer for the draft program

Topic	Questions of expert	Answer and feedback
Number	Will the outcomes of this program be positive since the intervention is only performed once a week (for 5 weeks) for 1 hour?	There is a limitation in the research period; however, the program is effective because it educates people to practice the intervention in daily life. The amount of intervention itself is similar to that of the existing programs.
Method	Can it be used for business by referring the apps that are actually used? Participating and adhering to online programs seems impossible; minimal face-to-face seems to be necessary How to overcome motivation issues in online programs?	Developing your own apps may be difficult; however, platform apps can be used. We've already taken that into account, and it's a decision with reference to previous programs. We will continue to announce encouraging missions using the platform app.
Subject	Are there any quantitative numerical changes in healthy subjects? Will the recruitment process run smoothly? We suggest you investigate the effect of this program on other family members.	Since this project is for prevention and early stages of diseases, it was targeted for healthy people, and the study is expected to pass the IRB. We haven't recruited yet; however, we expect the recruitment process to run smoothly and end within 2 weeks. We will consider it.
Evaluation tool	We suggest to measure sleep quality as a separate factor, since it plays an important role in depression.	It will be reflected by referring to previous cases.
Resources	Who is responsible for future lectures and platform app management?	The public health personnel will be responsible for future lectures and platform app management.

Table 8. Composition of final program

Step	Main program		Time
Pre-visit	Consent form and pre-questionnaire		-
	Shipment of supplies		-
Week 1	Education	Program introduction (10 min) Causes of stress (10 min) Korean medicine practice training (10 min)	30 min
	Training	Pellet, hot pack (10 min), meditation (10 min), tea	20 min
Week 2	Education	Recognizing depression (30 min)	30 min
	Training	Pellet, hot pack (10 min), meditation (10 min), tea	20 min
Week 3	Education	Knowing myself (30 min)	30 min
	Training	Pellet, hot pack (10 min), meditation (10 min), tea	20 min
Week 4	Education	Improving oneself (30 min)	30 min
	Training	Pellet, hot pack (10 min), meditation (10 min), tea	20 min
Week 5	Education	Sharing stressful situations (30 min)	30 min
	Training	Pellet, hot pack (10 min), meditation (10 min), tea	20 min
End point	Post-questionnaire		-
Follow-up	Follow-up questionnaire		-

through a systematic literature review. As an online program, we selected interventions that can be self-performed under a Korean medicine doctor's guidance, such as meditation or aromatherapy. A five-week program schedule was planned.

Lecture materials were created using keywords or guidelines that overlapped in each guide, consisting of techniques that aid depression and stress recognition and management. Participants were encouraged to share personal experiences during the program's last week. In addition, through the non-face-to-face case book and the representative medicine health promotion project guide, operation methods such as online pre-program questionnaires, practice item delivery, real-time non-face-to-face education, and participation encouragement through the platform app were determined.

A model from Lee et al.'s report [7] reflects Korean medicine characteristics by comparing and reviewing the existing K-Health program manual and the representative health promotion program manual used in public health centers, presenting K-Health program creation suggestions. First, a project guide/manual for project manager reference should be presented. Additionally, a specific program progress manual should be provided so the program can be carried out smoothly, regardless of who is in charge of the project. Relevant materials should be included in the appendix. We reviewed previous studies and selected evidence-based interventions and outcome measurement methods. The online survey system registered all pre- and post-questionnaires required for the program. In addition, educational materials were produced, and video lectures were recorded based on their contents so the program could operate without a lecturer.

Second, linkages with other projects must be considered. Those who participate in the health promotion program are more likely to participate in other projects; therefore, program design should consider relevant issues. Unlike other face-to-face K-Health programs, this program was conducted online. Thus, people who could not participate in a face-to-face program from lack of time could participate in this one.

Third, a standardized treatment model should also be provided if an intervention is included in the K-Health program. For example, if the program incorporates acupuncture, all details should be presented, including acupuncture type at a particular acupoint and process duration. The interventions used in this program were divided into five categories: pellets, hot packs, meditation, lavender oil, and green tea. The pellets and hot packs were maintained for 10 minutes at specific acupoints

(LI4, LR3, and CV4). An expert-supervised recording file was produced and played back during the lecture for meditation. Lavender oil and green tea were often used or consumed during lectures. Therefore, a standardized model of all interventions was established.

Finally, a project manager manual is necessary. For smooth program operation and high reproducibility, administrative and Korean medicine doctor task manuals must be created manually. Our program's manual is in progress; all pre- and post-questionnaires, lecture materials, videos, and operational manuals have been produced. This study can also be viewed as a manual.

CONCLUSION

We designed a health promotion program that uses Korean medicine to improve mental health. This program will be assessed and accordingly improved through practical applications.

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None.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

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