A Study on the Development of a Self-regulated Exercise Maintenance Program for Osteoporotic Elderly Women:
Using Intervention Mapping Protocol*

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The purpose of this study was to develop a self-regulated exercise maintenance program for the purpose of helping regular exercise practice in osteoporotic elderly women. A methodological study was conducted. The program has been developed using an intervention mapping protocol through 6 stages including needs assessment, creation of objectives, theory-based methods and practical strategies, program, adoption and implementation plan, and evaluation plan. The program consists of such strategic intervention methods such as health education, complex exercise, self-help meeting, exercise notebook, and telephone consulting that increase sub-concepts of self-regulated strategies for exercise including self-observation, goal setting, social support, environmental aids, reinforcement, time management, and relapse prevention. The self-regulated exercise maintenance program can be used in various areas as an intervention tool for health increase among osteoporotic elderly women.

Key words: osteoporosis, self-regulation, exercise, maintenance, health promotion.

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I. Introduction

The drastic increase of the elderly population in Korean society due to economic development threatens its national health, with an increase in the number of chronic patients with diabetes, cerebral apoplexy, hypertension etc., and has triggered social concern. Specifically, osteoporosis, a disease that causes weakening of bone strength and increases the danger of fracture due to a decrease in osteoid volume, involution of osseous tissues, and abnormal ultrastructure, has attracted significant interest and is associated with social, economic, and academic burden, as it has shown an average increase of more than 10% annually for the recent 10 years, and the expenditure of the medical cost has shown an annual increase of one and a half times more (Ministry of Health & Welfare, 2011). Given the rapid graying in Korean society, this trend is expected to continue in the future. Considering the number of patients with osteoporosis by gender and age as of 2009, we can see that its incidence was conspicuously high in elderly women in their postmenopausal periods in that there were approximately 13 times as many female patients as their male counterparts, and the number of such patients showed a rapid increase in their 60s and 70s (Ministry of Health & Welfare, 2011). Given that this is a result of failure of estrogen secretion in postmenopausal women as well as lower bone density in women than in men, it is no exaggeration to say that osteoporosis is a major disease that threatens postmenopausal elderly Korean women in their 60s~80s. Thus, planning and providing nursing for their care, in order to help them maintain and increase their bone density is necessary. Methods for prevention and treatment of decrease in bone density include appropriate exercise, calcium and vitamin D intake, non smoking and temperance, weight control, medication etc. (Chung, 2010). In particular, kinesiatics can not only prevent bone loss and increase bone strength by giving mechanical load to bones, but also decrease bone density reduction and the resulting danger of fracture, as this method can improve muscle reduction, muscular weakness, and poor balance due to aging (Lewiecki, 2011). For elderly women with osteoporosis, continuous control and practice of exercise should thus be critically emphasized.

Various studies for the purpose of prevention of osteoporosis and maintenance of bone density with exercise in elderly women are actively in progress. However, because most of the studies (Moon & Lee, 2010; Wallace, Boxall, & Riddick, 2004) provide intervention programs for healthy elderly women for the sake of prevention, identical research results are difficult to apply to osteoporotic elderly women with a high risk of fracture. In addition, even those studies (Byeon et al, 2010; Schousboe, Ensrud, Nyman, Melton, Kane, 2005; Tolomio, Ermolao, Lalli, & Zaccaria, 2010) that have developed programs for osteoporotic women based on special exercise prescriptions in consideration of increase of bone density and possibility of fracture only are focused on provision of programs with different training, bearing amounts, and strengths, including stretching, walking, dancing etc., but have very insufficient concern with continuous everyday exercise fulfillment after completion of