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Development of a physical activity program for problem drinkers living in a single room (Jjokbang) based on a health belief model

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Abstract

The purpose of this study is to develop a physical activity program for problem drinkers living in side rooms(Jjok-bang) based on the health belief model. In order to develop a physical activity program suitable for and applicable to the characteristics of the problem drinkers, the detailed components of the health belief model and the learning goals for each program were linked. It consists of a total of 10 activities, and in the introductory stage of each program, physical examination and gymnastics were conducted, and in the development stage, 10 physical activities were conducted to help the movement of large and small muscles and concentration. In the final stage of organizing, it consisted of time to express one's emotions through writing and painting and to reflect. The developed program was commissioned by an expert to derive the content validity coefficient (CVI=.75). Through the physical activity program developed in this study, it is believed that the problem drinking behavior of problem drinkers living in side rooms can be gradually reduced. The physical activity program developed in this study is expected to gradually reduce the problems of problem drinkers living in Jjock-bang. In the next step, we propose a study that quantitatively and qualitatively analyzes the intervention effect by applying this program to clients.

Keywords: *Health belief model, Jjokbang, Physical activity, Problem drinkers, Program*

1. INTRODUCTION

Jjokbang is one of the housing types for the poor in Korean cities, and refers to a room that is small enough for one adult to lie down [1]. It is a poor residential facility with no individual bathroom, toilet, or cooking space, and is operated on a basic monthly rent or daily wage [1]. Most of the people residing here are single households living alone, living isolated from their families or lacking emotional support [2]. Residents of jjokbang living in such an environment have various health problems, both physically and mentally [1]. About 50% of all Jjokbang residents suffer from chronic physical diseases such as diabetes, high blood pressure, and arthritis [3], emotional problems such as depression and hopelessness [4], and the high-risk drinking rate reaches 25.7%. These health problems are more severe than other groups [3].

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In particular, in a study of problem drinkers in Korea [5], the age of first drinking was around 17 years old, and the average drinking period was over 30 years. Unhealthy drinking habits that have lasted for such a long time are difficult to change [6], and individuals' motivation to abstain from drinking (abstinence from drinking) is weak, as well as a lack of support systems and resources [5]. In this case, problem drinkers are less likely to voluntarily maintain sobriety or abstain from problem drinking [6], and their health gradually deteriorates. Therefore, it is important to give problem drinkers living in jjokbang rooms an opportunity and motivation to take care of their own physical health, and it is believed that factors according to individual health beliefs can motivate human health behavior [7]. HBM (Health Belief Model) is a theoretical model that predicts human health behavior [8]. The health belief model assumes that the ability of clients to maintain their current health status or prevent unhealthy behaviors is influenced by individual health belief factors [9]. The physical activity program based on the health belief model makes people realize that their current problem drinking behavior is not good for their physical health. Furthermore, self-awareness of the fact that problem drinking can become serious and lead to alcoholism is the starting point of sobriety. In addition, it is necessary for them to understand the benefits of participating in a physical activity program and to experience an improvement in their range of motion. As such, the physical activity program based on the health belief model can promote systematic body movements. Therefore, it is necessary to apply this program to problem drinkers living in jjokbang. Therefore, the purpose of this study is to develop a physical activity program based on a health belief model so that problem drinkers living in jjokbang can take an interest in physical activity and health. The specific purpose of this study is as follows.

First, the main goals of the detailed activity program were set by synthesizing the components of the health belief model.

Second, based on the health belief model, a physical activity program suitable for and applicable to the characteristics of problem drinkers living in jjokbang was developed.

2. LITERATURE REVIEW

2.1 Health Belief Model

The health belief model has been used in programs in various fields since its inception in the 1950s in the US Public Health Service's health-promoting behavioral research [9]. It is based on the value-expectation theory based on individual perception [9], and is one of the most used theories to explain human health-seeking behavior. In this model, health maintenance or preventive behaviors are explained as influenced by what individuals value. In addition, it is explained that it is influenced by the health belief factor that can prevent unhealthy health behavior in the current health condition [12], and that the motivation to change behavior is induced by feeling threatened by the problem behavior [8]. At the core of the health belief model is an individual's belief that he or she will practice a healthy behavior when the benefits of performing the desired behavior outweigh the obstacles to performing the behavior [8]. Self-efficacy was added as confidence in the ability to act, and details are as follows [8,9,10].

a. Perceived Susceptibility

   Perceived susceptibility refers to the degree to which an individual is aware of his/her own likelihood of contracting a particular disease. This is different for each individual, and it is believed that there is a difference in the possibility of performing a specific action according to the degree of cognition.

b. Perceived Seriousness

Perceived severity refers to the degree to which an individual perceives the seriousness they have for a particular disease. In other words, it is highly likely that the target will perform the action depending on how seriously he or she takes a particular problem.

c. Perceived Benefits

Perceived benefits are the degree to which an individual perceives the benefit to be gained by performing a particular action. In other words, taking certain actions can improve the disease or make the problem less severe.

d. Perceived Barriers

Perceived barriers are the degree to which various obstacles or difficulties in performing a particular behavior are perceived. Even if they want to pursue a health-promoting behavior, if they have difficulty performing that behavior, the subject is less likely to perform it.

e. Que to Action

Que to action is an opportunity to stimulate participation in decision-making or necessary action. These depend on the perceived susceptibility or perceived seriousness of adverse health problems.

2.2 Characteristics of program recipients

In order to increase the possibility that problem drinkers take care of their physical health according to the health belief model, it is necessary to understand the characteristics of the participants. Like other addiction problems, drinking problems eventually lead to alcoholism. At first, the patient himself is unaware of the seriousness of his addiction problem. If they cause problems in their studies, interpersonal relationships, and work, you will know that there is a problem [13]. In the case of this program, it is to prevent addiction problems of problem drinkers living in jjokbang, so it is necessary to understand their housing type and characteristics.

Participants in the physical activity program developed in this study were problem drinkers living in jjokbang. In other words, it refers to those who have an AUDIT-K: Alcohol Use Disorders Identification Test (AUDIT-K) score of 20 or higher. Increasing the likelihood of participating in a physical activity program involves increasing perceived benefits and reducing perceived barriers. Residents of jjokbang, who have little interaction with neighbors, can form a bond with their neighbors if they participate in physical activity programs. Therefore, the perceived benefits, such as physical exercise through movement and enjoyment of participation in recreational programs, should be enhanced. A program linking the main elements of the health belief model could be helpful for the health-seeking behavior of problem drinkers.

3. DEVELOPMENT OF A PHYSICAL ACTIVITY PROGRAM

3.1 The physical activity program development process

The development procedure of this physical activity program was based on the alcoholic relapse prevention program model [14]. First, in the step of establishing specific goals for the physical activity program, individual interviews were conducted with problem drinkers living in jjokbang to investigate their needs and establish a plan. Second, in the program construction stage, a literature review was conducted to investigate existing

programs and the contents of detailed programs were composed. At this stage, the program to be actually operated was planned considering the components of the health belief model. Third, the program was implemented in the pilot study, and the program was modified according to feedback. In the last step, the effectiveness, satisfaction, and efficiency of the implemented program were evaluated. Table 1 shows the overall program development process.

■ **Table.** Table 1 Process of a Program Development

Table 1. Process of a Program Development

	Stage	The details
1	Goal setting	Planning and needs assessment
2	Program composition	Research existing programs
3	Pilot test	Preliminary program
4	Feedback and Reframing	Complement the program

3.2 Content validity index of physical activity program

This physical activity program based on the health belief model was consulted by experts. Experts' opinions on the program operation plan, activity composition, and contents were collected and revised and supplemented. In addition, through a preliminary survey, the program was made more practical and systematic by reflecting the opinions of actual problem drinkers (AUDIT score of 20 points or more) in Jjokbang residents. The physical activity program developed in this study was assured by two alcoholism experts and two education experts to verify its validity (CVI=.75). In addition, the facilitator of this physical activity program prepared in advance for health consultation and simple physical examination.

4. RESULT

4.1 Objectives of Physical Activity Programs and Components of the Health Beliefs Model

During the construction phase of this physical activity program, the health belief model components were used as the basis for planning the detailed contents. In addition, goals were established for each session to be a systematic program. Considering the components of the health belief model, the detailed activities of the program were planned according to the perceived susceptibility and perceived seriousness of the disease (problem drinking), the perceived benefits and barriers following participation in the physical activity program, and self-efficacy. First, in order to increase perceived susceptibility to disease (problem drinking), self-reflection and emotional expression activities were targeted at the last session of the program. A program was placed at the end to reflect on one's problem drinking behavior and to express negative emotions through writing or drawing. The reason why these activities are organized as the last session is that the subjects need some time to experience and reflect on their physical reactions (e.g., hand tremors, sweating, difficulty concentrating) and emotional expression methods while participating in the physical activity program. Second, as an activity to increase perceived seriousness, a program requiring fine motor exercise and a sense of balance was constructed. The physical activity program was designed by adjusting sessions in which easy and difficult activities could be performed alternately. Third, active music activities that can be enjoyed were included in order to make people aware of the benefits of participating in the physical activity program. Percussion

activities were added to help learn simple beats in a short period of time and relieve stress and negative emotions. Fourth, the program to reduce perceived barriers consisted of activities requiring quickness and agility. Fifth, in order to increase the self-efficacy of the clients, activities that are achievable and can experience a sense of success were composed. In order to do so, we searched for activities by team that can be done in cooperation with each other. The components of the health belief model and the goals of the program based on it are shown in Table 2.

■ **Table.** Table 2 Physical activity program Goal and health belief model components

Table 2. Physical activity program Goal and health belief model components

Physical activity program Goal		Health belief model components	session
· Motional expression	· Self-reflection	Perceived susceptibility	10
· Gross/fine muscle exercise	· Improve balance	Perceived seriousness	3,5,7
· Gross/fine muscle exercise	· Improve sense of rhythm	Perceived benefits	4
· Gross/fine muscle exercise	· Agility	Perceived barriers	1,2,9
· Gross/fine muscle exercise	· Cooperation	Que to action	6,8

The details of the physical activity program developed based on the health belief model are shown in Table 3. The physical activity program, which consisted of a total of 10 sessions, consisted of open sessions that the client could participate at any time, even if they could not participate sequentially from the first session. The basic operation of the program was planned twice a week, a total of 10 sessions for 5 weeks. The program has four goals: First, clients are interested in their own physical activities and functions. Second, the client becomes aware of his drinking problem. Third, it is to continuously participate in the program with fun and interesting activities. Lastly, it helps to recognize one's problematic drinking behavior and gives an opportunity to think about abstinence. The detailed contents of the 60-minute program in each session in accordance with the above goals are as follows.

The introduction phage consisted of less than 15 minutes. Conduct basic physical examinations (blood pressure, blood sugar, weight check) of clients and record them in notebooks (cumulative records) for each client. Clients can ask questions about the medicines they are currently taking and consult about their health conditions. The operator checks whether the client has any restrictions on physical movement, pain, or trauma before participating in the physical activity program. Since this program encourages physical activity, it is important to check their health status in advance. After going through this process, the distance between clients is widened to secure enough space for each person to move and arrange seats. Encourage clients to engage in body stimulation exercises such as free gymnastics, clapping, and sitting toe bumps.

In the developmental phage, 30 to 35 minutes are allotted to each session, and the therapist and client participate together in 10 activities per session. The details of each activity in this stage are as follows. First, in [Activity 1. Occupying Chairs], arrange chairs that are one less than the number of therapists and clients in a circle, then stop and sit down after singing or playing music. This activity promotes gross motor movements and requires quickness and agility. In [Activity 2. Water Bottle Bowling], fill a 2-liter plastic water bottle halfway with water, place it in the shape of a bowling pin, and roll it with a light ball to hit the pin. It is an exercise that uses the muscles of the arms and legs, and also an activity that requires concentration to hit the pins. In [Activity 3. Jenga], small muscle movements such as finger movements are performed, and a sense of

balance and concentration are improved. In [Activity 4. Tapping the Jang-gu], clients can train large and small muscles and improve their sense of rhythm with Korean musical instruments. Through [Activity 5. Playing Marbles], clients can improve their concentration and sense of balance and have fun. [Activity 6. Battle card game] can train gross and fine muscles, and can promote teamwork when playing in teams of several people. In addition, self-efficacy improves when teaching and learning battle cards. [Activity 7. Kicking jegi] is an activity that requires strength and balance. Therefore, it is necessary to check in advance whether the client's body movement is restricted. It can be aroused through [Activity 8. Outdoor Activities], and it can improve interpersonal relationships and feel a sense of belonging among program participants. [Activity 9. Tuho play] is a game in which wooden sticks or arrows are thrown into jars. It can be modified and operated in various ways, from the process of preparing to color the wooden stick or arrow. During the program in various forms from activities 1 to 9, check if there are any restrictions on the body movement of the client. When clients participate in a physical activity program, they become aware that hand tremors, sweating, and loss of balance are affected by drinking. Through the last [Activity 10. Writing Poetry, drawing], the client has an opportunity to express their emotional state, look back on themselves, and reflect on his drinking problem.

The summary phase takes about 10 minutes. In this stage, clients are trained to express their feelings verbally. Emotion cards are used to help clients express their feelings in different ways. Encourage clients to share their impressions of participating in the physical activity program and to express their feelings at the time in language. This concludes the 10-session program.

■ **Table.** Table 3 Physical activity program Goal and health belief model components

Table 3. Physical activity program based on health belief model

Phage (minute)	Contents of Physical activity program
Introduction	· Basic physical examinations (blood pressure, blood sugar, weight check)
	· Record them in notebooks (cumulative records) ·
	· Confirmation of medication
	· Guidance on drug effects and side effects
	· Simple exercise
Developmental (35)	[Activity 1. Occupying Chairs]
	[Activity 2. Water Bottle Bowling]
	[Activity 3. Jenga]
	[Activity 4. Tapping the Jang-gu]
	[Activity 5. Playing Marbles]
	[Activity 6. Battle card game]
	[Activity 7. Kicking jegi]
	[Activity 8. Outdoor Activities]
	[Activity 9. Tuho play]
	[Activity 10. Writing Poetry, Drawing]
Summary (10)	Use emotional cards
	Express their feelings verbally
Preparations	Program host: 1 health consultation, 1 physical examination

5. CONCLUSION

In this study, a physical activity program was developed for problem drinkers living in jjokbang. This program was developed by linking the components of the health belief model with the main goals of the detailed activity program. The main components of the health belief model were used as a strategy to reduce problem drinking behavior [14]. The activity goals of the program linked to the components of the health belief model are as follows. The activity goals for the perceived susceptibility to problem drinking are self-reflection and emotional expression. Activity goals associated with Perceived seriousness of drinking problems were large/small muscle movement and balance. The activity goals associated with the perceived benefits of participating in the program were gross and fine muscle movements and improved sense of rhythm. The activity goals associated with the perceived barriers of participating in the program were gross and fine muscle movements, quickness and agility. The activity goals associated with Que to action and self-efficacy are large and small muscle movements and cooperative spirit enhancement. A total of 10 sessions (60 minutes per session) were developed as a result of the preliminary research process after checking the goal of the activity and reviewing experts. The content validity of the developed program was verified by two alcoholism experts and two education experts (CVI=.75). Because the detailed goals of the program and the components of the health belief model matched, it could be an opportunity for the client to think about problem drinking. In addition, it was confirmed that this program has a positive effect on clients through a pilot test. If the clients continue to participate in a systematic physical activity program based on the health belief model, they will be able to find an opportunity to improve physical function and think about abstinence [15]. Problem drinking is more likely to develop into alcoholism, which ultimately causes physical and emotional problems [16]. The ultimate purpose of the physical activity program is to help problem drinkers look back on their health condition. Clients are aware of decreased muscle strength during gross motor movements (walking, throwing, tapping, kicking, etc.) and recognize difficulties with small motor movements (folding scabs, drawing, writing, etc.). Eventually, they realize that there is something wrong with their physical movement due to drinking, and they become interested in their physical condition. Clients should be helped to pay attention to their own body problems through continuous participation in the program. If we help clients recognize that there is a connection between physical problems and drinking, you can gradually reduce the possibility of problem drinking.

As a follow-up, we propose a study that quantitatively and qualitatively analyzes the intervention effect by applying the physical activity program developed in this study to problem drinkers living in jjokbang.

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