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Feature Article

Cognitive interventions for older adults: Does approach matter?

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ABSTRACT

A group training format was compared to one-to-one training in a cognitive intervention, Reasoning Exercises in Assisted Living (REAL), designed for elderly Assisted Living residents. Change scores on problem solving and functional outcomes were compared between participants in each group. In participants trained individually ($n = 29$), scores increased post-intervention on the Every Day Problems Test for Cognitively Challenged Elders (EPCCE; $d = 3.10$, $p < 0.01$) and the Direct Assessment of Functional Status (DAFS; $d = 3.52$, $p < 0.001$), at a cost of $132 per person. Participants ($N = 4$) in the group format REAL had mean score increases of 2.75 points on the EPCCE and 3.5 on the DAFS, at a cost of $25.60 per person. Additional testing is warranted to verify the group effects due to the limited size of the sample. Relative costs and effects of various training formats are important to consider when developing, testing, and disseminating interventions targeting older adults.

Assisted Living (AL) is the fastest growing option for residential care that is designed to provide older adults with needed supports while promoting independence.[1] Nevertheless, AL residents typically experience progressive decline in cognitive ability and self-care that necessitates more intensive nursing care, and typically, most AL residents will transfer to a nursing home (NH) within one to three years.[1–4]

Older adults require a variety of cognitive abilities to meet every day self-care challenges needed to remain in AL. Cognitive decline is a key predictor of disability and NH placement for AL residents.[5] Someone in the US is diagnosed with Alzheimer's disease (AD) every 68 s, and the number of dementia sufferers will double by 2050, reaching 16 million.[6] Therefore, the development of new interventions to decrease cognitive decline is critical.

Cognitive training programs are gaining popularity based on the notion that "use it or lose it" applies to cognition.[7,8] Research demonstrates that training in specific cognitive skills can improve memory, cognitive processing speed, spatial orientation, reasoning, and executive function in community dwelling older adults.[7,9] Cognitive training can also benefit persons with dementia and mild cognitive decline. A meta-analysis of cognitive training research involving persons with early-stage AD reported overall effect sizes of 0.47 for interventions targeting learning, memory, and executive function, with improvements in activities of daily living (ADLs), problem solving, depression, and self-rated functioning.[10]

A cognitive training intervention called Reasoning Exercises in Assisted Living (REAL) was developed to teach reasoning and problem solving skills to AL residents who are at risk for cognitive and functional decline. The intervention was modeled after the inductive reasoning skills found to improve cognition and maintain self-care over 5 years in healthy, independent older adults.[11] The REAL program includes six, hour-long, sessions in which providers work individually with AL residents.[12] The goal of this intervention is to improve older adults' everyday problem solving skills so they can maintain their ability to care for themselves and "age in place" in AL. REAL successfully improved problem solving scores of AL residents in a preliminary study.[12] Results from a subsequent cluster randomized clinical trial (reported elsewhere) also show potential for this intervention.[13]

REAL is provided to AL residents in a one-to-one format. This approach has been successful. However, having adequate interventionists to provide REAL to individual AL residents is a challenge and is costly. Considering that cost is one predictor of successful dissemination of interventions in real-world settings, more efficient ways to provide REAL to large numbers of AL residents are needed.[14] Thus, the purpose of this pilot study was to examine feasibility and compare costs and outcomes for REAL provided in individual versus small group formats.

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Individualized training

REAL was developed based on older adults' learning needs and preferences. This includes a focus on readily useable "need to know" content and experientially learning through application.[14] The one-on-one format allows the instructor to assess each participant's comprehension of content and their ability to apply learning in application exercises. One-to-one training overcomes the need to vary the speed and depth of training to meet needs of persons of different cognitive abilities and educational backgrounds. However, one-on-one sessions are costly and require multiple trained interventionists to reach all participants.

Small group training

Small group training is a popular and effective format for many behavioral interventions designed to improve health. Topics that naturally lend themselves to group presentations include mental health sessions that capitalize on the therapeutic roles of the leader and other group members. Successful group interventions include smoking and alcohol cessation, educational programs for chronic diseases (like diabetes), and support groups for cancer, HIV, and breastfeeding. Yet, little research has compared group versus individual formats for intervention delivery.[15] And research evaluating the effects and preferences for different intervention formats in older adults is lacking. Advantages of group sessions include reduced cost and staffing burden compared to one-to-one sessions. Cost and staffing are important factors that may limit dissemination and implementation across AL facilities.[14]

Distinct challenges and complex issues related to group dynamics must be considered when using a group training format. Effects of the group leader, cohesion, entrance to the group, and concerns about performance within the group must all be appreciated. Performance concerns are important for AL residents who frequently compare themselves with others and don't want other residents to notice their cognitive deficits.[16,17]

The goal of this pilot study was to evaluate the feasibility and preliminary efficacy of REAL provided in group training sessions compared to the original one-on-one format. It was hypothesized that group training would yield less gain on problem solving and functional performance measures. In contrast, group delivery has potential to be less costly and more feasible, increasing the likelihood of future dissemination and implementation across AL settings.[18]

Methods

This pilot study compared AL residents participating in group REAL sessions to those who completed one-on-one REAL training in a larger study.[13] Using a wait-list design, control group participants attended REAL training that was modified for group presentation. Fig. 1 presents the flow chart for participants in the pilot group and individual format comparison groups.

Sample and recruitment

One AL facility was recruited to participate in testing the group REAL sessions. Within this facility, individual resident participants ($N = 12$) were invited to participate in the pilot research study testing group REAL training sessions. Participants provided informed consent per study protocols approved by each facility and the University Institutional Review Board for the Protection of Human Subjects. Residents who met inclusion criteria (expressed concerns about cognitive decline and scoring 20–28 on the MMSE) were enrolled. Group sessions were scheduled at a time that would not compete with other activities within the setting. Other residents living in the facility were also invited to attend the group REAL program.

The comparison group included participants who received one-on-one REAL training in the parent study.[13] This group met the

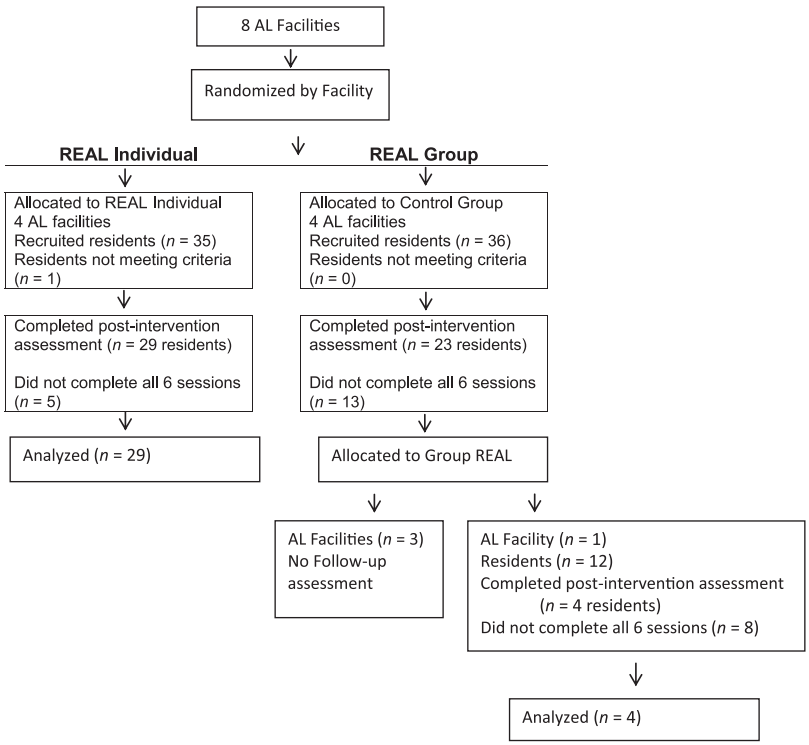

Fig. 1. Participant flow through study. REAL, Reasoning Exercises in Assisted Living; AL, Assisted Living.