Effects of Self-Regulated Exercise Maintenance Program (SR-EMP) on Cognitive and Behavioral Changes and Musculoskeletal Health of Elderly Women with Osteoporosis

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BACKGROUND

- The osteoporosis is a disease which enhances a risk of fracture by weakening bone strength through bone mass reduction, bone tissue atrophy, and fine structure damage.
- Exercise is effective for reducing fracture, since it gives mechanical load to bone, thus preventing bone loss, increasing bone strength and improving muscular quantity and strength and sense of balance. Therefore, continuous exercise should be strongly emphasized for elderly osteoporosis women.
- The SR-EMP is a new strategic program to induce elderly osteoporosis women to do exercise continuously in everyday life and eventually to improve musculoskeletal health. The SR-EMP was developed by using self-observation, goal setting, social and environmental support and reinforcement, time management and relapse prevention, which are sub-concepts of self-regulation, as the tactics of the intervention program, but the practical efficacy of the program should be verified among elderly osteoporosis women.

PURPOSE

To determine the effects of the SR-EMP on cognitive (self-efficacy, expected outcome) and behavioral changes (exercise frequency & time) and musculoskeletal health improvement (bone density, balance, back strength).

METHODS

1. Design: The pretest-posttest design with a comparison group
2. Subject: The women of 65 to 74 years old who were diagnosed as osteoporosis and recommended to do regular exercise
   - Test group : 19 subjects in C city
   - Control group : 18 subjects in W city
   - There was no statistically significant difference in the demographic characteristics.
3. Intervention Program (SR-EMP):
4. Instruments:
   - Cognitive change: Self-efficacy (Won, 2009) : 6 items of 10 point VAS scale
   - Expected outcome (Kim, 2009) : 16 items of 4-Likert scale
   - Behavioral change: Exercise frequency: Average values by adding up the ○ and × marks in exercise notebook every week
   - Exercise time: average values by adding up practical exercise hours in exercise notebook every week
   - Musculoskeletal health: Bone density: T score in calcaneus using a mobile bone density measurer
5. Intervention offer & Data collection:
6. Data analysis: A repeated measure ANOVA using IBM SPSS statistics version

RESULTS

The SR-EMP proved to continuously promote expected outcome, a cognitive factor, and increase exercise time, a behavioral factor, and thus have positive effects on bone density and muscular strength. The SR-EMP is expected to be used in various fields as an intervention tool for elderly osteoporosis women to do effective and continuous exercise.