Multisensory stimulation was not better than usual activities for changing cognition, behaviour, and mood in dementia

Baker R, Holloway J, Holtkamp CC, *et al.* Effects of multi-sensory stimulation for people with dementia. *J Adv Nurs* 2003;**43**:465–77.

Q In older adults with dementia, does individualised multisensory stimulation (MSS) improve behaviour, mood, and cognition more than a control activity (eg, playing cards, looking at photographs, or doing quizzes)?

METHODS

Design: randomised controlled trial.

Allocation: {concealed}*.

Blinding: unblinded.

Follow up period: 8 weeks.

Setting: a day hospital in the UK and psychogeriatric wards in the Netherlands and Sweden.

Patients: 136 patients (mean age 82 y) who had Alzheimer's disease, vascular dementia, or mixed dementia; no major psychiatric comorbid conditions; moderate to severe cognitive impairment (Mini-Mental State Examination [MMSE] score 0–17); and were not confined to bed.

Interventions: eight 30 minute sessions of either MSS (n=65) or activity (n=71) twice a week for 4 weeks. Sessions occurred one on one with the same key worker (nurse, occupational therapist, or psychology assistant) whenever possible. MSS was matched to the patient's needs and interests and included light and sound effects and materials for touching and smelling. The comparison activity sessions consisted of playing cards, doing quizzes, and looking at photographs with no clear aim or focus to the task. No intentional special MSS experiences were introduced.

Outcomes: behaviour and mood during and after sessions (Interact rating form); cognition (MMSE) and behaviour at home or on the ward (Behaviour Rating Scale) after 8 sessions in 4 weeks; behaviour on the ward (Behaviour Observation Scale for Intra-mural Psycho-geriatrics) and at day hospital (Rehabilitation Evaluation Hall and Baker scale) at 8 weeks; and mood at home or on the ward (Behaviour and Mood Disturbance Scale) after 8 sessions and at 1 month after sessions.

Patient follow up: 93%.

*Information provided by author.

MAIN RESULTS

Analysis was by intention to treat. Treatment groups did not differ for changes in behaviour and mood after sessions. During sessions, the MSS group recalled more memories than the activity group, whereas the activity group touched objects more appropriately and were more attentive to the activities or objects; after accounting for baseline MMSE scores, the difference in recalling memories disappeared. At follow up, cognition (MMSE score difference –0.3, 95% CI –1.4 to 0.7), behaviour, or mood scores did not differ between groups.

CONCLUSION

In people with dementia, one on one multisensory stimulation was no better than activity (eg, playing cards, looking at photographs, or doing quizzes) for changing behaviour, mood, or cognition.

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Commentary

The studies by both Spector *et al* and Baker *et al* used a randomised controlled design, which is the most valid approach to comparing the effects of alternative healthcare interventions. In these studies, the effects of CST (Spector *et al*) and MSS (Baker *et al*) on improving cognition in people with dementia were each compared with other activities, although in the CST study "usual activity" was generally no activity. MSS was provided on a one to one basis for 4 weeks, whereas CST was offered in a group setting for 7 weeks; these durations of treatment were relatively short. The CST study included MSS whenever possible; however, the type of stimulus and extent to which this occurred were not reported. The MSS group was compared with an activity session (active control), whereas the CST group was compared with "usual activities" (passive control). The participants in the MSS study had greater cognitive impairment (mean MMSE score = 8.1) than those in the CST study (mean MMSE score = 14.4). The medication profiles of the participants were not reported in either study, although we know that none of the participants in the CST study were receiving acetylcholinesterase inhibitors—the only drugs that have been shown to improve cognition in dementia.¹ The MSS study assessed changes in cognition, behaviour, and mood at baseline, during and after the trial, and after 4 weeks, whereas the CST study examined cognition, quality of life, communication, behaviour, and mood at baseline and after the trial.

Participants in the 7 week CST group were found to make significant improvements in cognition (4 or more points on the MMSE, number needed to treat = 6) and quality of life relative to those who received no activity. Although the authors of the CST study claim that CST has an effect of similar magnitude to acetylcholinesterase inhibitors in improving cognition, this conclusion is based on an indirect comparison in different patients who were not part of the same randomised controlled trial. We must wait therefore for a head to head comparison of CST and drug therapy. It may also be informative to compare group CST with individual MSS to examine better the relative effects of each treatment. Neither study showed significant changes in the behavioural and mood measures. Offering the treatment over a longer time may transform the cognitive changes into observable behavioural and mood changes, but this requires evaluation.

Care providers (eg, nurses and special care aides) working with this population should have confidence in these findings because both studies were methodologically rigorous and the sample sizes were adequate. The evidence suggests that CST is better than no activity and that MSS, as delivered in the study by Baker *et al*, has a similar effect to other activities in improving cognition in patients with moderate to severe dementia.

However, some patients may benefit more from these treatments than others. People with dementia may present with a variety of symptoms (eg, memory impairment; deficits in judgment, comprehension, task execution, and language; and visual hallucinations) depending on the type (eg, Alzheimer's disease, vascular dementia, or dementia with Lewy bodies) and severity of dementia. Until further research shows the influence of type and stage of dementia on the efficacy of these treatments and identifies the most effective dose, frequency, and duration of the intervention, care providers should be sensitive to factors that may influence treatment outcomes. For example, because MSS uses non-verbal communication skills, perhaps individuals who present with communication difficulties may benefit to a greater extent than others. People with substantial visual hallucinations and disruptive behaviours may be unsuitable for a CST group.

Care providers have a responsibility to enhance the daily quality of life of residents with dementia in long term care facilities.² CST and MSS are 2 approaches that could be used to make the lives of patients with dementia more meaningful and stimulating.

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1 Warner J, Butler R, Prabhakaran P. Dementia. *Clinical Evidence*. London: BMJ Publications, Jan 2004.

2 Pringle D. Discourse: making moments matter. *Can J Nurs Res* 2003;**35**:7–13.