

Results: The active tDCS group showed significant improvements on the three items of CASI, 'language ability', 'concentration and calculation', 'categorical verbal fluency', after active stimulations. There is no improvement in MMSE, CASI, NPI and WCST scores in the sham groups.

Conclusion: These results suggest that left DLPFC anodal, and right deltoid cathodal tDCS, may have some cognitive benefits in DLB. Larger-scale trials are needed to confirm the effect of tDCS in DLB.

Key words: Transcranial Direct Current Stimulation, Dementia with Lewy Bodies, cognitive function, Wisconsin Card Sorting Test, left DLPFC

FC2: The effect of Maintenance phase of Transcranial Direct Current Stimulation (tDCS) in Alzheimer's Dementia

Authors: Carol Sheei-Meei Wang^{1,2,3*}, Kuo-Sheng Cheng¹, Chia-Hung Tang², Nien-Tsen Hou⁴, Pei-Fang Chien², Ying-Che Huang⁴, Pai-Lien Chen⁵

¹ Department of BioMedical Engineering, National Cheng Kung University, Tainan City, Taiwan

² Department of Psychiatry, Tainan Hospital, Ministry of Health and Welfare, Tainan City, Taiwan

³ Department of Psychiatry, National Cheng Kung University Hospital, Tainan City, Taiwan

⁴ Department of Neurology, Tainan Hospital, Ministry of Health and Welfare, Tainan City, Taiwan

⁵ Department of Biostatistics and Data Science, FHI 360, Durham, NC, USA

Introduction: Transcranial direct current stimulation (tDCS) has been proposed to affect long-term synaptic plasticity through LTP and LTD, thereby improving cognitive ability. In pathology, the amyloid deposits in AD disrupts the balance between long-term potentiation (LTP) and long-term depression (LTD) of neuronal cells and synaptic plasticity. An increasing number of studies have been concluded a positive therapeutic effect on cognition in AD. In brain stimulation, dorsolateral prefrontal cortex (DLPFC) was associated with improvements in memory enhancement, language, processing speed, global cognitive symptoms, and apathy over a period of treatment. Theoretically, the aftereffect of tDCS would need to be re-stimulated by tDCS to maintain its delayed plastic response benefits. In this pilot study, we investigate the maintenance effects of continuing tDCS at three different times, weekly, every two weeks, and every four weeks, for 12 weeks.

Method: Twenty-eight AD participants aged 55-90 years were enrolled (mean age 72.7, 77.3, and 76.2 in the three groups - maintained weekly (7 cases), biweekly (9 cases) and every 4 weeks (12 cases)). The anodal electrode was placed over the left dorsal lateral prefrontal cortex and the cathodal electrode was placed over the right supraorbital area. In each active session, we applied a current intensity of 2 mA and an electrode size of 25 cm² for 30 min. All subjects received a series of neuropsychological assessments including CDR, MMSE, CASI and WCST at (1) baseline, (2) post-10sessions of tDCS (in 2weeks), and (3) post-maintenance phase (total of 12 weeks). Chi-square tests, Wilcoxon signed rank tests and Mann-Whitney U tests were used to assess differences in participant demographic characteristics and to compare differences in test scores between groups.

Results: After 10 sessions of tDCS stimulations, the total CASI scores in the 1-week group improved significantly from baseline to 2 weeks. However, there are no significant difference in MMSE, CASI or WCST between baseline and after maintain phase stimulations in each group.

Conclusion: Although tDCS has a positive effect in AD, it is recommended to prolong the number of tDCS stimulations, such as 20 sessions in 4 weeks.

FC3: “Empowering Health & Social Service Providers in Addressing Social Isolation & Loneliness in Older Adults”

Authors: *Bette E. Watson-Borg, David K. Conn, Claire Checkland*

Canadian Coalition for Seniors’ Mental Health

“Social isolation among older adults is associated with increased change of premature death; depression; dementia, disability from chronic diseases; poor mental health; increased use of health and support services; reduced quality of life; poor general health; and an increased number of falls.” (National Academies of Sciences, Engineering, and Medicine (2020).

Without question, the global pandemic has significantly exacerbated both the prevalence and awareness of social isolation and loneliness as a growing health and societal challenge for older populations.

“Because of growing calls for Canada’s health-care systems to identify, prevent and mitigate loneliness as part of COVID-19-related public health efforts, there is a unique opportunity to build capacity to identify and intervene with older adults who are experiencing social isolation or loneliness.” National Institute on Aging (2022).

Over the past two decades, the Canadian Coalition for Seniors’ Mental Health (CCSMH) has developed a number of internationally recognized clinical guidelines in support of mental health for older adults. CCSMH is responding to the growing mental health crisis of isolation and loneliness with the development of evidence-based guidelines, to support the vital work of health and social service providers across Canada. The focus of these guidelines is to develop a broad range of evidence-based, manageable, and stepped care approaches to identify and address social isolation and loneliness in older adults. It is recognized that this topic is extremely complex and vast in potential scope. Through the guidance of a national working group of experts, these guidelines will draw upon both academic and grey literature, as well as on the experience of a diversity of health and social service providers, older adults, and their caregivers. This project will also provide guidance, promoting wellness and reducing the risk of social isolation with targeted messaging, knowledge translation and useful tools for supporting social connection among those at highest risk.

This presentation will share the Guidelines’ preliminary recommendations, as well as data from two national surveys alongside other insights gained from ongoing research and stakeholder engagement.