

PRIORITY BRIEFING

The purpose of this briefing paper is to aid Stakeholders in prioritising topics to be taken further by PenCLAHRC as the basis for a specific evaluation or implementation research project. This paper was compiled in 2-3 days.

What is the effectiveness of non-pharmacological interventions to treat major depression among older people with dementia?

Question ID:**Question type:** Intervention**Question:** What is the effectiveness of non-pharmacological interventions to treat major depression among older people with dementia?**Population:** People over age of 65 years who have a diagnosis of depression (ICD, DSM or other standardised criteria or depressive symptoms above a specified cut off on validated assessment scale for depression) and dementia (as per standardised criteria).**Intervention:** Any non-pharmacological intervention (for example; cognitive behaviour therapy, behavioural activation, exercise).**Control:** No treatment, pharmacological treatment or waiting list/supportive therapy (when used as a comparator for specific psychological therapy).**Outcome:** Depression symptoms, QOL

*Please note that the details included in the box are from the original submission and have been edited where necessary for clarity and precision

Dementia: Dementia is a term used to describe a collection of symptoms including memory loss, problems with reasoning and communication skills and a reduction in a person's abilities and skills in carrying out daily activities such as washing, dressing, cooking and caring for self. Dementia is a progressive condition, which means that the symptoms will gradually get worse; the rate of decline varies from person to person. Dementia affects both men and women and is more common in older people; the likelihood of experiencing dementia symptoms increases with age. There are a number of different types of dementia the most common being Alzheimer's disease, vascular dementia, Fronto temporal dementia and Dementia with Lewy bodies.

People with dementia may develop behavioural and psychological symptoms often referred to as neuropsychiatric symptoms or Behavioural and Psychological Symptoms of Dementia (BPSD). Common BPSD include restlessness, depression, anxiety, aggression, delusions, hallucinations, apathy and sleep disturbances. BPSD can be a key predictor of negative outcomes (such as poor diet, non-compliance with medications, institutionalization, poor quality of life and mortality) and have been shown to add significantly to the burden of care.

Depressive symptoms may occur in between 0-87% of patients with dementia and some may be part of the underlying dementia. However, clinical depression

(or major depression) is prevalent in about 25% of patients with dementia at some stage during the course of their illness, usually in the mild to moderate stages.

Non-pharmacological interventions for depression:

Although antidepressants are used to treat depression in dementia the evidence for their efficacy and effectiveness is limited. Non-drug treatments include individual and group cognitive behavioural therapy, interpersonal therapy, cognitive based interventions that involve both the individual and the carer, behavioural management therapy techniques, reminiscence therapy, relaxation therapy, physical activity, music therapy, recreational therapy, massage, bright light therapy and many more.

The Health Problem:

The Dementia 2010 report (www.dementia2010.org) produced for the Alzheimer's Research Trust by the Health Economics Research Centre at the University of Oxford, estimates that there are 821,884 people with dementia in the UK with the annual cost of care at £23 billion. The population of older people, especially the very old, is increasing in the UK. The Alzheimer's Society estimate that the number of people affected by dementia in the UK will double by the year 2051 to 170,000 (<http://www.alzheimers.org.uk/infographic>) with an associated increase in cost.

It is estimated there are currently 72,811 people with dementia in the South West of England; 20 141 of whom live in Devon and Cornwall and the Isles of Scilly (Joint Review of Dementia Services in the South West, 2009). Depending on the population studied the prevalence of neuropsychiatric symptoms in individuals with dementia can vary from 60-90%, with 95% experiencing some symptoms during the course of the disease. The South West has significantly higher than average rates of hospital admission for depression (73.7 per 100,000 population compared to the England average of 69.0) and for anxiety disorder (94.0 per 100,000 population compared to the England average of 72.3). Data to examine the impact of diagnosed and undiagnosed depression in dementia on hospital admissions is not available.

Guidelines:

The NICE/SCIE Guideline for Dementia: Supporting people with dementia and their carers in health and social care published in 2006 and updated in 2011 recommends that a range of tailored interventions such as reminiscence therapy, multisensory stimulation, animal assisted therapy and exercise should be available for people with dementia who have depression and/or anxiety. The Guidance also suggests that cognitive behavioural therapy, which may involve the active participation of their carers may be considered part of the treatment.

The NICE Guidelines for Depression in adults do not provide any specific advice for individuals with dementia. The Department of Health reports 'No health without mental health' and 'Talking Therapies: a four year plan of action' published in 2011 provide a mental health strategy for people of all ages, recognizing that few individuals over the age of 65 were able to access talking therapies when the Improving Access to Psychological Therapies (IAPT) programme was first introduced.

NHS Priority:

This question encompasses a number of priority areas including Mental Health and Wellbeing and Long Term Conditions. Improving the treatment of depression and improving access to psychological therapies for older people are national priorities set out in the National Dementia Strategy published by the Department of Health and the National Service Framework for Older People.

Local

Relevant local specific priorities include:

- **NHS Devon:** Helping people to stay healthy, carers support.
- **Torbay Care Trust:** Helping people to stay healthy, people supported to live independently through social services
- **NHS Plymouth:** Helping people to stay healthy, improved mental health and wellbeing,
- **Cornwall and Isles of Scilly:** Helping people to stay healthy, improved mental health and wellbeing, dementia

QIPP – Improving mental health is a QIPP priority

Existing Research:

Published research

Our literature searches identified no systematic reviews directly applicable to this question. A review of reviews looking at non-pharmacological interventions for dementia that might be accessed by informal carers identified 33 systematic reviews.¹ Although the focus of this review was on dementia symptoms it is clear that some studies also measure depression symptoms as secondary outcomes, whether baseline depression scores reach the required level as defined in this question is unclear and further complicates the literature.

Our searches identified several systematic reviews which looked at non-pharmacological interventions for a series of neuropsychiatric symptoms including depression.¹⁻³ Overall, the reviews conclude that there is some promising evidence for some therapies (e.g. physical activity and cognitive stimulation therapy in some individuals with depression (variously defined) but

the individual studies tend to be small and heterogenous and extrapolation to form an overall conclusion is difficult.

We also found one systematic review of the effects of physical activity on physical functioning, quality of life and depression in older adults with dementia.⁴ This review included 13 randomised controlled trials (896 participants); only four trials reported depression as an outcome and only one of these reported a positive effect. The authors conclude that the evidence for the effect of physical activity on depression and quality of life in people with dementia is limited.

In addition, our searches identified a number of relatively small studies looking at various non-pharmacological interventions in individuals with dementia and depression.

Reminiscence therapy: A small crossover study (n=20) of reminiscence based music therapy on depressive symptoms in elderly people with dementia found some positive effects on depressive symptoms.⁵ In a pre-post control group study 61 care home residents with mild to moderate dementia and depression received reminiscence group therapy or treatment as usual for 12 sessions. Compared with baseline, there were improvements in depression and apathy in the treatment group which were not seen in the control group.⁶

Music and art therapy: A small (n=47) randomized controlled trial of live music on quality of life and depression in elderly people with dementia also showed some positive effects on self-esteem, belonging and depression.⁷ In a single centre, randomized controlled study, 30 individuals with mild to moderate Alzheimer's disease received either individual receptive music therapy or reading sessions for 24 weeks. Individuals in the music therapy groups showed significant improvements in anxiety and depression scores compared with the control group.⁸ In a pre-post control group study 61 care home residents with mild to moderate dementia and depression received reminiscence group therapy or treatment as usual for 12 sessions. Compared with baseline, there were improvements in depression and apathy in the treatment group which were not seen in the control group.⁶ In a pre-post study, 27 individuals with mild Alzheimer's disease received musical therapy, painting inanimate-animate object pictures and orientation to time-place-person interventions. A total of 12 sessions were arranged in a three-week period. The effects of the intervention were evaluated with the Mini Mental State Examination, the Geriatric Depression Scale, and the Beck Anxiety Scale. This multisensory stimulation method applied had a positive effect on cognitive state, depression, and anxiety that continued for three weeks following completion of the study intervention, with a tendency to decline progressively.⁹ A randomized controlled trial of a three-month musical exercise programme compared with daily conversation in 25 patients with moderate to severe dementia measured the effects on cognition and behavior with the Mini-Mental State Examination (MMSE), the Amsterdam Dementia

Screening Test 6 (ADS 6) and the abbreviated Stockton Geriatric Rating Scale (BOP scale). The assessments were made before, after six weeks of intervention and immediately after the three-month experimental period. Effects on behavioural changes were not significant, although positive effects on cognition were seen.¹⁰

Psychological therapies: A multicentre, randomized controlled trial of cognitive rehabilitation in 201 patients with mild dementia in Alzheimer's disease and their carers (KORDIAL), in which individuals received 12 weekly individual sessions combining strategies adopted from neurorehabilitation and psychotherapy, found a significant antidepressant effect in females. However, this was not the primary outcome measure and it is not clear what level of depression was experienced by the participants at the start of the study.¹¹ The intervention had no impact on the primary outcome measure (activities of daily living). A randomized controlled trial comparing two behavioural treatments of depression (one emphasizing patient pleasant events and one emphasizing caregiver problem solving) with typical care and a wait list control in 72 patient-caregiver dyads found significant improvements in depression symptoms and diagnosis in both behavioural treatment conditions compared with the controls. The improvements were maintained at six-months follow-up. Caregivers also showed significant improvement in their own depressive symptoms.¹² A pre-post study of the effectiveness of snoezelen in 125 patients with moderate to severe dementia and care dependency was conducted in 12 psychogeriatric wards of six nursing homes in The Netherlands. Experimental subjects received an individual 24-hour snoezel program, based on family history taking and stimulus preference screening. Caregivers were trained, and (organizational) adaptations were made to fulfill the conditions for resident-oriented snoezel care. The control group received usual nursing home care. Residents receiving snoezel care demonstrated a significant treatment effect with respect to their level of apathetic behavior, loss of decorum, rebellious behavior, aggressive behavior, and depression. During morning care, the experimental subjects showed significant changes in well-being (mood, happiness, enjoyment, sadness) and adaptive behavior (responding to speaking, relating to caregiver, normal-length sentences).¹³

Bright light therapy: A cluster-unit crossover intervention trial of ambient bright light therapy on depressive symptoms in 66 individuals with dementia conducted in two geriatric units in the US, found no positive effects on depression measured using the Cornell Scale for depression in dementia.¹⁴

Ongoing research

A randomized controlled trial of a cognitive behavioural based multi-component treatment for people with Alzheimer's and their carers is underway at the University of Zurich. The study aims to recruit 124 individuals with Alzheimer's disease, mixed dementia or vascular dementia who will be randomized to receive

the active treatment or treatment as usual. This trial aims at significantly reducing depressive and other neuropsychiatric symptoms in the individuals with dementia, and secondary in reducing burden and depressive symptoms of the caregivers. The study is expected to be complete in July 2013. <http://clinicaltrials.gov/ct2/show/NCT01273272>

A protocol was published in the Cochrane Library in 2011 entitled 'Psychological treatments for depression and anxiety in dementia and mild cognitive impairment.'¹⁵

Feasibility:

The Mood Disorders Centre is a beacon of strength in developing psychological therapies for depression. Academic expertise in psychological treatments for depression in older people and specifically in patients with dementia are lacking nationally. We in the South West are probably well placed to develop world leading research in this area.

References:

1. Hulme C, Wright J, Crocker T, Oluboyede Y, House A. Non-pharmacological approaches for dementia that informal carers might try or access: a systematic review. *Int J Geriatr Psychiatry*. 2009;25(7):756-63
OBJECTIVE: To review non-drug treatments for dementia; to provide a source of evidence for informal carers who want ideas about non-drug approaches for dementia, that they might try or that they could try to access. The systematic review addresses: what non-drug treatments work and what do they work for? What non-drug treatments might work and what for? What non-drug treatments do not work? METHODS: Literature searches of seven electronic databases (AMED, CINAHL, EMBASE, MEDLINE, PSYCINFO, Cochrane Library of Systematic Reviews and DARE) were carried out in November 2007 using the following search terms (or derivatives): dementia/Alzheimer's AND Review AND non-drug therapies and aimed at finding systematic reviews. RESULTS: Thirty-three reviews were identified; 25 were judged to be high or good quality. Studies within these systematic reviews were characterised by weak study designs with small sample numbers. Three interventions were found to be effective for use with particular symptoms of dementia: music or music therapy, hand massage or gentle touch and physical activity/exercise. CONCLUSIONS: Whilst informal carers can apply some of the interventions highlighted in the home setting at little or no cost to themselves or to health or social care services, others are likely to require training or instruction. Service providers and commissioners should explore current and future provision of more structured group activities for people with dementia; in particular the provision of group music therapy and group exercise activities that meet the needs of both the person with dementia and their carer.

2. Verkaik R, van Weert JC, Francke AL. The effects of psychosocial methods on depressed, aggressive and apathetic behaviors of people with dementia: a systematic review (Structured abstract). *Int J Geriatr Psychiatry*, 2005:301-14

OBJECTIVES: This systematic review seeks to establish the extent of scientific evidence for the effectiveness of 13 psychosocial methods for reducing depressed, aggressive or apathetic behaviors in people with dementia. **METHODS:** The guidelines of the Cochrane Collaboration were followed. Using a predefined protocol, ten electronic databases were searched, studies selected, relevant data extracted and the methodological quality of the studies assessed. With a Best Evidence Synthesis the results of the included studies were synthesized and conclusions about the level of evidence for the effectiveness of each psychosocial method were drawn. **RESULTS:** There is some evidence that Multi Sensory Stimulation/Snoezelen in a Multi Sensory Room reduces apathy in people in the latter phases of dementia. Furthermore, there is scientific evidence, although limited, that Behavior Therapy-Pleasant Events and Behavior Therapy-Problem Solving reduce depression in people with probable Alzheimer's disease who are living at home with their primary caregiver. There is also limited evidence that Psychomotor Therapy Groups reduce aggression in a specific group of nursing home residents diagnosed with probable Alzheimer's disease. For the other ten psychosocial methods there are no or insufficient indications that they reduce depressive, aggressive or apathetic behaviors in people with dementia. **CONCLUSIONS:** Although the evidence for the effectiveness of some psychosocial methods is stronger than for others, overall the evidence remains quite modest and further research needs to be carried out.

3. Ayalon L, Gum AM, Feliciano L, Areal PA. Effectiveness of nonpharmacological interventions for the management of neuropsychiatric symptoms in patients with dementia: a systematic review. *Archives of Internal Medicine* 2006;166(20):2182-8

BACKGROUND: Recent reports documenting limited evidence supporting the use of pharmacological interventions for neuropsychiatric symptoms (NPS) and increased risk of death, the black box warnings against the use of atypical antipsychotic drugs in older adults, and Omnibus Budget Reconciliation Act regulations suggest the need to evaluate the usefulness of nonpharmacological interventions in the management of NPS of dementia. **METHODS:** To determine the evidence base of nonpharmacological interventions for the management of NPS in patients with dementia, we reviewed MEDLINE, PsycINFO, the Cochrane library, and relevant bibliographies published from January 1966 to December 2005, using the American Psychological Association Guidelines. **RESULTS:** Three randomized controlled trials (RCTs) and 6 single-case designs (SCDs; N of 1 trials) met inclusion criteria. Under unmet needs interventions, 1 SCD found a moderate reduction in problem behaviors. Under behavioral interventions, based on observational data, all 4 SCDs reported a

relative reduction of 50% to 100% in neuropsychiatric symptoms. Under caregiving interventions, there were 3 RCTs. At the 6-month follow-up, 1 RCT found a reduction in 4 neuropsychiatric symptom subscales: ideation disturbance score (0.3 vs 0.5; range, 0-8; $P = .005$); irritability score (18.8 vs 23.0; range, 8-38; $P = .008$); verbal agitation, as measured by mean frequency of 20-minute outbursts (0.5 vs 0.8; $P = .005$); and physical aggression score (11.4 vs 12.9; range, 6-42; $P < .001$). Another RCT found a significant improvement in frequency (2.3 vs 3.1; range, 0-4; $P < .001$) and severity (2.2 vs 2.8; range, 0-4; $P < .001$) of target behaviors associated with the intervention arm. The third RCT found no effect. Under bright light therapy, 1 SCD found short-term improvements on the Agitated Behavior Rating Scale (9.7 vs 19.9; $P < .001$). **CONCLUSIONS:** The cumulative research to date on the impact of nonpharmacologic interventions for NPS among patients with dementia indicates that interventions that address behavioral issues and unmet needs and that include caregivers or bright light therapy may be efficacious. More high-quality research is necessary to confirm these findings.

4. Potter R, Ellard D, Rees K, Thorogood M. A systematic review of the effects of physical activity on physical functioning, quality of life and depression in older people with dementia. *Int J Geriatr Psychiatry* 2011;26(10):1000-11.

BACKGROUND: Depression is common in older people with dementia. Physical activity is effective in reducing depression in adults but there is limited evidence about its effectiveness in people with dementia. **DESIGN AND METHODS:** A systematic review and partial meta-analysis of physical activity interventions in people with dementia is reported. We searched eight databases for English language papers and reference lists of relevant papers. Included studies reported a physical activity intervention lasting at least 12 weeks in which participants were older and had a diagnosis of dementia. Studies compared the intervention with a non-active or a no-intervention control and reported at least one outcome related to physical function, quality of life or depression. At least two authors independently assessed each paper for inclusion and for study quality and extracted data. **RESULTS:** We included 13 randomised controlled trials with 896 participants. Three of six trials that reported walking as an outcome found an improvement, as did four of the five trials reporting timed get up and go tests. Only one of the four trials that reported depression as an outcome found a positive effect. Both trials that reported quality of life found an improvement. **CONCLUSIONS:** There is some evidence that physical activity interventions improve physical function in older people with dementia. Evidence for an effect on depression and quality of life is limited. Copyright Copyright 2011 John Wiley & Sons, Ltd.

5. Ashida S. The effect of reminiscence music therapy sessions on changes in depressive symptoms in elderly persons with dementia. *J Music Ther* 2000;37(3):170-82.

This study examined the effectiveness of reminiscence focused music therapy treatment on depressive symptoms in elderly people with dementia. Twenty elderly (3 male & 17 female) who were diagnosed as having dementia and residing at 2 different residential care facilities in Florida were assigned to 1 of 4 small groups. Each of the participants served as his or her own control in an O1 O2 X O3 design. The depressive symptoms were measured using Cornell Scale for Depression in Dementia. The differences between the scores of pretest, posttest 1 after a week of 5-day no treatment, and posttest 2 after a week of 5-day reminiscence focused music therapy treatment were compared. A one-way analysis of variance (ANOVA) and Newman-Keuls Multiple Comparison Procedure indicated statistically significant differences between pretest and posttest 2 as well as posttest 1 and posttest 2, while no significant differences were found between pretest and posttest 1. Results indicated that participation in small group reminiscence focused music therapy groups might help to reduce depressive symptoms in elderly people with dementia. Results of behavioral observations and future implications are also discussed.

6. Hsieh CJ, Chang C, Su SF, Hsiao YL, Shih YW, Han WH, et al. Reminiscence group therapy on depression and apathy in nursing home residents with mild-to-moderate dementia. *Journal of Experimental and Clinical Medicine* 2010;2(2):72-78.

Background/Purpose: Individuals with mild-to-moderate dementia often exhibit depression and apathy as manifested by symptoms of negative affect. The purpose of this study was to determine whether or not reminiscence group therapy (RGT) reduces depression and improves symptoms of apathy. Methods: The study was one of experimental design with a pre-post control group; 61 residents from two nursing homes were randomly distributed into two parallel groups. An RGT program consisting of 12 sessions, 40-50 minutes per week, was implemented for the residents in the experimental (intervention) group. The instruments used to collect data included the Clinical Dementia Rating Scale, the Geriatric Depression Scale, the Apathy Evaluation Scale, and the Neuropsychiatric Inventory. Statistical analysis was performed with SPSS 15.0. Results: After 12 sessions, the residents in the intervention group reported a reduction in depressed mood ($Z = -2.99$, $p < 0.05$), and showed specific improvements in their behavior score ($Z = -3.10$, $p < 0.05$) and cognition apathy score ($Z = -1.95$, $p < 0.05$). Neuropsychiatric Inventory depression scores had also decreased ($Z = -2.20$, $p < 0.05$). Conclusion: RGT has significant efficacy in the treatment of depressed mood and apathy in patients with mild-to-moderate stage dementia. This non-pharmacological intervention reduced emotional distress among nursing home residents with dementia. 2010 Taiwan Medical University.

7. Cooke M, Moyle W, Shum D, Harrison S, Murfield J. A randomized controlled trial exploring the effect of music on quality of life and depression in older people with dementia. *J Health Psychol* 2010;15(5):765-76.

This randomized controlled trial investigated the effect of live music on quality of life and depression in 47 older people with dementia using the Dementia Quality of Life and Geriatric Depression Scale. The control/reading group reported higher mid-point feelings of belonging than the music group ($F(1, 45) = 6.672, p < .05$). Sub-analyses of ≥ 50 per cent music session attendance found improvements in self-esteem over time ($F(2, 46) = 4.471, p < .05$). Participants with scores that were suggestive of increased depressive symptoms had fewer depressive symptoms over time ($F(2, 22) = 8.129, p < .01$). Findings suggest music and reading activities can improve self-esteem, belonging and depression in some older people with dementia.

8. Guétin S, Portet F, Picot MC, Pommié C, Messaoudi M, Djabelkir L, et al. Effect of music therapy on anxiety and depression in patients with Alzheimer's type dementia: randomised, controlled study. *Dementia and Geriatric Cognitive Disorders*, 2009:36-46.

BACKGROUND/AIMS: Numerous studies have indicated the value of music therapy in the management of patients with Alzheimer's disease. A recent pilot study demonstrated the feasibility and usefulness of a new music therapy technique. The aim of this controlled, randomised study was to assess the effects of this new music therapy technique on anxiety and depression in patients with mild to moderate Alzheimer-type dementia.**METHODS:** This was a single-centre, comparative, controlled, randomised study, with blinded assessment of its results. The duration of follow-up was 24 weeks. The treated group ($n = 15$) participated in weekly sessions of individual, receptive music therapy. The musical style of the session was chosen by the patient. The validated 'U' technique was employed. The control group ($n = 15$) participated under the same conditions in reading sessions. The principal endpoint, measured at weeks 1, 4, 8, 16 and 24, was the level of anxiety (Hamilton Scale). Changes in the depression score (Geriatric Depression Scale) were also analyzed as a secondary endpoint.**RESULTS:** Significant improvements in anxiety ($p < 0.01$) and depression ($p < 0.01$) were observed in the music therapy group as from week 4 and until week 16. The effect of music therapy was sustained for up to 8 weeks after the discontinuation of sessions between weeks 16 and 24 ($p < 0.01$).**CONCLUSION:** These results confirm the valuable effect of music therapy on anxiety and depression in patients with mild to moderate Alzheimer's disease. This new music therapy technique is simple to implement and can easily be integrated in a multidisciplinary programme for the management of Alzheimer's disease.

9. Ozdemir L, Akdemir N. Effects of multisensory stimulation on cognition, depression and anxiety levels of mildly-affected Alzheimer's patients. *J Neurol Sci* 2009;283(1-2):211-3.

AIMS: The purpose of this study was to investigate and assess the effects of musical therapy, painting inanimate-animate object pictures, and orientation to time-place-person interventions on the cognitive state, depression, and anxiety levels of mildly-affected Alzheimer's patients. **METHODS:** The study using a

quasi-experimental design was conducted with 27 mildly-affected Alzheimer's patients. The effects of the multisensory stimulation were evaluated with the "Mini Mental State Examination," the "Geriatric Depression Scale," and the "Beck Anxiety Scale." All of these were administered one day prior to beginning the study, immediately after its completion, and three weeks thereafter. RESULTS: A significant negative correlation was determined to exist between the MMSE-depression scores and MMSE-anxiety scores; the correlation between the depression-anxiety scores, on the other hand, had a positive significance. The shifts over time in the MMSE, depression and anxiety scores were significant. CONCLUSION: The primary conclusion of the study is that the multisensory stimulation method applied to mildly-affected Alzheimer's patients had a positive effect on their cognitive state, depression, and anxiety, and that this effect continued for three weeks following completion of the study intervention, with a tendency to decline progressively.

10. Van AW, Feys H, De W, Dom R. Cognitive and behavioural effects of music-based exercises in patients with dementia. *Clinical Rehabilitation* 2004;18(3):253-60.

OBJECTIVE: To evaluate the effect of a musical exercise programme on mood state and cognitive function in women with dementia. DESIGN: Randomized controlled trial. SETTING: Public Psychiatric Hospital Rekem, Belgium. PATIENTS: Twenty-five patients with dementia. INTERVENTIONS: Fifteen patients attended exercise training for three months, which consisted of daily physical exercises supported by music for 30 min/session. They were compared with a group of 10 control patients, who received an equal amount of attention through daily conversation. MAIN MEASURES: The effect on cognition was measured by the Mini-Mental State Examination (MMSE) and the Amsterdam Dementia Screening Test 6 (ADS 6). Behaviour was evaluated with the abbreviated Stockton Geriatric Rating Scale (BOP scale). The assessments were made before, after six weeks of intervention and immediately after the three-month experimental period. RESULTS: The exercise group showed a significant improvement in cognition. This was documented by an increased MMSE mean score of 12.87-15.53, and by a higher median score, rising from 10 to 14 points, on the subset 'fluency' (ADS 6 test). The control group showed no significant improvement, either on the MMSE (mean score of 10.80-11.00) or on the fluency subtest of the ADS 6 (median scores were 6.5-7 points). The effects on behavioural changes were not significant. CONCLUSION: The present study suggests a beneficial effect of cognition using a music-based exercise programme in a group of patients with moderate to severe dementia. Further studies are needed to confirm these findings.

11. Kurz A, Thöne-Otto A, Cramer B, Egert S, Frölich L, Gertz HJ, et al. CORDIAL: Cognitive Rehabilitation and Cognitive-behavioral Treatment for Early Dementia in Alzheimer Disease: A Multicenter, Randomized, Controlled Trial. *Alzheimer Dis Assoc Disord* 2011;6 October 2011(Epub ahead of print)

Cognitive rehabilitation (CR) is a promising treatment approach for older adults with dementia because it aims at supporting the management of day-to-day problems. There is insufficient evidence regarding whether CR provides clinically meaningful benefits. In this study, we evaluated the feasibility, acceptance, efficacy, and usefulness of a CR intervention in a multicenter, randomized, controlled trial on 201 patients with mild dementia in Alzheimer disease and their carers. The intervention comprised 12 individual weekly sessions and combined 4 established strategies adopted from neurorehabilitation and psychotherapy. Activities of daily living were chosen as the primary outcome. The results show that the feasibility, treatment adherence, and carer commitment were excellent. However, no effect of the intervention was demonstrable on everyday functioning. There were improvements favoring the intervention on quality of life and treatment satisfaction and a significant antidepressant effect in female participants. The lack of impact on everyday activities may be due to methodological limitations including insufficient personalization, short treatment duration, poor transfer into the real-life setting, and low sensitivity of assessment instruments. The findings of this study may be helpful for designing further studies that are needed to determine the potential of CR in older adults with dementia.

12. Teri L, Logsdon RG, Uomoto J, McCurry SM. Behavioral treatment of depression in dementia patients: a controlled clinical trial. *The journals of gerontology. Series B, Psychological sciences and social sciences*, 1997:P159-66.

The current study is a controlled clinical investigation of two nonpharmacological treatments of depression in patients with Alzheimer's disease. Two active behavioral treatments, one emphasizing patient pleasant events and one emphasizing caregiver problem solving, were compared to an equal-duration typical care condition and a wait list control. Seventy-two patient-caregiver dyads were randomly assigned to one of four conditions and assessed pre-, post-, and at 6-months follow-up. Patients in both behavioral treatment conditions showed significant improvement in depression symptoms and diagnosis as compared with the two other conditions. These gains were maintained at 6-month follow-up. Caregivers in each behavioral condition also showed significant improvement in their own depressive symptoms, while caregivers in the two other conditions did not. Results indicate that behavioral interventions for depression are important and effective strategies for treating demented patients and their caregivers.

13. van Weert JCM, van Dulmen AM, Spreeuwenberg PMM, Ribbe MW, Bensing JM. Behavioral and mood effects of snoezelen integrated into 24-hour dementia care. *J Am Geriatr Soc* 2005;53(1):24-33.

OBJECTIVES: To investigate the effectiveness of snoezelen, integrated in 24-hour daily care, on the behavior and mood of demented nursing home residents. DESIGN: Quasiexperimental pre- and posttest design. SETTING: Twelve psychogeriatric wards of six nursing homes, spread over different parts of the

Netherlands. PARTICIPANTS: One hundred twenty-five patients with moderate to severe dementia and care dependency were included in the pretest and 128 in the posttest; 61 were completers (included in both pre- and posttest). INTERVENTION: Experimental subjects received an individual 24-hour snoezel program, based on family history taking and stimulus preference screening. Caregivers were trained, and (organizational) adaptations were made to fulfill the conditions for resident-oriented snoezel care. The control group received usual nursing home care. MEASUREMENTS: Observations were made on the wards using subscales of the Dutch Behavior Observation Scale for Psychogeriatric Inpatients, the Dutch version of the Cohen-Mansfield Agitation Inventory, and the Cornell Scale for Depression in Dementia. Independent assessors observed video recordings of morning care and rated residents' behavior and mood using INTERACT and FACE, respectively. RESULTS: Residents receiving snoezel care demonstrated a significant treatment effect with respect to their level of apathetic behavior, loss of decorum, rebellious behavior, aggressive behavior, and depression. During morning care, the experimental subjects showed significant changes in well-being (mood, happiness, enjoyment, sadness) and adaptive behavior (responding to speaking, relating to caregiver, normal-length sentences). CONCLUSION: Snoezel care particularly seems to have a positive effect on disturbing and withdrawn behavior. The results suggest that a 24-hour integrated snoezel program has a generalizing effect on the mood and behavior of demented residents.

14. Hickman SE, Barrick AL, Williams CS, Zimmerman S, Connell BR, Preisser JS, et al. The effect of ambient bright light therapy on depressive symptoms in persons with dementia. *J Am Geriatr Soc.* 2007;55(11):1817-24

OBJECTIVES: To assess the effect of ambient bright light therapy on depressive symptoms in persons with dementia. DESIGN: A cluster-unit crossover intervention trial involving four lighting conditions: morning bright light, evening bright light, all-day bright light, and standard light. SETTING: The common areas of two geriatric units in a state-operated psychiatric hospital in North Carolina and in a dementia-specific residential care facility in Oregon. PARTICIPANTS: Sixty-six older adults with dementia. INTERVENTION: Ambient bright light therapy was delivered through a high-intensity, low-glare lighting system installed in the public areas of study units at both sites. Each lighting condition was provided for multiple 3-week periods in a predetermined sequence. MEASUREMENTS: Staff caregivers completed the Cornell Scale for Depression in Dementia (CSDD) in the last week of each 3-week period to provide information about participants' moods. RESULTS: Analysis indicated a sex-by-treatment interaction ($P=.008$). Significant sex differences were found in CSDD scores in response to evening light ($P=.003$), all-day light ($P=.001$), and standard light ($P\leq .001$). Depressive symptoms were lowest for women and highest for men during morning light. CONCLUSION: Findings do not support the use of ambient bright light therapy as a treatment for depressive symptoms in persons with dementia, although a subpopulation of persons with dementia may benefit from this intervention. It is

likely that individual rather than unit-level interventions are a more effective strategy for delivering bright light therapy for this population.

15. Orgeta V, Spector Aimee E, Orrell M. Psychological treatments for depression and anxiety in dementia and mild cognitive impairment. *Cochrane Database of Systematic Reviews*: John Wiley & Sons, Ltd, 2011. This is the protocol for a review and there is no abstract. The objectives are as follows: Primary: do psychological interventions reduce depression and anxiety in people with dementia and mild cognitive impairment? Secondary: do psychological interventions improve quality of life and daily activity level and reduce neuropsychiatric symptoms other than anxiety and depression when compared to usual care? Do psychological therapies improve quality of life and reduce burden for carers?