

Best Evidence Summaries of Topics in Mental Healthcare

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

Question

“In adults with a diagnosis of dementia, how effective are multi-sensory interventions, compared to any other intervention, in improving patient outcomes.”

Clarification of question using PICO structure

Patients: Adults with a diagnosis of dementia.
Intervention: Any multi-sensory intervention.
Comparator: No multi-sensory intervention, any other intervention.
Outcome: Any patient outcomes.

Clinical and research implications

No definite clinical implications can be made from the available evidence. Data from one well-conducted RCT suggested that calm music or hand massage may be used alone or to augment an individualised therapeutic regimen for nursing home residents with dementia. The authors stated that both interventions require little training and are easily administered, with minimal cost. One well-conducted SR found that there was very little evidence to evaluate the efficacy of snoezelen. There is general consensus that more high quality research is needed to examine the efficacy of snoezelen, or multisensory stimulation rooms/environments, on people with dementia. In addition, authors stated that new research should be developed to examine the similarities and differences between the multisensory stimulation environment (MSSE) carried out in special rooms and the MSSE integrated in the daily care and to compare their effects.

What does the evidence say?

Number of included studies/reviews (number of participants)

Two systematic reviews (SRs) (Chung and Lai 2008; Sanchez et al. 2012) and one randomised controlled trial (RCT) (Remington 2002), with a sample of 68 patients, met the inclusion criteria for this BEST summary.

Main Findings

One of the SRs evaluated the clinical efficacy of snoezelen (or multisensory stimulation) for older people with dementia and their caregivers (Chung and Lai 2008). This review was an update of an earlier review conducted in 2002, and included two RCTs published in three papers. In one of the trials, no effects were observed for a session-based snoezelen programme on behaviour, mood, cognition and communication / interaction in the short or long term. Similarly, another trial that evaluated 24-hour integrated snoezelen care did not demonstrate any significant short-term and longer term effects on behaviour, mood and interaction.

Another SR included 12 studies that evaluated the effects of multisensory stimulation rooms/environments on behaviour, 7 that evaluated mood, 6 that evaluated communication, and 4 that evaluated functional status in people with dementia (Sanchez et al. 2012). The authors provided a narrative synthesis of the data, and found variable results. Overall, the authors reported that multisensory stimulation environments produced positive effects on the behaviour and mood of people with dementia, whereas the effectiveness of multisensory stimulation rooms on communication/social interaction and functional state were unclear.

The RCT evaluated the effectiveness of calming music, hand massage, or both compared to controls in nursing home residents with dementia (Remington 2002). The authors found that each of the interventions significantly reduced agitation up to an hour following the intervention, compared to no intervention. When types of agitated behaviours were examined separately, no significant difference was found between groups for physically aggressive behaviours, while physically non-aggressive behaviours were reduced with the intervention.

Authors Conclusions

Chung and Lai (2008) concluded that there is a need for more reliable and sound research-based evidence to inform and justify the use of snoezelen in dementia care.

The SR by Sanchez et al. (2012) concluded that there is evidence that multisensory stimulation environments produce immediate positive effects on the behaviour and mood of people with dementia. There is, however, no conclusive data on their long-term effectiveness.

In the RCT, Remington (2002) concluded that calming music and hand massage reduced the level of agitation in nursing home residents with dementia. Subjects who received either intervention alone, or in combination, exhibited significantly less agitation than the control group up to one hour after intervention.

Reliability of conclusions/Strength of evidence

The SR by Chung and Lai (2008), and the RCT were considered to have a low-risk of bias, so that their results are likely to be reliable. Given the lack of studies, and the quality of the two studies included in the Chung and Lai review, the cautious results of authors are appropriate. Given some methodological concerns with the review by Sanchez et al. (2012), the reliability of their results is uncertain.

What do guidelines say?

NICE Guidelines (2006, updated 2012, CG42, pp. 29-30) recommend the following as good practice;

“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”

SIGN guidelines (pp. 9-10) recommend the following;

“It has been suggested that because dementia often results in an alteration of several sensory modalities, less is to be gained by an intervention designed to deal with a single sense than can be gained through multisensory stimulation. This approach uses a variety of equipment such as lighting effects, relaxing music, recorded sounds, massage cushions, tactile surfaces and fragrances to create a multisensory environment.

Other studies have used combinations of massage, aromatherapy with essential oils, such as lavender and lemon balm, and music.”

“For people with moderate dementia who can tolerate it, multisensory stimulation may be a clinically useful intervention.

Multisensory stimulation is not recommended for relief of neuropsychiatric symptoms in people with moderate to severe dementia.”

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Date searches conducted: 11/09/2013
Date answer completed: 16/09/2013

References

RCTs

1. Remington, R. (2002) Calming Music and Hand Massaged with Agitated Elderly. *Nursing Research* 51 (5) pp. 317-323.

SRs

2. Chung JCC, Lai CKY. Snoezelen for dementia. (2002, updated 2008) *Cochrane Database of Systematic Reviews*. Issue 4
3. Sánchez, A., Millán-Calenti, J.C., Lorenzo-López, L. and Maseda, A. (2013) Multisensory Stimulation for People With Dementia: A Review of the Literature. *American Journal of Alzheimer's Disease and Other Dementias* 28 (7) pp. 7-14.

Guidelines

4. National Institute for Health and Care Excellence (2006, updated 2012) Dementia. Supporting people with dementia and their carers in health and social care. CG42 London: National Institute for Health and Care Excellence.
<http://www.nice.org.uk/nicemedia/live/10998/30318/30318.pdf>
5. Scottish Intercollegiate Guidelines Network. (2006) Management of patients with dementia. A national clinical guideline. CG86. Edinburgh: Scottish Intercollegiate Guidelines Network.
<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
Chung and Lai (2002 updated 2008)	23/03/08	<p>P: People aged over 60 years, suffering from any types of dementia (e.g. Alzheimer's disease, vascular dementia) and of any degree of severity. The operational definition of dementia is based on the criteria used in DSM-IV (APA 1994), ICD-10 (WHO 1993), or NINCDS-ADRDA (National Institute of Neurological and Communicative Disorders and Stroke - Alzheimer's Disease and Related Disorders Association, McKhann 1984).</p> <p>I: structured based on the practice principles of snoezelen and/or multi-sensory stimulation.</p> <p>C: include other types of activity that did not have a multiple sensory component or a no treatment condition. Comparison with any other form of therapeutic activity was not considered.</p> <p>O: Behaviour mood, cognition, physiological indices, and client-carer communication Short-term effects as measured during session measured by Interact; Baker & Dowling 1995, Behavior Rating Scale (CAPE); Pattie & Gilleard 1979, REHAB; Baker & Hall 1988, GIP; Verstraten & van Edkelen 1988, Cohen-Mansfield Agitated Inventory (Dutch version) (CMAI-D); De Jonghe & Kat 1996, Cognitive Assessment Scale (CAS); Pattie & Gilleard 1979, Mini-Mental State Examination (MMSE);</p>	2 RCTs (published in 3 papers)	<p>Behaviour</p> <p>In comparison with the controls (activity session), the session-based snoezelen (Baker 2003) did not show any significant effect on behaviours during sessions, immediately after sessions, at mid-, post-, or one-month post-intervention follow-up. The 24-hour integrated snoezelen-care programme (van Weert 2005) showed significant effect on two behavioural items of INTERACT during sessions in favour of treatment: enjoying self (MD = -0.74; 95% CI (-1.29, -0.19); z = 2.62, P = 0.01) and bored/inactive (MD = -0.56; 95% CI (-1.11, -0.01); z = 1.99, P = 0.05). There were no longer-term treatment effects of the integrated snoezelen-care programme on behaviour.</p> <p>Mood</p> <p>When compared with the controls (activity session), the session-based snoezelen (Baker 2003) show no significant effect on mood</p>	Low

		<p>Folstein et al., 1975, Behavioral and Mood Disturbance Scale (M+BMD); Greene et al 1982, Cornell Scale for Depression in Dementia (Dutch version) (CSDD-D); Droes 1996). Post-session and longer-term benefits as measured at post-intervention and follow-up were examined.</p>	<p>during sessions or at post-intervention. The 24-hour integrated snoezelen care programme (van Weert 2005) showed significant improvements in one mood item of INTERACT during sessions: the snoezelen group was happier and more content (MD = -0.84; 95% CI (-1.39, -0.29); z = 2.98, P = 0.003) and rated more positively on FACE (MD=-0.33; 95% CI (-0.61, -0.05); z=2.33, P= 0.02). There were no significant effects of the 24-hour integrated snoezelen at post-intervention.</p> <p>Cognition When compared with the control group, there were no significant effects of the session-based snoezelen (Baker 2003) on cognition. The effect of the integrated snoezelen care programme on cognition was not examined in van Weert 2005.</p> <p>Communication/Interaction When compared with the control group, no significant effects of the session-based snoezelen (Baker 2003) on communication/interaction were evident during or immediately after sessions. Although the results of 'recalled memories' favoured the snoezelen group (MD = 0.42, 95% CI (0.11, 0.73), z = 2.67, P = 0.008), it</p>	
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				<p>was reported in Baker 2003 that this effect disappeared when the baseline MMSE scores of the two groups were taken into account. As for the integrated snoezelen care programme (vanWeert2005), there were improvements during sessions for three interaction items of INTERACT: 'related well' (MD = 0.52; 95% CI (0.24, 0.80); z = 3.68, P = 0.0002), 'normal-length sentence' (MD = 0.31, 95% CI(0.03, 0.59), z=2.19, P =0.03), and 'responding to speaking' (MD = 0.30; 95% CI (0.02, 0.58); z = 2.12, P = 0.03). No longer-term effects on communication/interaction were suggested.</p>	
Sánchez et al. (2012)	2012	<p>P: Aged 65 years or older with a diagnosis of dementia.</p> <p>I: The intervention varied from 3 multisensory stimulation environment (MSSE) sessions to a daily session for a period of 15 months. The time for each session ranged from 16 to 45 minutes (approximately average of 30 minutes).</p> <p>C: Any other intervention.</p> <p>O: Behaviour, Mood, Communication/Interaction, cognitive level, functional status. Various measures individual to study.</p>	17 studies published in 18 papers (including 9 RCTs)	<p>12 included studies evaluated behaviour, 7 evaluated mood, 6 evaluated communication, and 4 evaluated functional status. The authors provided a narrative synthesis of the data. There were variable results in the studies; some showed improvements compared to control conditions whereas others did not. The authors stated that multisensory stimulation environments produced positive effects on the behaviour and mood of people with dementia, whereas the effectiveness of MSSRs in communication and social interaction, and functional state were not clear.</p>	High

RCTs

Author (year)	Inclusion criteria	Number of participants	Summary of results	Risk of bias
Remington (2002)	<p>P: Recruited from long-term care facilities with diagnoses of Alzheimer's disease, multi-infarct dementia, or senile dementia. Other inclusion criteria included (a) 60 years of age or more, (b) the ability to hear, and (c) the ability to feel with the hands. Subjects receiving medication for agitated behaviour within the four hours preceding the intervention were excluded.</p> <p>I: Calming music, hand massage or calming music and hand massage (10 minute sessions).</p> <p>C: Treatment as usual.</p> <p>O: Change in agitated behaviour, measured by Cohen-Mansfield Agitation Inventory (CMAI, Cohen-Mansfield 1989).</p>	N= 68 (17 in each condition)	The control group was significantly more agitated ($p < 0.01$) than the experimental groups (no significant difference was found between the three intervention groups). No significant differences were found between groups in physically aggressive behaviours ($p = 0.09$). Scores for the physically non-aggressive subset were significantly different ($p < 0.01$); agitation scores in the control group were significantly greater than in the three treatment groups. Verbally agitated behaviours were significantly reduced in the hand massage group compared to the control group.	Low

Risk of Bias

SRs

Author (year)	Risk of Bias				
	Inclusion criteria	Searches	Review Process	Quality assessment	Synthesis
Chung and Lai 2008					
Sánchez et al. 2012					

RCTs

Study	RISK OF BIAS					
	Random allocation	Allocation concealment	Blinding of participants and personnel	Blinding of outcome assessment	Incomplete outcome data	Selective Reporting
Remington 2002						

 Low Risk

 High Risk

 Unclear Risk

Search Details

Source	Search Strategy	Number of hits	Relevant evidence identified
<i>SRs and Guidelines</i>			
NICE	Dementia	209	2
DARE	(dement*) IN DARE 485 Delete 2 MeSH DESCRIPTOR Alzheimer Disease EXPLODE ALL TREES 266 Delete 3 MeSH DESCRIPTOR Dementia EXPLODE ALL TREES 506 Delete 4 MeSH DESCRIPTOR Dementia, Vascular EXPLODE ALL TREES 17 Delete 5 MeSH DESCRIPTOR Frontotemporal Dementia EXPLODE ALL TREES 2 Delete 6 MeSH DESCRIPTOR Lewy Body Disease EXPLODE ALL TREES 4 Delete 7 #1 OR #2 OR #3 OR #4 OR #5 OR #6 760 Delete 8 (snoezelen) IN DARE 7 Delete 9 (multi-sensory* OR multisensory) IN DARE 13 Delete 10 MeSH DESCRIPTOR Sensory Aids EXPLODE ALL TREES 108 Delete 11 (sensor*) IN DARE 231 Delete 12 (brushing) IN DARE 22 Delete 13 ((vestibular OR proprioceptive) ADJ4 stimulation) IN DARE 1 Delete 14 #8 OR #9 OR #10 OR #11 OR #12 OR #13 358 Delete 15 #7 AND #14		
<i>Primary studies</i>			
CENTRAL	#1 dementia or alzheimer's:ti,ab,kw (Word variations have been searched) 6823 #2Enter terms for searchsnoezelen48 #3Enter terms for searchmultisensory91 #4Enter terms for searchmulti-sensory35 #5Enter terms for searchsensory stimulation1486 #6Enter terms for search#2 or #3 or #4 or #51577 #7Enter terms for search#1 and #664	0	

	Date limit = 0		
PsycINFO	<ol style="list-style-type: none"> 1. PsycINFO; dementia.ti,ab; 40269 results. 2. PsycINFO; alzheimer*.ti,ab; 37096 results. 3. PsycINFO; exp DEMENTIA/; 49227 results. 4. PsycINFO; ALZHEIMER'S DISEASE/; 29728 results. 5. PsycINFO; 1 OR 2 OR 3 OR 4; 63616 results. 6. PsycINFO; (sensory adj3 room*).ti,ab; 18 results. 7. PsycINFO; (sensory adj3 environment*).ti,ab; 400 results. 8. PsycINFO; (multisensory adj3 room*).ti,ab; 8 results. 9. PsycINFO; (multisensory adj3 environment*).ti,ab; 53 results. 10. PsycINFO; (multi-sensory adj3 room*).ti,ab; 7 results. 11. PsycINFO; (multi-sensory adj3 environment*).ti,ab; 21 results. 12. PsycINFO; Snoezelen.ti,ab; 64 results. 13. PsycINFO; "comfort room*".ti,ab; 3 results. 14. PsycINFO; (sensory adj3 stimulat*).ti,ab; 1873 results. 15. PsycINFO; (multisensory adj3 stimulat*).ti,ab; 91 results. 16. PsycINFO; (multi-sensory adj3 stimulat*).ti,ab; 19 results. 17. PsycINFO; 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16; 2398 results. 18. PsycINFO; 5 AND 17; 93 results. 19. PsycINFO; 18 [Limit to: Publication Year 2012-Current]; 8 results. 	8	
Embase	<ol style="list-style-type: none"> 20. EMBASE; dementia.ti,ab; 84047 results. 21. EMBASE; alzheimer*.ti,ab; 111313 results. 22. EMBASE; exp DEMENTIA/; 215220 results. 23. EMBASE; ALZHEIMER'S DISEASE/; 117841 results. 24. EMBASE; 20 OR 21 OR 22 OR 23; 241546 results. 25. EMBASE; (sensory adj3 room*).ti,ab; 21 results. 26. EMBASE; (sensory adj3 environment*).ti,ab; 562 results. 27. EMBASE; (multisensory adj3 room*).ti,ab; 9 results. 28. EMBASE; (multisensory adj3 environment*).ti,ab; 50 results. 29. EMBASE; (multi-sensory adj3 room*).ti,ab; 5 results. 	24	

	<p>30. EMBASE; (multi-sensory adj3 environment*).ti,ab; 24 results.</p> <p>31. EMBASE; Snoezelen.ti,ab; 88 results.</p> <p>32. EMBASE; "comfort room*".ti,ab; 5 results.</p> <p>33. EMBASE; (sensory adj3 stimulat*).ti,ab; 3805 results.</p> <p>34. EMBASE; (multisensory adj3 stimulat*).ti,ab; 114 results.</p> <p>35. EMBASE; (multi-sensory adj3 stimulat*).ti,ab; 22 results.</p> <p>36. EMBASE; 25 OR 26 OR 27 OR 28 OR 29 OR 30 OR 31 OR 32 OR 33 OR 34 OR 35; 4530 results.</p> <p>37. EMBASE; 24 AND 36; 172 results.</p> <p>38. EMBASE; 37 [Limit to: Publication Year 2012-Current]; 24 results.</p>		
CINAHL	<p>39. CINAHL; dementia.ti,ab; 18602 results.</p> <p>40. CINAHL; alzheimer*.ti,ab; 11342 results.</p> <p>41. CINAHL; exp DEMENTIA/; 32379 results.</p> <p>42. CINAHL; ALZHEIMER'S DISEASE/; 13962 results.</p> <p>43. CINAHL; 39 OR 40 OR 41 OR 42; 36245 results.</p> <p>44. CINAHL; (sensory adj3 room*).ti,ab; 13 results.</p> <p>45. CINAHL; (sensory adj3 environment*).ti,ab; 97 results.</p> <p>46. CINAHL; (multisensory adj3 room*).ti,ab; 7 results.</p> <p>47. CINAHL; (multisensory adj3 environment*).ti,ab; 46 results.</p> <p>48. CINAHL; (multi-sensory adj3 room*).ti,ab; 3 results.</p> <p>49. CINAHL; (multi-sensory adj3 environment*).ti,ab; 13 results.</p> <p>50. CINAHL; Snoezelen.ti,ab; 80 results.</p> <p>51. CINAHL; "comfort room*".ti,ab; 4 results.</p> <p>52. CINAHL; (sensory adj3 stimulat*).ti,ab; 345 results.</p> <p>53. CINAHL; (multisensory adj3 stimulat*).ti,ab; 27 results.</p> <p>54. CINAHL; (multi-sensory adj3 stimulat*).ti,ab; 16 results.</p> <p>55. CINAHL; 44 OR 45 OR 46 OR 47 OR 48 OR 49 OR 50 OR 51 OR 52 OR 53 OR 54; 552 results.</p> <p>56. CINAHL; 43 AND 55; 114 results.</p> <p>57. CINAHL; 56 [Limit to: Publication Year 2012-2013]; 8 results.</p>	8	
Medline	<p>58. MEDLINE; dementia.ti,ab; 65751 results.</p> <p>59. MEDLINE; alzheimer*.ti,ab; 92179 results.</p> <p>60. MEDLINE; exp DEMENTIA/; 120795 results.</p> <p>61. MEDLINE; ALZHEIMER'S DISEASE/; 68232 results.</p>	21	

	<p>62. MEDLINE; 58 OR 59 OR 60 OR 61; 166293 results.</p> <p>63. MEDLINE; (sensory adj3 room*).ti,ab; 12 results.</p> <p>64. MEDLINE; (sensory adj3 environment*).ti,ab; 551 results.</p> <p>65. MEDLINE; (multisensory adj3 room*).ti,ab; 7 results.</p> <p>66. MEDLINE; (multisensory adj3 environment*).ti,ab; 46 results.</p> <p>67. MEDLINE; (multi-sensory adj3 room*).ti,ab; 3 results.</p> <p>68. MEDLINE; (multi-sensory adj3 environment*).ti,ab; 17 results.</p> <p>69. MEDLINE; Snoezelen.ti,ab; 79 results.</p> <p>70. MEDLINE; "comfort room*".ti,ab; 4 results.</p> <p>71. MEDLINE; (sensory adj3 stimulat*).ti,ab; 3512 results.</p> <p>72. MEDLINE; (multisensory adj3 stimulat*).ti,ab; 109 results.</p> <p>73. MEDLINE; (multi-sensory adj3 stimulat*).ti,ab; 21 results.</p> <p>74. MEDLINE; 63 OR 64 OR 65 OR 66 OR 67 OR 68 OR 69 OR 70 OR 71 OR 72 OR 73; 4211 results.</p> <p>75. MEDLINE; 62 AND 74; 127 results.</p> <p>76. MEDLINE; 75 [Limit to: Publication Year 2012-Current]; 21 results.</p>		
AMED	<p>77. AMED; dementia.ti,ab; 1744 results.</p> <p>78. AMED; alzheimer*.ti,ab; 971 results.</p> <p>79. AMED; exp DEMENTIA/; 1995 results.</p> <p>80. AMED; ALZHEIMER'S DISEASE/; 747 results.</p> <p>81. AMED; 77 OR 78 OR 79 OR 80; 2592 results.</p> <p>82. AMED; (sensory adj3 room*).ti,ab; 2 results.</p> <p>83. AMED; (sensory adj3 environment*).ti,ab; 45 results.</p> <p>84. AMED; (multisensory adj3 room*).ti,ab; 4 results.</p> <p>85. AMED; (multisensory adj3 environment*).ti,ab; 25 results.</p> <p>86. AMED; (multi-sensory adj3 room*).ti,ab; 0 results.</p> <p>87. AMED; (multi-sensory adj3 environment*).ti,ab; 6 results.</p> <p>88. AMED; Snoezelen.ti,ab; 37 results.</p> <p>89. AMED; "comfort room*".ti,ab; 0 results.</p> <p>90. AMED; (sensory adj3 stimulat*).ti,ab; 147 results.</p> <p>91. AMED; (multisensory adj3 stimulat*).ti,ab; 6 results.</p> <p>92. AMED; (multi-sensory adj3 stimulat*).ti,ab; 4 results.</p> <p>93. AMED; 82 OR 83 OR 84 OR 85 OR 86 OR 87 OR 88 OR 89 OR 90 OR 91 OR 92; 233 results.</p> <p>94. AMED; 81 AND 93; 23 results.</p>	1	

	95. AMED; 94 [Limit to: Publication Year 2012-Current]; 1 results.		
Summary	NA	NA	

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