

Best Evidence Summaries of Topics in Mental Healthcare

BEST *in* **MH** *clinical question-answering service*

Question

In adults with dementia, what is the most effective non-pharmacological intervention for reducing challenging behaviour?

Clarification of question using PICO structure (PICO for diagnostic questions)

Patients: Adults with dementia

Intervention: Any non-pharmacological intervention

Comparator: Any pharmacological intervention/treatment as usual/no intervention

Outcome: Decreasing challenging behaviour

Clinical and research implications

No definite clinical implications can be made from the available evidence. There is some evidence to suggest that various interventions, including aromatherapy, bed baths, gentle sounds, individualized music, muscle relaxation training (please refer to original papers for specific details) – or various general types of therapy – such as sensory interventions, or functional analysis-based interventions, may be effective in reducing behaviour disturbances in people with dementia. There was also evidence to suggest that individualised treatment were effective. Almost all of the authors, however, stated that the evidence was inconclusive and that more research is needed.

What does the evidence say?

Number of included studies/reviews (number of participants)

Five systematic reviews (Connor 2009; Cook 2012; Forbes 2009; Fung 2012; Kong 2009) and three randomised or quasi-randomised controlled trials (Cohen-Mansfield 2010; Nair 2001; Opie 2002) met the inclusion criteria for this BEST summary.

Main Findings

The available literature evaluated various types of non-pharmacological interventions. One systematic review (Connor 2009) reported that aromatherapy (i.e. Melissa oil or lavender vapour), bed baths (e.g. compared with tub baths), gentle sounds (e.g. mountain stream or ocean waves), individualized music (e.g. preferred music during a bath vs. usual bath) and muscle relaxation training (either weekly muscle relaxation training sessions or an individualised imaginal relaxation technique that relied more on verbal skills) were significantly effective in reducing behaviour disturbances in people with dementia. Another systematic review (Fung 2012) only evaluated

aromatherapy, and also found some positive effects for agitation and aggressive behaviour, but adverse effects were noted in some of the studies. The effectiveness of light therapy in managing cognitive, sleep, functional, behavioural, or psychiatric disturbances associated with dementia was also evaluated in a third systematic review (Forbes 2009), however, no significant results were observed for any of these outcomes, with the exception of function. Interestingly, one RCT that evaluated the effect of Baroque music in common areas of wards found that this music *increased* the behavioural disturbances of patients with dementia (Nair 2011).

Another systematic review clustered various non-pharmacological interventions into seven categories: sensory interventions (aromatherapy, thermal bath, and calming music and hand massage); social contact (simulated presence and pet therapy); activities (rocking chair therapy and therapeutic recreational activities); environmental modification (morning bright light therapy); caregiver training (behaviour management techniques and abilities focused morning care); combination therapy (stimulation-retreat program); and behaviour therapy (Kong 2009). In this review, however, only sensory interventions were found to be significantly effective in reducing agitation in elderly people with dementia ($p=0.002$).

The remaining systematic review evaluated functional analysis (FA) vs. usual care (Cook 2012), but for the majority of studies included in this review, FA was just one aspect of a broad multi-component programme of care. The authors, therefore, stated that establishing the real effect of the FA component was not possible. They reported positive effects at post-intervention for the *frequency* of reported challenging behaviour (SMD -0.12, 95% CI -0.22 to -0.02, $P = 0.02$, $n = 1582$), but not for *incidence or severity*. These effects, however, were not seen at follow-up.

A trial by Cohen-Mansfield (2010) evaluated the effect of different types of stimuli on agitated behaviours in nursing home residents with dementia. This stimuli included live social stimuli (e.g., a real baby, a real dog, and one-on-one socializing with a research assistant), simulated social stimuli (e.g., a life-like baby doll, a childish-looking doll, a plush animal, a robotic animal from stores such as Toys “R” Us, and a respite video), manipulative stimuli (e.g., a squeeze ball, a tetherball, an expanding sphere, an activity pillow, building blocks, a fabric book, a wallet for men, a purse for women, and a puzzle), work-related stimuli (e.g., envelopes to stamp, towels to fold, and envelopes to sort), task-related stimuli (e.g., flower arrangement and colouring with markers), music stimulus (listening to music), reading stimulus (reading a large-print magazine), and self-identity stimuli (2 individualised stimuli matched to each participant’s past identity with respect to occupation, hobbies, or interests). The authors reported that all stimulus categories were associated with significantly less physical agitation than baseline observations, and all except for manipulative stimuli were associated with significantly less total agitation. Live social stimuli were associated with less agitation than music, self-identity, work, simulated social, and manipulative stimulus categories. Task and reading stimulus categories were each associated with significantly less agitation than work, simulated social, and manipulative stimulus categories. Music and self-identity stimuli were associated with less agitation than simulated social and manipulative stimuli.

Lastly, a trial that evaluated one or more combinations of the following interventions (medical [change to medication]; nursing [with an emphasis upon activities of daily living]; and psychosocial [included sensory stimulation, environmental changes, behaviour modification, social interaction, attention to cultural needs and provision of other personalised activities]) demonstrated modest but statistically significant decreases in challenging behaviours (Opie 2002).

Authors Conclusions

Connor (2009) concluded that some psychosocial interventions appear to have specific therapeutic properties, but that their effects were mostly small to moderate with a short duration of action. They also stated that interventions proved more effective when tailored to individuals' preferences. For example, tailoring music to individuals' preferences was clearly important. While one trial concluded that ambient Baroque music did *not* have any calming effect, it did highlight that music can significantly influence behaviour (Nair 2011). A trial by Opie (2002) also concluded that individual tailored psychosocial, nursing and medical interventions to nursing home residents with dementia were effective and well received by the staff.

The systematic review by Kong (2009) concluded that, among the seven types of non-pharmacological interventions available for agitation in older adults with dementia, only sensory interventions had efficacy in reducing agitation. They also concluded that more trials are, however, needed to confirm this finding.

The systematic review by Cohen-Mansfield (2010) concluded that providing stimuli offers a proactive approach to preventing agitation in persons with dementia, with live social stimuli being the most successful.

The systematic review by Fung (2012) concluded that aromatherapy might be regarded a potentially effective treatment for behavioural and psychological symptoms of dementia, but that the available evidence in the literature is not sufficient to make a conclusive claim. Evidence on light therapy was also insufficient to assess its value for people with dementia (Forbes 2009).

Lastly, the systematic review by Cook (2012) concluded the evidence of functional analysis-based interventions in the management and resolution of challenging behaviour in dementia is promising but it is too early to draw robust conclusions about its efficacy.

Reliability of conclusions/Strength of evidence

All of the systematic reviews were well conducted and their conclusions are likely to be reliable. In contrast, very little information on study methodology was reported in the randomised controlled trials so that the reliability of the results, and hence their conclusions, are uncertain.

What do guidelines say?

SIGN (2006, CG 86, pg.7);

'Non-pharmacological interventions for the behavioural and psychological symptoms (neuropsychiatric symptoms) of dementia are used to ensure that underlying causes of behavioural disturbance are explored and to provide personalised approaches to presenting problems.'

NICE (2006, updated 2007, CG42, pg 29-30);

'For people with all types and severities of dementia who have comorbid agitation, consideration should be given to providing access to interventions tailored to the person's preferences, skills and

abilities. Because people may respond better to one treatment than another, the response to each modality should be monitored and the care plan adapted accordingly. Approaches that may be considered, depending on availability, include:

- Aromatherapy
- Multisensory stimulation
- Therapeutic use of music and/or dancing
- Animal-assisted therapy
- Massage.

These interventions may be delivered by a range of health and social care staff and volunteers, with appropriate training and supervision. The voluntary sector has a particular role to play in delivering these approaches. Health and social care staff in the NHS and social care, including care homes, should work together to ensure that some of these options are available, because there is some evidence of their clinical effectiveness. More research is needed into their cost effectiveness.'

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Date searches conducted: 26/02/13

Date answer completed:

References

Systematic Reviews

1. Connor D, Ames D, Gardner B, Kind M. Psychosocial treatments of behaviour symptoms in dementia: a systematic review of reports meeting quality standards. *International Psychogeriatrics* (2009), 21:2, 225–240
2. Moniz Cook ED, Swift K, James I, Malouf R, De Vugt M, Verhey F. Functional analysis-based interventions for challenging behaviour in dementia. *Cochrane Database of Systematic Reviews* 2012, Issue 2. Art. No.: CD006929. DOI: 10.1002/14651858.CD006929.pub2.
3. Forbes D, Culum I, Lischka AR, Morgan DG, Peacock S, Forbes J, Forbes S. Light therapy for managing cognitive, sleep, functional, behavioural, or psychiatric disturbances in dementia. *Cochrane Database of Systematic Reviews* 2009, Issue 4. Art. No.: CD003946. DOI: 10.1002/14651858.CD003946.pub3.
4. Fung J, Tsang H, Chung R. A systematic review of the use of aromatherapy in treatment of behavioral problems in dementia. *Geriatr Gerontol Int* 2012; 12: 372–382
5. Kong E, Evans L, Guevara J. Nonpharmacological intervention for agitation in dementia: A systematic review and meta analysis. *Aging & Mental Health*, 13:4, 512-520

Primary Studies

6. Cohen-Mansfield J, Marx M, Dakheel-Ali M, Regier N, Thein K, Freedman L. Can Agitated Behavior of Nursing Home Residents with Dementia Be Prevented with the Use of Standardized Stimuli? *Journal of the American Geriatrics Society*. August 2010–vol. 58, no. 8

7. Nair BK, Heim C, Krishnan C, D'Este C, Marley J, Attia J. The effect of Baroque music on behavioural disturbances in patients with dementia. *Australasian Journal on Ageing* 2011;30:11-5.

8. Opie J, Doyle C, O'Connor DW. Challenging behaviours in nursing home residents with dementia: a randomized controlled trial of multidisciplinary interventions. *International Journal of Geriatric Psychiatry* 2002;17:6-13.

Guidelines

National Institute for Health and Clinical Excellence (2006, updated 2007) Dementia. Supporting people with dementia and their carers in health and social care. CG 42. London: National Institute for Health and Clinical Excellence.

<http://www.nice.org.uk/nicemedia/live/10998/30318/30318.pdf>

Scottish Intercollegiate Guidelines Network (2006) Management of patients with dementia. CG86. Edinburgh: SIGN

<http://www.sign.ac.uk/pdf/sign86.pdf>

Results

Systematic Reviews

Author (year)	Search Date	Inclusion criteria	Number of included studies	Summary of results	Risk of bias
Connor (2009)	December 2006	Studies were included in this review if they examined psychosocial interventions and the behavioural and psychological symptoms of dementia (BPSD). Further inclusion criteria were; inclusion of another treatment and/or 'attention control' condition, random allocation in studies with distinct arms, adequate reporting of study methodology, more than 10 participants, and some statistical analysis of results.	25 studies (n = 1167)	<p>Using the Forbes quality rating scale (Forbes, 1998), six of the included studies were rated as "strong", 16 as "moderate", three as "weak" and none as "poor." All three "weak" studies lost points because of high attrition rates.</p> <p>Treatments proved more effective than attention control conditions, to a statistically significant degree, in only 11 of the 25 studies. Among these 11, effect sizes could be computed only for nine.</p> <p>Aromatherapy, bed baths, person-centred bathing, preferred music, one-to-one social interaction, simulated family presence and muscle relaxation therapy all reduced behavioural symptoms better than control conditions. Evidence for aroma, bed baths, gentle sounds, individualized music and muscle relaxation training were strongest. All five treatments were rated as "moderate" or "strong" on the Forbes quality scale and had moderate or high statistical precision ($p < 0.01$).</p>	Low
Cook	21/07/2011	Studies included in this review were of a randomised controlled trial design that	18 studies (n =	Overall the quality of combined studies included in this review was judged by the	Low

(2012)		evaluated functional analysis interventions (a first line alternative to drug therapy for challenging behaviour that typically requires the therapist to develop an understanding of the function or meaning behind the person's distressed behaviour. It uses this understanding to develop individually tailored strategies aimed at both the person with dementia and the caregivers, to relieve the distress caused by the behaviour). The participants of the included studies exhibited BPSD.		<p>study authors as low to moderate.</p> <p>Functional analysis vs. usual care: The majority (n=13) of included trials were in family care settings. For fourteen studies, functional analysis (FA) was just one aspect of a broad multi-component programme of care. The authors stated that assessing the effect of FA was compromised by ill-defined protocols for the duration of component parts of these programmes (i.e. frequency of the intervention or actual time spent). Therefore, establishing the real effect of the FA component was not possible.</p> <p>Overall, positive effects were found at post-intervention for the frequency of reported challenging behaviour (10 family care studies (N =1046), two residential studies (N = 505) and one assisted living study (N = 31): SMD - 0.12, 95% CI -0.22 to -0.02, P = 0.02, N = 1582), but not for incidence or severity. A significant positive effect was found at post-intervention on patient depression for four studies (SMD -0.19, 95% CI -0.36 to -0.01, P = 0.04). These effects were not seen at follow-up.</p> <p>Other outcomes related to the caregiver were also reported.</p>	
Forbes (2009)	04/08/2008	Only RCTs that compared light therapy (of any intensity and duration) with a control group were included in the review. The participants	8 studies met the criteria, however only 5	Most of the included trials did not report on sequence generation and allocation concealment, and had small sample sizes.	Low

		were required to have a diagnosis of dementia according to DSM-IV criteria.	were included in the statistical analysis. (n=379)	<p>Behavioural disturbances (e.g. agitation) were measured in five studies using several instruments: the ABRS, Behave-AD scale, NPI scale, and CMAI. Light therapy administered during the morning, daytime, or evening had no effect on behavioural disturbances.</p> <p>Two studies used the Neuropsychiatric Inventory (NPI) that comprises ten behavioral domains: delusions, hallucinations, dysphoria, anxiety, agitation/aggression, euphoria, disinhibition, irritability/lability, apathy, and aberrant motor activity to measure psychiatric disturbances. No effect on changing psychiatric disturbances was observed after treatment.</p> <p>Other outcomes (e.g. cognition, depression, function, etc.) were also reported.</p>	
Fung (2012)	2011	Studies were included in this review if they were of a prospective, randomised controlled design and had an application of aromatherapy or essential oils on people with dementia. Secondary studies were not included in this review, or editorials, single case studies, and those that concern the chemistry of essential oils.	11 studies were included in this review (n = 405)	<p>Six out of 11 studies had a Jadad score of two or less (out of a maximum score of 5). Sample sizes were less than 30 in seven out of the 11 studies.</p> <p>Of the trials that evaluated agitation or challenging behaviour as an outcome, 2 showed significant improvements with aromatherapy compared to control group for agitation and 3 did not (statistical results not reported). One showed a significant</p>	Low

				improvement for domains including physical aggression. Another trial also reported a reduction in challenging behaviour in 5 out of 7 participants, whereas 1 trial did not show any differences between groups for frequency of resistive behaviour (e.g. aversive verbal comments or physical gestures). Side effects were noted in some of the trials.	
Kong (2010)	2004	Studies were included in this review if they used a randomised controlled parallel or randomised crossover study design, enrolled subjects with dementia, included non-pharma interventions compared to usual care for agitation, and contained sufficient information to determine the effect of an intervention. The main comparison was non-pharmacologic interventions compared to usual care. The non-pharmacological interventions were clustered into seven types: sensory intervention (aromatherapy, thermal bath, and calming music and hand massage); social contact (simulated presence and pet therapy); activities (rocking chair therapy and therapeutic recreational activities); environmental modification (morning bright light therapy); caregiver training (behaviour management techniques and abilities focused morning care); combination therapy (stimulation-retreat program); and	14 studies were included (n = 586)	<p>Overall, total quality scores for each study ranged from 2 to 4, out of 5 (using the Jadad scoring scale).</p> <p>In the three studies (n=120) of sensory interventions, statistically significant differences were found for reduced agitation with treatment compared to control (SMD -1.07; 95% CI -1.76 to -0.38). There were no significant differences for social contact interventions (SMD -0.19; CI -0.71 to 0.33; 2 studies, n=82), activity interventions (SMD -0.20; CI -0.71 to 0.31; 1 study, n=65) (although another study of the activity interventions showed a significant difference in agitation (SMD -0.57; CI -1.09 to -0.05)), environmental modification (WMD 1.90; CI -2.82 to 6.62; 1 study, n=8), caregiver training (SMD 0.21; CI -0.15 to 0.57; 2 studies, n=117), combination therapy WMD 1.85; CI -1.78 to 5.48; 1 study, n=118), or behavioural therapy (SMD -0.27; CI -0.72 to 0.19; 2</p>	Low

		behaviour therapy (activities of daily living intervention and way finding intervention).		studies, n=76). In addition, in the four studies which tested long-term effects of interventions, there were no significant differences in agitation between treatment groups and control groups at long-term follow-up: caregiver training (SMD -0.12; CI -0.77 to 0.52); combination therapy (WMD 1.72; CI -1.03 to 4.47); and behavioural therapy (SMD 0.22; CI -0.86 to 1.30).	
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RCTs

Author (year)	Inclusion criteria	Number of participants	Summary of results	Risk of bias
Cohen-Mansfield (2010)	<p><i>Participants:</i> Nursing home residents with a diagnosis of dementia, and a minimal level of agitated behaviour</p> <p><i>Intervention:</i> Each participant was presented with 25 different predetermined stimuli over a period of 3 weeks (approximately 4 stimuli per day). Stimuli were grouped into the following eight categories: live social stimuli (e.g., a real baby, a real dog, and one-on-one socializing with a research assistant), simulated social stimuli (e.g., a life-like baby doll, a childish-</p>	N = 111	<p>Analyses comparing levels of agitation for the eight stimulus categories and baseline were statistically significant for total agitation, verbal agitation, and physical agitation (all $p < 0.001$). Table 4). Post hoc analyses for total agitation revealed that all stimulus categories except for manipulative were associated with significantly less agitation than baseline observations. For physical agitation, the level of agitation was significantly lower for all stimulus categories than at baseline. For verbal agitation, live social, task, reading, self-identity, and music were associated with significantly less agitation than at baseline. Additional examination of the post hoc analyses revealed a hierarchy among stimuli with regard to their effects on decreasing agitation. In the case of total agitation, live social, task, and reading stimuli did not significantly differ from each other, yet all three were significantly better (i.e., associated with less agitation) than simulated social, manipulative stimuli, and work. Music and self-identity stimuli had an intermediate position in the hierarchy, each being associated with significantly more agitation than live</p>	Unclear

	<p>looking doll, a plush animal, a robotic animal from stores such as Toys “R” Us), and a respite video),manipulative stimuli (e.g., a squeeze ball, a tetherball, an expanding sphere, an activity pillow, building blocks, a fabric book, a wallet for men, a purse for women, and a puzzle), work-related stimuli (e.g., envelopes to stamp, towels to fold, and envelopes to sort), task-related stimuli (e.g., flower arrangement and colouring with markers), music stimulus (listening to music), reading stimulus (reading a large-print magazine), and self-identity stimuli (2 individualised stimuli matched to each participant’s past identity with respect to occupation, hobbies, or interests).</p> <p><i>Outcome</i> : Agitation was observed and recorded using the Agitation Behaviour Mapping Instrument (ABMI)</p>		<p>social stimuli (but not task or reading stimuli) yet significantly less agitation than manipulative stimuli; self-identity stimuli were also associated with significantly less agitation than simulated social stimuli.</p>	
Nair (2011)	<p><i>Participants</i> : Participants in this study were residents in a dementia specific care facility in Newcastle Australia</p>	<p>N = 75 (38 in one unit, 37 in the second. The Units were</p>	<p>The lower care unit had 0.3 fewer episodes per week than the higher care unit; women had 0.2 more episodes per week than men; and afternoon shifts had one more episode per week than evening shifts. Surprisingly, weeks during which Baroque music</p>	Unclear

	<p><i>Intervention:</i> a selection of baroque music was played for a period of 4 hours on the wards.</p> <p><i>Comparison:</i> No baroque music</p> <p><i>Outcome:</i> Nurses on the unit monitored behaviour for each participant in five domains; physical aggressiveness; verbal abuse; agitation; wandering and inappropriate sexual advances</p>	<p>randomised to either the experimental or control arm.</p> <p>The groups crossed over treatment following 4 weeks of treatment and a 2 week washout period). In total, the study lasted 12 weeks.</p>	<p>was played showed significantly more episodes than observation weeks (0.23 more episodes per week, 95% confidence interval (CI) 0.07–0.39).</p>	
Opie (2002)	<p><i>Participants:</i> For inclusion in the study the residents were required to be over 50 years of age; have a diagnosis of dementia; have resided in the facility for over 1 month; were likely to remain within the facility for more than 2 months; and have moderately disruptive behaviour as defined by the Cohen-Mansfield agitation inventory (Cohen-Mansfield et al 1989)</p> <p><i>Intervention:</i> There were 3</p>	N = 99	<p>Multivariate statistical analysis demonstrated that there were improvements in the participants at the outset of observations, suggesting a Hawthorne effect. Interventions (often combined strategies) were associated with a modest but statistically significant decrease in challenging behaviours (a number of results were presented in the paper).</p>	Unclear – also complicated analysis of a relatively small number of participants

	<p>categories of intervention; medical (change to medication); nursing (an emphasis upon activities of daily living); and psychosocial (included sensory stimulation, environmental changes, behaviour modification, social interaction, attention to cultural needs and provision of other personalised activities). Residents were assigned to an 'early' or 'late' intervention group.</p> <p><i>Comparison:</i> Comparisons were made pre-and post intervention</p> <p><i>Outcome:</i> A significant outcome constituted of a reduction of challenging behaviour. These were categorised in one of 4 main groupings; restlessness, physical aggression, verbal disruption, socially or sexually inappropriate behaviour.</p>			
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Risk of Bias: SRs

Author (year)	Risk of Bias				
	Inclusion criteria	Searches	Review Process	Quality assessment	Synthesis
Connor (2009)	😊	😊	?	😊	😊
Cook (2012)	😊	😊	😊	😊	😊
Forbes (2009)	😊	😊	😊	😊	😊
Fung (2012)	😊	😊	?	😊	😊
Kong (2010)	😊	😊	😊	😊	😊

RCTs

Study	RISK OF BIAS					
	Random allocation	Allocation concealment	Blinding of participants and personnel	Blinding of outcome assessment	Incomplete outcome data	Selective Reporting
Cohen-Mansfield (2010)	?	?	NA	NA	😊	?
Nair (2011)	?	?	NA	NA	😊	?
Opie (2002)	?	?	NA	NA	😊	?

😊 Low Risk

😞 High Risk

? Unclear Risk

Search Details

Source	Search Strategy	Number of hits	Relevant evidence identified
<i>SRs and Guidelines</i>			
NICE	Dementia AND behaviour		2
DARE	(behavio*) IN DARE 2656 2 (agitat*) IN DARE 123 3 (aggressi*) IN DARE 272 4 (disinhibit*) IN DARE 5 5 (challeng*) IN DARE 262 6 (difficult*) IN DARE 3654 7 (dement*) IN DARE 449 8 (alzheimer*) IN DARE 276 9 (deliri*) IN DARE 69 10 (organic ADJ2 brain ADJ2 disease*) IN DARE 2 11 MeSH DESCRIPTOR Alzheimer Disease EXPLODE ALL TREES 220 12 MeSH DESCRIPTOR Amyotrophic Lateral Sclerosis EXPLODE ALL TREES 17 13 MeSH DESCRIPTOR CADASIL EXPLODE ALL TREES 1 14 MeSH DESCRIPTOR Delirium, Dementia, Amnestic, Cognitive Disorders EXPLODE ALL TREES 538 15 MeSH DESCRIPTOR Dementia EXPLODE ALL TREES 394 Delete 16 MeSH DESCRIPTOR Dementia, Multi-Infarct EXPLODE ALL TREES 0 17 MeSH DESCRIPTOR Dementia, Vascular EXPLODE ALL TREES 16 18 MeSH DESCRIPTOR Frontotemporal Dementia EXPLODE ALL TREES 0 19 MeSH DESCRIPTOR Frontotemporal Lobar Degeneration EXPLODE ALL TREES 0 20 MeSH DESCRIPTOR Lewy Body Disease EXPLODE ALL TREES 2 21 #1 OR #2 OR #3 OR #4 OR #5 OR #6 5982 22 #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 892 23 #21 AND #22		
CDSR			
<i>Primary studies</i>			

CENTRAL	#1 MeSH descriptor: [Psychotherapy] explode all trees 13196 #2 MeSH descriptor: [Art Therapy] explode all trees 40 #3 MeSH descriptor: [Cognitive Therapy] explode all trees 4000 #4 MeSH descriptor: [Complementary Therapies] explode all trees 11936 #5 MeSH descriptor: [Phototherapy] explode all trees 1890 #6 MeSH descriptor: [Animal Assisted Therapy] explode all trees 10 #7 MeSH descriptor: [Exercise Therapy] explode all trees 5493 #8 MeSH descriptor: [Dementia] explode all trees 3283 #9Enter terms for searc"challenging behaviour"68 #10Enter terms for searc"challenging behavior"7 #11Enter terms for searc"behavio* problems"874 #12Enter terms for searc"non pharmacological intervention*"447 #13Enter terms for searc"reality orientation"41 #14Enter terms for searc"validation therapy"21 #15Enter terms for searc"reminiscence therapy"49 #16Enter terms for searc"music therapy"698 #17Enter terms for searc"dance therapy"53 #18Enter terms for searcsnoezelen #19Enter terms for searc"bright light therapy"112 #20Enter terms for searcmultisensory80 #21Enter terms for searc"doll therapy"0 #22Enter terms for searc#1 or #2 or #3 or #4 or #5 or #6 or #7 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #2029191 #23Enter terms for searc#9 or #10 or #11926 #24Enter terms for searc#22 and #23 and #8 27	13	
PsycINFO	1. PsycINFO; "non pharmacological intervention*".ti,ab; 206 results. 2. PsycINFO; exp PSYCHOTHERAPY/; 164632 results. 3. PsycINFO; "reality orientation".ti,ab; 261 results. 4. PsycINFO; "validation therapy".ti,ab; 43 results. 5. PsycINFO; "reminiscence therapy".ti,ab; 106 results. 6. PsycINFO; exp CREATIVE ARTS THERAPY/; 7747 results. 7. PsycINFO; "music therapy".ti,ab; 2562 results. 8. PsycINFO; "dance therapy".ti,ab; 233 results. 9. PsycINFO; "complementary therapy".ti,ab; 130 results. 10. PsycINFO; exp ALTERNATIVE MEDICINE/; 5567 results. 11. PsycINFO; snoezelen.ti,ab; 64 results.	99	

	12. PsycINFO; PHOTOTHERAPY/; 666 results. 13. PsycINFO; "bright light therapy".ti,ab; 186 results. 14. PsycINFO; VISUAL STIMULATION/ OR AUDITORY STIMULATION/; 25531 results. 15. PsycINFO; "multisensory approach*".ti,ab; 73 results. 16. PsycINFO; "doll therapy".ti,ab; 4 results. 17. PsycINFO; ANIMAL ASSISTED THERAPY/; 449 results. 18. PsycINFO; exp PHYSICAL ACTIVITY/; 20560 results. 19. PsycINFO; "doll therapy".ti,ab; 4 results. 20. PsycINFO; 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17 OR 18 OR 19; 223231 results. 21. PsycINFO; ALZHEIMER'S DISEASE/ OR exp DEMENTIA/; 47100 results. 22. PsycINFO; dementia.ti,ab; 38716 results. 23. PsycINFO; 21 OR 22; 56734 results. 24. PsycINFO; 20 AND 23; 1596 results. 25. PsycINFO; CLINICAL TRIALS/; 6576 results. 26. PsycINFO; random*.ti,ab; 116388 results. 27. PsycINFO; groups.ti,ab; 339631 results. 28. PsycINFO; (double adj3 blind).ti,ab; 16648 results. 29. PsycINFO; (single adj3 blind).ti,ab; 1254 results. 30. PsycINFO; EXPERIMENTAL DESIGN/; 8548 results. 31. PsycINFO; controlled.ti,ab; 72616 results. 32. PsycINFO; (clinical adj3 study).ti,ab; 7170 results. 33. PsycINFO; trial.ti,ab; 61262 results. 34. PsycINFO; "treatment outcome clinical trial".md; 23496 results. 35. PsycINFO; 25 OR 26 OR 27 OR 28 OR 29 OR 30 OR 31 OR 32 OR 33 OR 34; 522788 results. 36. PsycINFO; 24 AND 35; 491 results. 37. PsycINFO; BEHAVIOR DISORDERS/ OR AGGRESSIVE BEHAVIOR [+NT]/; 26903 results. 38. PsycINFO; "challenging behav*".ti,ab; 1832 results. 41. PsycINFO; BEHAVIOR PROBLEMS/; 22113 results. 42. PsycINFO; ("behaviour" OR behavior).ti,ab; 407825 results. 43. PsycINFO; 37 OR 38 OR 41 OR 42; 427580 results. 44. PsycINFO; 24 AND 43; 311 results. 45. PsycINFO; 35 AND 44; 99 results.		
EMBASE	33. EMBASE; exp PSYCHOTHERAPY/; 171360 results. 34. EMBASE; "reality orientation".ti,ab; 232 results. 35. EMBASE; "validation therapy".ti,ab; 50 results.	581	

<p>36. EMBASE; "reminiscence therapy".ti,ab; 120 results.</p> <p>37. EMBASE; exp CREATIVE ARTS THERAPY/; 0 results.</p> <p>38. EMBASE; "music therapy".ti,ab; 1680 results.</p> <p>39. EMBASE; "dance therapy".ti,ab; 101 results.</p> <p>40. EMBASE; "complementary therapy".ti,ab; 975 results.</p> <p>41. EMBASE; exp ALTERNATIVE MEDICINE/; 31571 results.</p> <p>42. EMBASE; snoezelen.ti,ab; 85 results.</p> <p>43. EMBASE; PHOTOTHERAPY/; 14571 results.</p> <p>44. EMBASE; "bright light therapy".ti,ab; 303 results.</p> <p>45. EMBASE; VISUAL STIMULATION/ OR AUDITORY STIMULATION/; 50451 results.</p> <p>46. EMBASE; "multisensory approach*".ti,ab; 14 results.</p> <p>47. EMBASE; "doll therapy".ti,ab; 5 results.</p> <p>48. EMBASE; ANIMAL ASSISTED THERAPY/; 106 results.</p> <p>49. EMBASE; exp PHYSICAL ACTIVITY/; 200049 results.</p> <p>50. EMBASE; "doll therapy".ti,ab; 5 results.</p> <p>51. EMBASE; 32 OR 33 OR 34 OR 35 OR 36 OR 37 OR 38 OR 39 OR 40 OR 41 OR 42 OR 43 OR 44 OR 45 OR 46 OR 47 OR 48 OR 49 OR 50; 461238 results.</p> <p>52. EMBASE; ALZHEIMER'S DISEASE/ OR exp DEMENTIA/; 205025 results.</p> <p>53. EMBASE; dementia.ti,ab; 79789 results.</p> <p>54. EMBASE; 52 OR 53; 216099 results.</p> <p>55. EMBASE; 51 AND 54; 7459 results.</p> <p>56. EMBASE; BEHAVIOR DISORDERS/ OR AGGRESSIVE BEHAVIOR [+NT]/; 36403 results.</p> <p>57. EMBASE; "challenging behav*".ti,ab; 1060 results.</p> <p>58. EMBASE; BEHAVIOR PROBLEMS/; 0 results.</p> <p>59. EMBASE; ("behaviour" OR behavior).ti,ab; 539978 results.</p> <p>60. EMBASE; 56 OR 57 OR 58 OR 59; 561891 results.</p> <p>61. EMBASE; 55 AND 60; 892 results.</p> <p>62. EMBASE; 35 AND 61; 0 results.</p> <p>63. EMBASE; ART THERAPY/; 1987 results.</p> <p>64. EMBASE; exp BEHAVIOR/; 2176228 results.</p> <p>65. EMBASE; 51 OR 63; 461238 results.</p> <p>66. EMBASE; 60 OR 64; 2486624 results.</p> <p>67. EMBASE; 54 AND 65 AND 66; 3983 results.</p> <p>68. EMBASE; random*.ti,ab; 786185 results.</p> <p>69. EMBASE; factorial*.ti,ab; 20311 results.</p> <p>70. EMBASE; (crossover* OR cross-over*).ti,ab; 64580 results.</p>		
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	71. EMBASE; placebo*.ti,ab; 185405 results. 72. EMBASE; (doubl* ADJ blind*).ti,ab; 134498 results. 73. EMBASE; (singl* ADJ blind*).ti,ab; 13068 results. 74. EMBASE; assign*.ti,ab; 217161 results. 75. EMBASE; allocat*.ti,ab; 73630 results. 76. EMBASE; volunteer*.ti,ab; 164890 results. 77. EMBASE; CROSSOVER PROCEDURE/; 36349 results. 78. EMBASE; DOUBLE BLIND PROCEDURE/; 113402 results. 79. EMBASE; RANDOMIZED CONTROLLED TRIAL/; 338076 results. 80. EMBASE; SINGLE BLIND PROCEDURE/; 17075 results. 81. EMBASE; 68 OR 69 OR 70 OR 71 OR 72 OR 73 OR 74 OR 75 OR 76 OR 77 OR 78 OR 79 OR 80; 1284309 results. 82. EMBASE; 67 AND 81; 581 results.		
MEDLINE	46. MEDLINE; "non pharmacological intervention*".ti,ab; 603 results. 47. MEDLINE; exp PSYCHOTHERAPY/; 141701 results. 48. MEDLINE; "reality orientation".ti,ab; 196 results. 49. MEDLINE; "validation therapy".ti,ab; 41 results. 50. MEDLINE; "reminiscence therapy".ti,ab; 99 results. 51. MEDLINE; exp CREATIVE ARTS THERAPY/; 0 results. 52. MEDLINE; "music therapy".ti,ab; 1078 results. 53. MEDLINE; "dance therapy".ti,ab; 41 results. 54. MEDLINE; "complementary therapy".ti,ab; 716 results. 55. MEDLINE; exp ALTERNATIVE MEDICINE/; 164903 results. 56. MEDLINE; snoezelen.ti,ab; 73 results. 57. MEDLINE; PHOTOTHERAPY/; 5197 results. 58. MEDLINE; "bright light therapy".ti,ab; 227 results. 59. MEDLINE; VISUAL STIMULATION/ OR AUDITORY STIMULATION/; 75101 results. 60. MEDLINE; "multisensory approach*".ti,ab; 10 results. 61. MEDLINE; "doll therapy".ti,ab; 3 results. 62. MEDLINE; ANIMAL ASSISTED THERAPY/; 92 results. 63. MEDLINE; exp PHYSICAL ACTIVITY/; 168784 results. 64. MEDLINE; "doll therapy".ti,ab; 3 results.	303	

	65. MEDLINE; 46 OR 47 OR 48 OR 49 OR 50 OR 51 OR 52 OR 53 OR 54 OR 55 OR 56 OR 57 OR 58 OR 59 OR 60 OR 61 OR 62 OR 63 OR 64; 486709 results. 66. MEDLINE; ALZHEIMER'S DISEASE/ OR exp DEMENTIA/; 108763 results. 67. MEDLINE; dementia.ti,ab; 58976 results. 68. MEDLINE; 66 OR 67; 126339 results. 69. MEDLINE; 65 AND 68; 4659 results. 70. MEDLINE; BEHAVIOR DISORDERS/ OR AGGRESSIVE BEHAVIOR [+NT]/; 113843 results. 71. MEDLINE; "challenging behav*".ti,ab; 700 results. 72. MEDLINE; BEHAVIOR PROBLEMS/; 0 results. 73. MEDLINE; ("behaviour" OR behavior).ti,ab; 483020 results. 74. MEDLINE; 70 OR 71 OR 72 OR 73; 588475 results. 75. MEDLINE; 69 AND 74; 759 results. 76. MEDLINE; 35 AND 75; 0 results. 77. MEDLINE; ART THERAPY/; 1041 results. 79. MEDLINE; 46 OR 47 OR 48 OR 49 OR 50 OR 52 OR 53 OR 54 OR 55 OR 56 OR 57 OR 58 OR 59 OR 60 OR 61 OR 62 OR 63 OR 77; 486709 results. 80. MEDLINE; 68 AND 74 AND 79; 759 results. 81. MEDLINE; "randomized controlled trial".pt; 341383 results. 82. MEDLINE; "controlled clinical trial".pt; 85266 results. 83. MEDLINE; randomized.ab; 259315 results. 84. MEDLINE; placebo.ab; 141247 results. 85. MEDLINE; "drug therapy".fs; 1580538 results. 86. MEDLINE; randomly.ab; 189402 results. 87. MEDLINE; trial.ab; 267239 results. 88. MEDLINE; groups.ab; 1224590 results. 89. MEDLINE; 81 OR 82 OR 83 OR 84 OR 85 OR 86 OR 87 OR 88; 3056284 results. 90. MEDLINE; 80 AND 89; 303 results.		
Summary	NA	NA	

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