KEY POINT SUMMARY

OBJECTIVES

The purpose of this study was to explore to what extent the sensory components of MSEs influence functional performance in people with moderate to severe dementia.

DESIGN IMPLICATIONS

Since the study revealed a significant improvement in motor and process scores for the MSE group, designers may need to consider providing the MSE for patients with moderate to severe dementia.

# Multisensory Stimulation to Improve Functional Performance in Moderate to Severe Dementia — Interim Results

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Key Concepts/Context

One of the innovative interventions for dementia care is the use of multisensory environments (MSEs). It is designed to stimulate senses, providing an activity-based intervention and is argued to address imbalance in sensory stimulation by pacing sensory-stimulating activity with sensory-calming activity. This sensory pacing may assist people with dementia in coping with confusion and behavior changes that are the consequences of this progressive, debilitating illness. However, the value of MSEs for people with dementia has yet to be established. Therefore, this study aimed to explore to what extent the sensory components of MSEs influence functional performance in people with moderate to severe dementia.

Methods

This randomized, single-blind design study included 30 participants (residents on wards or nursing homes) with a clinical diagnosis of dementia (scoring less than 17 in the Standardized Mini-Mental State Examination [SMMSE]). The study compared a multisensory environment with a control intervention (gardening) to provide comparable multisensory stimulation but to differ in the degree to which the activity is structured and a more subtle mode of multisensory stimulation. This activity was run in a quiet area or purpose-built MSE. The MSE included bubble tubes, optic fibers, music of choice, scents, citrus fruits, and sherbet. The control activity (gardening) was run in a quiet room using gardening activities that could be completed indoors. Participants were asked about the type of gardening activity they would like to do.
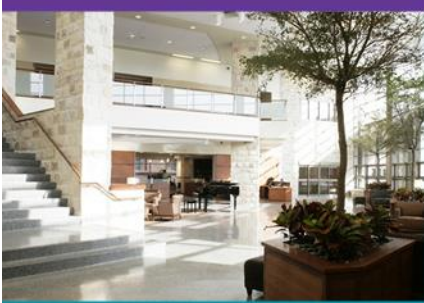
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The SMMSE and Gottfrie Brane Steen (GBS) scale were used to identify degree of physical inactivity, intellectual impairment, and emotional and cognitive impairment. The Assessment of Motor and Process Skills (AMPS) was used to identify a baseline of functional performance and monitor changes in functional performance. The AMPS, as the primary outcome measure, was collected in the pre- and post-session of each 12 sessions. As the blinded assessor completed assessments, participants were randomized to either the MSE or the control intervention. Participants were guided to their allocated intervention by their key-workers, who facilitated the activity as directed by both the Pool Activity Level (PAL) for occupational profiling instrument and the Adult Sensory Profile. The key-workers then brought the participants to the assessor for the post-session assessment. The primary analyses included the descriptive variables (age, gender, sensory profile) and baseline variables (SMMSE and GBS) using chi-square or Fisher exact statistic. Baseline dependent variables (AMPS) were explored using independent t tests. Given a number of changes in individual health status and service restructuring, not all participants completed the planned 12 sessions. Analysis, therefore, considered two endpoints: (a) last treatment session (LTS) and (b) after 6 sessions, as 70% of participants made it to this point, after which participant numbers dropped significantly.

Findings

The analysis for AMPS motor scores from the baseline to LTS (session 12) revealed a significant improvement in motor and process scores for both the MSE group and control groups. However, analysis of AMPS scores from baseline to session 6 revealed a significant improvement in motor and process scores for the MSE group only. Such discrepancy in the result is probably due to the significant drop in participant numbers after session 6. There was a considerable difference in the number of participants who were able to participate from baseline to session 6 (73% of participants) compared to those who were included to the LTS point. Further, analysis of AMPS δ scores for individual sessions revealed that all participants in the MSE group significantly improved in motor skills, whereas just over half of the participants in the control group significantly improved. Additionally, participants in the MSE group improved in motor skills for significantly more sessions than in the control group. There were no significant differences between the two intervention groups in relation to age, gender, recruitment site, or diagnosis distribution in SMMSE, PAL, GBS, or AMPS scores.

Limitations

Only 30 participants were recruited, thereby achieving 60% of the proposed sample size (50). Post hoc analysis revealed that a further 38 additional participants will be needed to power the study to 80%.