Q5: For people with dementia, which cognitive/psychosocial interventions (such as cognitive stimulation, cognitive rehabilitation, reality orientation, reminiscence therapy) when compared to placebo/comparator produce benefits/harm in the specified outcomes?

Background

Worldwide, there are estimated to be 25 million people with dementia, Alzheimer's disease accounts for 60% whereas vascular dementia accounts for approximately 30% of the prevalence in low and middle income countries (LAMIC). Many cognitive/psychosocial interventions have been applied in people with dementia. Among them, important ones are: *Cognitive rehabilitation*, which aims to help people achieve or maintain everyday functioning and well-being, and reduce excess disability, for the person with dementia, and reduce strain for family caregivers; *Reality orientation*, a technique, which improves the quality of life of confused elderly people because it involves the presentation of orientation and memory information (In Cochrane library due to their recent overhaul of all psychosocial reviews, the review on reality orientation has been permanently withdrawn and been replaced by a protocol on "Cognitive stimulation to improve cognitive functioning in people with dementia" which includes reality orientation as well as cognitive stimulation) and; *Reminiscence therapy*, which involves the discussion of past activities, events and experiences, with another person or group of people.

Population/Intervention(s)/Comparison/Outcome(s) (PICO)

Population: people with dementia

Interventions: cognitive/psychosocial interventions (reality orientation, cognitive stimulation, reminiscence therapy, and cognitive rehabilitation)

Comparison: care as usual

Outcomes:

REALITY ORIENTATION

cognition improvement

Cognitive and psychosocial interventions

behaviour improvement

REMINISCENCE THERAPY

cognition improvement

behaviour improvement

communication and interaction

well-being

carer strain

staff knowledge of person with dementia

COGNITIVE TRAINING

cognition

verbal memory

verbal fluency

self-reported memory functioning

informant reported participant memory functioning

informant reported participant memory and behaviour problems

List of the systematic reviews identified by the search process

INCLUDED IN GRADE TABLES OR FOOTNOTES

Cognitive and psychosocial interventions

Clare L, Woods B (2003). Cognitive rehabilitation and cognitive training for early-stage Alzheimer's disease and vascular dementia. *Cochrane Database Systematic Reviews,* (4):CD003260. (Last assessed as up-to-date: 17 September 2006)

Spector A et al (2000). Reality Orientation for Dementia: A systematic review of the Evidence of effectiveness from randomized controlled trials. *The Gerontologist,* 40:206-12.

Spector A et al (2003). Efficacy of an evidence-based cognitive stimulation therapy programme for people with dementia – randomized controlled trial. *British Journal of Psychiatry,* 183:248-54.

Woods B et al (2005). Reminiscence therapy for dementia. *Cochrane Database Systematic Reviews,* (2):CD001120 (Last assessed as up-to-date: 5 February 2005).

PICO table

Serial no.	Intervention/Comparison	Outcomes	Systematic reviews used for GRADE	Explanation
1	**Reality orientation vs. no reality orientation**	Cognition improvement Behaviour improvement	Spector A et al (2000). Reality Orientation for Dementia: A systematic review of the Evidence of effectiveness from randomized controlled trials. *The Gerontologist,* 40:206-12. Spector A et al (2003). Efficacy of an evidence-based cognitive stimulation therapy programme for people with dementia – randomized controlled trial. *British Journal of Psychiatry,* 183:248-54.	To be GRADEd Single RCT evidence on cognitive stimulation

Cognitive and psychosocial interventions

2	**Reminiscence therapy vs. No reminiscence therapy**	Cognition improvement Behaviour improvement Communication and Interaction Well-being Carer strain Staff knowledge of person with dementia	Woods B et al (2005). Reminiscence therapy for dementia. *Cochrane Database Systematic Reviews,* (2):CD001120.	Most recent review in the area
3	**Cognitive rehabilitation vs. no cognitive rehabilitation**	Cognition Verbal memory Verbal fluency Self-reported memory functioning Informant reported participant memory functioning Informant reported participant memory and behaviour problems	Clare L, Woods B (2003). Cognitive rehabilitation and cognitive training for early-stage Alzheimer's disease and vascular dementia. *Cochrane Database Systematic Reviews,* (4):CD003260.	No RCT for Cognitive rehabilitation. Only cognitive training GRADEd

Narrative description of the studies that went into the analysis

Cognitive and psychosocial interventions

Reality orientation: The review carried out by Spector et al, 2000 yielded 43 studies, of which 6 were randomized controlled trials meeting the inclusion criteria (containing 125 subjects). Effects on cognition and behaviour were significant in favour of treatment. The evidence indicates that reality orientation has benefits on both cognition and behaviour for people with dementia. However, a continued program may be needed to sustain potential benefits. Future research should evaluate reality orientation in well-designed multicenter trials.

Reminiscence therapy: The review carried out by Woods et al, 2005 included 5 trials, but only four trials with a total of 144 participants had extractable data. The results were statistically significant for cognition (at follow-up), mood (at follow-up) and on measure of general behavioural function (at the end of the intervention period).The improvement on cognition was evident in comparison with no treatment conditions. Care-giver strain showed a significant decrease for care-givers participating in groups with their relative with dementia, and staff knowledge of group members' backgrounds improved significantly.

Cognitive rehabilitation and cognitive training: The review carried by Clare & Woods 2003 included 9 RCTs reporting cognitive training interventions. No RCTs of cognitive rehabilitation were identified. Statistical analyses were conducted to provide an indication of intervention effect sizes. Overall estimates of the treatment effect were calculated using a fixed-effects model, with a test for heterogeneity using a standard chi-square statistic. The diversity of outcome measures used in the studies constrained the possibilities for meta-analysis, but 8 of the 9 studies contributed at least one measure.

Cognitive stimulation therapy: In the RCT carried by Spector 2003, one hundred and fifteen people were randomized within centres to the intervention group and 86 to the control group (care as usual). At follow-up the intervention group had significantly improved relative to the control group on the MMSE, ADAS-COG and Quality of Life – Alzheimer's Disease scales. Using criteria of 4 points or more improvement on the ADAS-COG the number needed to treat was 6 for the intervention group.

GRADE tables

Table 1

Author(s): Castro-Costa E, Tarun D, Huynh N
Date: 2009-08-18
Question: Should reality orientation vs. no reality orientation be used for people with dementia?
Settings:
Bibliography: Spector A et al (2000). Reality Orientation for Dementia: A systematic review of the Evidence of effectiveness from randomized controlled trials. *The Gerontologist,* 40:206-12.

[Cognitive and psychosocial interventions]

Quality assessment							Summary of findings					
							No of patients		Effect		Quality	Importance
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	reality orientation	no reality orientation	Relative (95% CI)	Absolute		
Cognition improvement (Better indicated by lower values)												
6[1]	randomized trials	serious[2]	serious[3]	serious[4]	serious[5]	none	67	58	-	SMD 0.59 lower (0.95 to 0.22 lower)	VERY LOW	IMPORTANT
Behaviour improvement (Better indicated by lower values)												
6	randomized trials[1]	serious[2,6]	serious[3]	serious[4]	serious[5]	none	67	58	-	SMD 0.64 lower (1.19 to 0.08 lower)	VERY LOW	CRITICAL

[1] Analysed from Spector et al, 2000.
[2] There is no evidence of blinding in some studies.
[3] I sq not reported.
[4] Different scales were used to assess outcome.
[5] Sample less than 200 participants.
[6] Randomization is not reported in 4 studies and in 2 have randomization concealment by drawing from a hat.

Table 2

Author(s): Castro-Costa E, Tarun D, Huynh N
Date: 2009-08-18
Question: Should reminiscence therapy vs. no reminiscence therapy be used for demented patients?
Settings: post-treatment
Bibliography: Woods B et al (2005). Reminiscence therapy for dementia. *Cochrane Database Systematic Reviews,* (2):CD001120 (Last assessed as up-to-date: 5 February 2005).

Quality assessment							Summary of findings					
							No of patients		Effect		Quality	Importance
No of	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other	reminiscence	no reminiscence	Relative (95%	Absolute		

[Cognitive and psychosocial interventions]

studies						considerations	therapy	therapy	CI)			
Cognition improvement (Better indicated by lower values)												
4[1]	randomized trials	no serious limitations	no serious inconsistency[2]	serious[3]	serious[4]	none	56	47	-	SMD 0.27 higher (0.13 lower to 0.67 higher)	LOW	IMPORTANT
Behaviour improvement(CAPE) (Better indicated by higher values)												
2[1]	randomized trials	no serious limitations	serious[5]	no serious indirectness	very serious[7]	none	12	8	-	MD 7.61 higher (2.42 to 12.8 higher)	VERY LOW	CRITICAL
Behaviour improvement(Problem Behaviour Rating Scales) (Better indicated by lower values)												
1[1]	randomized trials	no serious limitations	no serious inconsistency	serious[6]	very serious[7]	none	5	5	-	MD 2.20 higher (11.84 lower to 16.24 higher)	VERY LOW	CRITICAL
Behaviour improvement(MDS-ADL) (Better indicated by lower values)												
1[1]	randomized trials	no serious limitations	no serious inconsistency	serious[6]	very serious[7]	none	36	30	-	MD 0.42 higher (4.91 lower to 5.75 higher)	VERY LOW	CRITICAL
Communication and interaction(Holden Communication Scale) (Better indicated by lower values)												
3[1]	randomized trials	no serious limitations	no serious inconsistency[2]	no serious indirectness	very serious[7]	none	48	38	-	SMD 0.01 higher (0.42 lower to 0.44 higher)	LOW	CRITICAL
Well-being (life Satisfaction Index) (Better indicated by lower values)												
2[1]	randomized trials	no serious limitations	no serious inconsistency[2]	no serious indirectness	very serious[7]	none	13	14	-	MD 0.75 higher (2.53 lower to 4.03 higher)	LOW	CRITICAL
Well-being (QoL-AD rated by person with dementia) (Better indicated by lower values)												
1[1]	randomized trials	no serious limitations	no serious inconsistency	serious[6]	very serious[7]	none	7	3	-	MD 5.50 lower (15.52 lower to 4.52 higher)	VERY LOW	CRITICAL

[Cognitive and psychosocial interventions]

Well-being(QoL-AD rated by carer) (Better indicated by lower values)												
1[1]	randomized trials	no serious limitations	no serious inconsistency	serious[6]	very serious[7]	none	7	3	-	MD 5.30 higher (0.15 lower to 10.75 higher)	VERY LOW	CRITICAL
Well-being(WIB) (Better indicated by lower values)												
1[1]	randomized trials	no serious limitations	no serious inconsistency	serious[6]	very serious[7]	none	36	30	-	MD 0.04 higher (0.14 lower to 0.22 higher)	VERY LOW	CRITICAL
Well-being(GDS) (Better indicated by lower values)												
1	randomized trials	no serious limitations	no serious inconsistency	serious[6]	very serious[7]	none	8	9	-	MD 1.28 higher (0.98 lower to 3.54 higher)	VERY LOW	CRITICAL
Carer Strain(GHQ) (Better indicated by lower values)												
1	randomized trials	no serious limitations	no serious inconsistency	serious[6]	very serious[7]	none	7	3	-	MD 2.90 higher (0.22 to 5.58 higher)	VERY LOW	CRITICAL
Carer Strain(Relatives Stress Scale) (Better indicated by lower values)												
1	randomized trials	no serious limitations	no serious inconsistency	serious[6]	very serious[7]	none	7	3	-	MD 18.80 higher (6.45 to 31.15 higher)	VERY LOW	CRITICAL
Staff knowledge of person with dementia (Better indicated by lower values)												
1[1]	randomized trials	no serious limitations	no serious inconsistency	serious[6]	very serious[7]	none	5	5	-	MD 19.80 higher (15.64 to 23.96 higher)	VERY LOW	CRITICAL

[1] analysed from Woods et al, 2005 Cochrane Database Systematic Review.

[2] I sq < 50%.

[3] Different scales used to assess outcome.

[4] Sample less than 200 participants.

[5] I sq > 50%.

[6] Only one study.
[7] Sample less than 100 participants.

Table 3

Author(s): Castro-Costa, Dua Tarun, Huynh N
Date: 2009-08-19
Question: Should cognitive training vs. no cognitive training be used for people with dementia?
Settings:
Bibliography: Clare L, Woods B (2003). Cognitive rehabilitation and cognitive training for early-stage Alzheimer's disease and vascular dementia. *Cochrane Database Systematic Reviews,* (4):CD003260.

Quality assessment							Summary of findings					Importance
							No of patients		Effect		Quality	
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	cognitive training	no cognitive training	Relative (95% CI)	Absolute		
Impact on global measures of dementia severity at post-treatment assessment(MMSE (Better indicated by lower values)												
4[1]	randomized trials	serious[2]	no serious inconsistency[3]	no serious indirectness	serious[4]	none	60	52	-	SMD 0.06 lower (1.75 lower to 1.64 higher)	LOW	IMPORTANT
Impact on neuropsychological test performance at post-treatment assessment(Change in immediate verbal memory scores) (Better indicated by lower values)												
4[1]	randomized trials	serious[2]	no serious inconsistency	no serious indirectness	serious[4]	none	72	65	-	SMD 0.07 higher (0.26 lower to 0.41 higher)	LOW	IMPORTANT
Impact on neuropsychological test performance at post-treatment assessment(Change in delayed verbal memory scores) (Better indicated by lower values)												
2[1]	randomized trials	serious[2]	no serious inconsistency[3]	no serious indirectness	very serious[5]	none	44	37	-	SMD 0.05 lower (3.47 lower to 3.38 higher)	VERY LOW	IMPORTANT
Impact on neuropsychological test performance(change in verbal letter fluency scores) (Better indicated by lower values)												

[Cognitive and psychosocial interventions]

1[1]	randomized trials	serious[2]	no serious inconsistency	serious	very serious[5]	none	19	18	-	SMD 1.11 lower (13.08 lower to 10.86 higher)	VERY LOW	IMPORTANT
Impact on neuropsychological test performance at post-treatment(Change in verbal category fluency scores) (Better indicated by lower values)												
3[1]	randomized trials	serious[2]	no serious inconsistency	no serious indirectness	serious[4]	none	61	54	-	SMD 1.27 higher (1.94 lower to 4.47 higher)	LOW	IMPORTANT
Impact on participant self-report of functioning at post-treatment(change in self-report of memory functioning) (Better indicated by lower values)												
2[1]	randomized trials	serious[2]	no serious inconsistency	no serious indirectness	very serious[5]	none	39	27	-	SMD 0 higher (0.24 lower to 0.74 higher)	VERY LOW	CRITICAL
Impact on participant self-report of functioning at post treatment assessment (Better indicated by lower values)												
3[1]	randomized trials	serious[2]	no serious inconsistency[3]	no serious indirectness	serious[4]	none	58	45	-	MD 0 higher (0 to 0 higher)	LOW	CRITICAL
Impact on informant report of participant functioning at post treatment(memory functioning) (Better indicated by lower values)												
2[1]	randomized trials	serious[2]	no serious inconsistency[3]	no serious indirectness	very serious[5]	none	39	27	-	SMD 0.52 higher (0.02 to 1.02 higher)	VERY LOW	IMPORTANT
Impact on informant reactions at post-treatment assessment(Change in informant report of informant reaction to participant memory and behaviour problems (Better indicated by lower values)												
2[1]	randomized trials	serious[2]	no serious inconsistency[3]	no serious indirectness	very serious[5]	none	46	34	-	MD 0 higher (0 to 0 higher)	VERY LOW	CRITICAL

[1] Analysed from Clare & Woods, 2003 from Cochrane Systematic Review.

[2] Participants were not randomized or blinded. However not downgraded for non-blinding since it is not possible for psychological interventions.

[3] I sq <50%.

[4] Sample less than 200.

[5] Sample less than 100 participants.

Reference List

Clare L, Woods B (2003). Cognitive rehabilitation and cognitive training for early-stage Alzheimer's disease and vascular dementia. *Cochrane Database Systematic Reviews,* (4):CD003260.

Spector A et al (2000). Reality Orientation for Dementia: A systematic review of the Evidence of effectiveness from randomized controlled trials. *The Gerontologist,* 40:206-12.

Spector A et al (2003). Efficacy of an evidence-based cognitive stimulation therapy programme for people with dementia – randomized controlled trial. *British Journal of Psychiatry,* 183:248-54.

Woods B et al (2005). Reminiscence therapy for dementia. *Cochrane Database Systematic Reviews,* (2):CD001120.

From evidence to recommendations

Factor	Explanation
Narrative summary of the evidence base	4 types of cognitive interventions were reviewed. Cognitive stimulation (reality orientation, games, discussions based on information processing rather than knowledge), cognitive training, cognitive rehabilitation and reminiscence therapy (discussion of past activities, events and experiences). Most of these interventions were delivered as group interventions, but cognitive rehabilitation is an individualised therapy in which the emphasis is on enhancing residual cognitive skills and coping with deficits. The evidence indicates that reality orientation has benefits on both cognition and behaviour for dementia sufferers (cognition SMD -0.59; 95% CI -0.95 to -0.22; behaviour SMD -0.64, 95% CI -1.20 to -0.08). In the RCT on cognitive stimulation therapy by Spector et al, 2003, the intervention group had significantly improved relative to the control group on the MMSE, ADAS-COG and Quality of Life – Alzheimer's Disease scales. Reminiscence therapy: The results were statistically significant for cognition, mood and on a

	measure of general behavioural function. The improvement on cognition was evident in comparison with both no treatment and social contact control conditions. Caregiver strain showed a significant decrease for care-givers participating in groups with their relative with dementia, and staff knowledge of group members' backgrounds improved significantly. No significant positive effects of cognitive training were observed. No RCTs of cognitive rehabilitation were identified. There was no evidence of harm.
Summary of the quality of evidence	LOW to VERY LOW for all the interventions
Balance of benefits versus harms	Good evidence from one RCT for cognitive benefits for cognitive stimulation delivered as group interventions. RO has benefits on both cognition and behaviour for dementia sufferers. Some evidence to support reminiscence therapy at least with respect to short term improvement in cognition and mood, and reduction in carer strain. Cognitive training is not effective. There is no evidence of harm.
Values and preferences including any variability and human rights issues	For the person with dementia, memory and other cognitive difficulties can have a major impact on self-confidence and can lead to anxiety, depression and withdrawal from activities, which in turn can result in the difficulties seeming worse. Help with aspects of cognitive functioning, such as memory problems, therefore, may be important in the early stages of dementia. High value is normally attached to these from patient and caregiver perspective.
Costs and resource use and any other relevant feasibility issues	Feasibility of delivery of these interventions is an important limitation such as the need for training, support and supervision for staff carrying out this work E.g. reminiscence therapy requires 30 minutes session twice a week 5 weeks, cognitive stimulation needs to be delivered as 45 min session X14 sessions X 7 weeks. For group interventions, groups will require transport and facility, but they are efficient in

	terms of therapist time. For individual interventions, family members can be recruited as co-therapists. The content of these therapies also should be culturally sensitive and appropriate.
Final recommendation(s) Cognitive interventions applying principles of reality orientation, cognitive stimulation and/or reminiscence therapy may be considered in the care of people with dementia. Health care providers should be trained for delivering these interventions and family members should be involved in delivery of these interventions. Strength of recommendation: STANDARD	

Update of the literature search – June 2012

In June 2012 the literature search for this scoping question was updated. The following systematic reviews were found to be relevant without changing the recommendation:

Clare L, Woods B. Cognitive rehabilitation and cognitive training for early-stage Alzheimer's disease and vascular dementia. Cochrane Database of Systematic Reviews 2003, Issue 4. Art. No.: CD003260. DOI: 10.1002/14651858.CD003260.

Cooper C, Mukadam N, Katona C, Lyketsos CG, Ames, Rabins P, Engedal K, Lima CdM, Blazer D, Teri L, Brodaty H, Livingston G. Systematic review of the effectiveness of non-pharmacological interventions to improve quality of life of people with dementia. Int Psychogeriatr. 2012 Jun;24(6):856-70, doi:10.1017/S1041610211002614

Yuill N, Hollis V. A Systematic Review of Cognitive Stimulation Therapy for Older Adults with Mild to Moderate Dementia: An Occupational Therapy Perspective. Occup. Ther. Int. 18 (2011) 163–186. DOI: 10.1002/oti.315