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Effect of Outdoor Activity in Green Spaces as a Treatment for Patients with Neurological Diseases

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Abstract : Background: Exposure to green space; parks and forests, increases quality of life, and reduces anxiety and stress (1). Added effect of activities when performed outdoor is described compared indoor (2). Together this formed the treatment "outdoor activity in green space" (3), showing positive effect using subjective- (e.g. quality of life) and objective measures (e.g. levels of stress/immune factors, neurotransmitters, neurotrophic factors) in mental disorders (4, 5)). As the treatment paradigm is mainly explored for mental disorders, it is motivated to explore the effect also in neurological diseases. Goal And Aims: Neurological disorders affect 3 billion people worldwide, including migraine, dementia, stroke, Alzheimer's- and Parkinson´s diseases (AD and PD) and multiple sclerosis (MS). AD, PD and MS are characterized by progressive loss of neurons and no cure exist, only symptomatic treatment. Notably, many neurological diseases manifest psychological symptoms, explained by shared features with psychiatric disorders, in changes in structures and function, and pathological events. It can, thus, be hypothesized that outdoor activity in green space therapy may also be effective in neurology. Initial work show a positive effect of such therapies in AD and PD (6, 7). Our research goal is to explore the effect of outdoor activity in green spaces as a treatment for patients with neurological diseases using complementary methods. We aim to exlore the effect using 1) a systematic literature review for mapping the current use of the treatment, and 2) questionnaire- and interview based studies using patients and health care professionals in nursing homes for to describe the current experience of such treatment in Sweden, and 3) conduct an intervention study including activity (walking or gardening) outdoor in green space as a proof-of-concept study. Preliminary Results: Early results from a systematic literature review demonstrate that there are very limited current studies in the field, almost lacking for Sweden and the Nordic countries. However, the survey clearly indicates a positive effect of outdoor activities in green space in three areas, i.e. on social-, psychological- and physiological factors when measured in the patients (Ulrica Englund Johansson and Ulrica Lovén Wickman, manuscript). Aim And Method: The first study in the project aims at exploring the current status of use of green space-based outdoor activities for the major neurological diseases in adults is mapped, by performing a systematic literature review. PRISMA guidelines are followed, the data bases Pubmed, PsycINFO, CINAHL and web of Science are used. Search terms mainly: green health, nature, out-door experiences AND neurological disorders, and some manual searches. Titles and abstracts were screened independently by the authors. Inclusion criteria: English language, adults, original research papers, qualitative design, papers exploring nature perspective and green health. Time-period 2012-2023 was selected in order to receive recent data. Qualitative text analysis is performed (8) and the results presented and discussed according to theories in the field of research. Significance: All results produced in our research project will support the further development of eventual innovative and non-pharmacological treatment paradigms for patients suffering from various neurological diseases.

Keywords : neurology, green space, outdoor, activity, dementia
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