

**Effect of Sunlight Exposure and Outdoor Activities on Depression,  
Cognition and Quality of Life in the Elderly**

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**Background:** The transition to long-term care facility can be a stressful and emotional event for the elderly. The evidences showed that the prevalence of depression and the cognition impairment were higher in the institutionalized elderly than the community dwelling elderly. It could affect the quality of life of the elderly and increase risk of mortality.

**Purpose:** The aim of the study is to evaluate the effect of outdoor activities and sunlight exposure on depression, cognitive function, and quality of life among institutionalized elderly.

**Method:** The design is a randomized control trial. Participants will be randomly allocated to experimental or control groups by block randomization. In the experimental group, participants will be encouraged to reduce time spent on bed and bedroom. From 7:00 AM to 5:00 PM, nurses, nurse aids or family will take participants outdoors and exposure their face, hands or arm to sunlight for 15-30 minutes a day, five days a week for three months (if the UV index is over 8 according to the forecast of Center Weather Bureau, the participants will be asked to stay inside). In the control group, the participants will receive routine care. They will neither be encouraged to stay outdoors nor limit the chance to exposure to sunlight. Depression (measured by GDS-15), cognition (measured by SPMSQ), and quality of life (measured by EQ-5D) will be measured at baseline and at 3 months. Data were analyzed using SPSS 17.0 statistical software for all randomized participants. The Chi square test was used to test for homogeneity of demographic data between experimental and control group. Two-way ANOVA was used to test for differential changes in depression, cognitive function, and quality of life.

**Expected outcome:** The expected benefit of the research is to improve the depression, cognitive function, and quality of life of the institutionalized elderly.