

Incremental Effects Of Human Support In Technology-assisted Home Care For Cognitive Decline: Preliminary Report Of Four-group Study

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Poster Theme : Dementia Care and Psychosocial Factors -> Dementia Care and Health Services Research -> Therapeutic strategies and interventions (e.g., pharmacological and non-pharmacological treatments)

Learning Objective : Technology-Assisted Home Care

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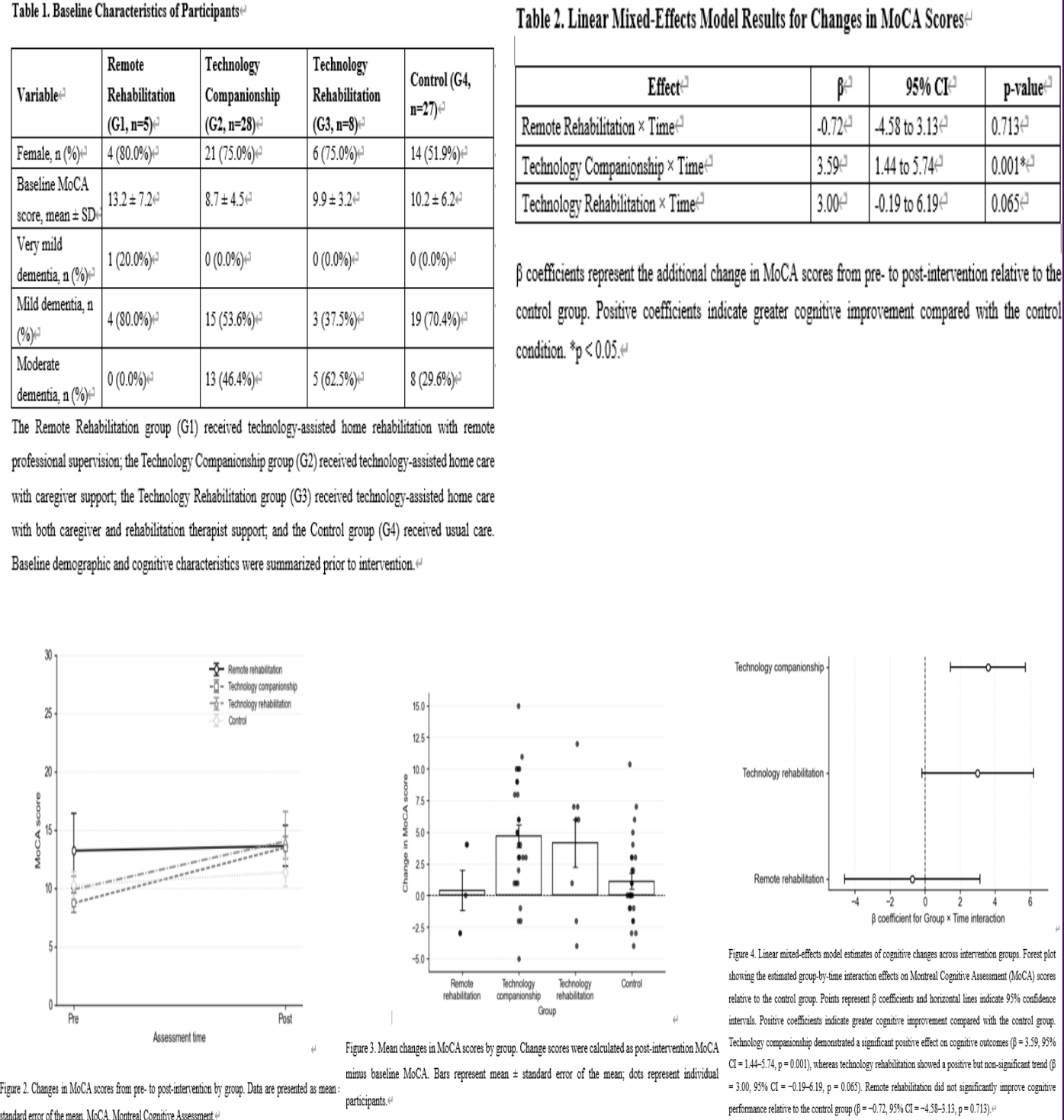
Scalable dementia care remains a global challenge, particularly in aging societies with limited healthcare resources. Technology-assisted home care has emerged as a potential solution; however, the extent to which human support enhances its effectiveness remains unclear. This study aimed to evaluate the incremental effects of varying levels of human support in a technology-assisted home care model on cognitive outcomes in patients with dementia.

This technology-assisted home care model is **"Leisure Time Physical Activity (LTPA) Dementia Precision Training Program"**. For more detail information, please refer to: https://scieorg.weebly.com/ltpa_precision_certification_program.html & https://www.ltpasolution.com/ltpa_dementia.html.

A four-group pretest-posttest design was employed. Participants were assigned to one of four groups: (1) technology-only home care, (2) caregiver-supported home care, (3) caregiver plus rehabilitation therapist-supported home care, and (4) a control group. Cognitive function was assessed using the Montreal Cognitive Assessment (MoCA). Linear mixed-effects models were applied to examine group-by-time interactions while accounting for repeated measures and unbalanced group sizes. (Figure 1; Table 1)

A significant group-by-time interaction was observed for MoCA total scores. Compared with the control group, the caregiver-supported group demonstrated significantly greater cognitive improvement ($\beta = 3.63$, $p = 0.001$). The caregiver plus rehabilitation therapist group also showed notable improvement ($\beta = 3.00$), although statistical significance was marginal ($p = 0.064$), likely due to a smaller sample size. In contrast, the technology-only group did not exhibit significant changes. Descriptive findings indicated that cognitive gains increased with the level of human support. (Table 1, 2; Figure 2, 3, 4)

Technology-assisted home care alone may be insufficient to produce meaningful improvement of cognition. The addition of human support, particularly long-term caregiver involvement, significantly enhances intervention effectiveness. These findings highlight a dose-response relationship between human support and cognitive outcomes, suggesting that hybrid care models integrating technology with human interaction may offer a scalable and effective approach for dementia care.



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