



## Efficacy of Chronic Disease Self-management Program in Older Korean Adults with Low and High Health Literacy



Su Hyun Kim, PhD, RN,<sup>1,\*</sup> Chang Ho Youn, MD, PhD<sup>2</sup>

<sup>1</sup> College of Nursing, Research Institute of Nursing Science, Kyungpook National University, Daegu, South Korea

<sup>2</sup> School of Medicine, Kyungpook National University, Daegu, South Korea

### ARTICLE INFO

#### Article history:

Received 27 February 2014

Received in revised form

3 June 2014

Accepted 9 October 2014

#### Keywords:

aged  
chronic disease  
health literacy  
self care

### SUMMARY

**Purpose:** We evaluated the efficacy of the Chronic Disease Self-management Program (CDSMP) among older Korean adults and investigated the question of whether the effects differed according to their levels of health literacy.

**Methods:** Measures of self efficacy, physical activity, physical health, and mental health were assessed at baseline, and at 6-week, and 18-week follow up for the CDSMP intervention group ( $n = 23$ ) and control group ( $n = 31$ ) according to their health literacy status.

**Results:** The older adults in the CDSMP intervention group showed significantly higher levels of self efficacy and physical activity at follow up. Participants with low health literacy had greater benefits from the intervention than had those with high health literacy.

**Conclusions:** The CDSMP is a beneficial intervention for older Korean adults with chronic disease. Healthcare professionals should encourage older Korean adults with chronic illness to participate in the CDSMP, in particular for those with low health literacy.

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### Introduction

A high prevalence rate of chronic illness in older adults, associated with a poor quality of life and escalating healthcare costs has led to an increased interest in the role of self-care activities in long-term illness [1]. To prevent complications and the risk of dependency or nursing home placement of older adults, the literature has supported the importance of self care, which necessitates sufficient knowledge and the ability to manage one's own chronic illness [2]. For older adults who have difficulty changing their perceptions and lifestyles built over a lifetime, programs for management of chronic illness should improve their motivation to manage their disease by themselves and reinforce specific plans for daily life rather than simply provide information about disease [3].

The Chronic Disease Self-management Program (CDSMP) [4] has been reported to have a positive impact on the enhancement of self efficacy, healthy behavior, and health status in chronically ill patients [5,6]. In previous studies, patients with chronic diseases

showed improvements in physical exercise, symptom management, self efficacy, self reports of health, and health distress after their participation in the CDSMP [7–10]. The CDSMP, a group-based intervention for use with any long-term condition, focuses on improving self efficacy, and incorporates information on the management of common daily problems associated with chronic illness [11]. However, the significant effects of the program have been reported to vary with the cultural characteristics of the participants [12,13].

For individuals with a chronic illness, having an adequate level of health literacy is essential to obtaining and understanding the health information and services needed to engage in managing and making decisions about their own health [14,15]. Previous studies have reported an association of a low level of health literacy with poor health outcomes and poorer utilization of healthcare services [14], in which the mechanism involved certain psychological variables, such as self efficacy [16,17]. Thus, self efficacy should be incorporated as a key component of the self-management of chronic disease in older adults [16–18]. Interventions focusing on self efficacy, such as the CDSMP, may help mitigate literacy-related barriers [19]. However, empirical studies testing the differential effects of the CDSMP in relation to health literacy have not been reported.

\* Correspondence to: Su Hyun Kim, PhD, RN, College of Nursing, Kyungpook National University, 101 Dongin 2 Ga, Junggu, Daegu, 700-842, South Korea.

E-mail address: [suhyun\\_kim@knu.ac.kr](mailto:suhyun_kim@knu.ac.kr)

Therefore, it was hypothesized that the CDSMP would have a positive influence on health behavior and health status in older adults by improving their self efficacy, in particular, for those with low levels of health literacy. The aim of our study was to evaluate the effects of the CDSMP on self efficacy, physical activity, and physical and mental health status among older Korean adults, and to determine whether the efficacy differed according to health literacy.

## Methods

### Study design

A nonequivalent control group pretest-posttest design was used to evaluate the effectiveness of the CDSMP among older Korean adults, and to determine whether the efficacy varied according to their levels of health literacy.

### Setting and sample

Participants were recruited from two senior centers in the same local district located in low-income urban areas. In order to avoid contamination of the intervention within a senior center, participants in one senior center were assigned to the intervention group, and participants in the other center were assigned to the control group. The inclusion criteria were (a) age 65 years or older and (b) diagnosis of one or more chronic diseases. Based on analysis of covariance with alpha at .05, effect size of 0.45 for the CDSMP [20], and five potential covariates, a sample size of at least 21 persons per group was calculated to get a statistical power 0.80 [21]. In total, 25 participants in the intervention group completed the baseline assessment. Participants who attended more than four sessions were included in the analysis. Over the course of the study, two participants in the intervention group withdrew because of health issues ( $n = 1$ ) or were lost to follow up ( $n = 1$ ). A total of 31 participants were recruited for the control group and none of them withdrew from the study. Thus, 23 participants in the intervention group and 31 participants in the control group were included in the current analysis.

### Data collection and procedure

The CDSMP workshop was conducted for six weekly sessions; each of which was conducted for 2.5 hours by the primary investigator and a lay leader from May 26 to June 30, 2012 (Table 1). Each

session was conducted in groups of 10–12 participants. The content of the course included symptom management, problem-solving, managing the emotions associated with having a chronic illness, exercise, nutrition, medications, and communication skills [4]. The program, based on self efficacy theory, utilized the strategies of weekly action planning and feedback, participant modeling of behaviors and problem-solving, reinterpretation of symptoms and symptom management techniques, group problem-solving, and individual decision-making [10].

To implement the major strategies of the CDSMP, each session involved action planning and feedback. Action plans are concrete and specific activities that participants agree to do to help them reach their goals before the next weekly session, such as walking around the block twice daily or increasing water intake from three to five glasses per day [22]. To enhance the likelihood of success, each participant was asked to make an action plan with a confidence rating of at least 7 on a 10-point scale of the likelihood of its accomplishment. The feedback included problem-solving sessions in small groups that related to the barriers to their success in implementing their action plans [22].

Participants in the intervention group received a Korean version of the Living a Healthy Life with Chronic Conditions [23]. The average workshop attendance was 4.7. Participants in the control group received treatment as usual from the senior center. The primary investigator completed training as a CDSMP master trainer before implementing the study's intervention. To maintain fidelity to the intervention, the primary investigator provided the program with a standardized leader's manual to follow [4]. Data were collected through self-administered questionnaires before the start of the workshop (baseline), immediately after the end of the program (6 weeks), and at 18 weeks follow up.

### Ethical consideration

This study was reviewed and approved by the ethics committee of Kyungpook National University Hospital (IRB file no. 2012-02-016). The principal investigator explained the purpose and the procedures of the study to the potential participants, and that they could withdraw from the study. Written informed consent was provided by all of the participants.

### Measures and instruments

The Korean Test of Functional Health Literacy was used to assess health literacy [24]. The test consists of numeracy and reading

**Table 1** Overview of the Chronic Disease Self-management Program.

Session	Content outline
1	<ul style="list-style-type: none"> <li>• Introduction - Identifying common problems</li> <li>• Workshop overview</li> <li>• Differences between acute and chronic conditions</li> <li>• Using your mind to manage symptoms and distraction</li> <li>• Introduction to action plans</li> </ul>
2	<ul style="list-style-type: none"> <li>• Feedback/problem-solving</li> <li>• Dealing with difficult emotions</li> <li>• Introduction to physical activity and exercise</li> <li>• Making an action plan</li> </ul>
3	<ul style="list-style-type: none"> <li>• Feedback/problem-solving</li> <li>• Better breathing</li> <li>• Endurance activities</li> <li>• Making an action plan</li> </ul>
4	<ul style="list-style-type: none"> <li>• Muscle relaxation</li> <li>• Feedback/problem-solving</li> <li>• Future plans for healthcare</li> <li>• Communication skills</li> <li>• Problem-solving</li> </ul>
5	<ul style="list-style-type: none"> <li>• Healthy eating</li> <li>• Feedback/problem-solving</li> <li>• Depression management</li> <li>• Medication usage</li> <li>• Positive thinking</li> <li>• Guided imagery</li> </ul>
6	<ul style="list-style-type: none"> <li>• Making informed treatment decisions</li> <li>• Feedback/problem-solving</li> <li>• Making an action plan</li> <li>• Looking back and planning for the future</li> <li>• Working with your healthcare professional and the healthcare system</li> <li>• Closing</li> </ul>

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