The effects of carer involvement in cognition-based interventions (CBIs) for people with dementia on carer wellbeing: a systematic review and meta-analysis

Present by Dr Phuong Leung
Dr Vasiliki Orgeta
Professor Martin Orrell

Division of Psychiatry
University College London
Overview of the presentation

1. Background
2. Aims
3. Methods
4. Results
5. Discussion
6. Conclusion
Background

- CBIs have been developed to improve cognition and enhance the quality of life (QoL) of people with dementia.

- CBIs provides an environment for carers to interact and understand the cognitive needs of the person with dementia.

- Carers may report increased depressive symptoms when they participate in CBIs alongside their relative.

- Dyadic interpersonal interactions play a major role in the dementia caregiving process.
A theoretical framework of carer involvement in CBIs for people with dementia

The binding ties theory
(Townsend 1995)
Dyadic interpersonal interactions
(Closeness & conflict)

The enrichment process theory
(Cartwright 1994)
Mutual sharing of pleasurable and meaningful activities

The scaffolding process theory
(Cavanaugh 1989)
Cognitive support by carer

Carer involvement in cognition-based interventions

Carer well-being
Systematic review Aims

- To investigate the effects of carer involvement in CBIs for people with dementia on carer wellbeing

Methods

Inclusion criteria

Types of study

- Carers were involved in CBIs for the person with dementia.
- Randomised controlled trials (RCT) that provided results (i.e. means, standard deviations, t-test or F-test, p and n values).
- Ongoing trials were included if data were available
Types of participants

- Carers of people with dementia (e.g. people with dementia had a diagnosis of Alzheimer’s disease (AD), vascular dementia (VaD) or mixed dementia.
- Any setting (e.g. community, day centre or care home).

Types of intervention

- Cognitive Stimulation (CS)
- Cognitive rehabilitation (CR)
- Cognitive training (CT)
- Multicomponent-CBIs
Three types of CBI for people with dementia (Clare 2004)

<table>
<thead>
<tr>
<th>Intervention type</th>
<th>Aim</th>
<th>Intervention</th>
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<tbody>
<tr>
<td>Cognitive Stimulation (CS)</td>
<td>Enhancement of cognition &amp; social function</td>
<td>Provides a range of general mentally stimulation activities and discussion, often in a social setting.</td>
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<tr>
<td>Cognitive Rehabilitation (CR)</td>
<td>Enhance well-being &amp; improve daily functioning</td>
<td>Set goals to identify an individual’s needs (i.e. associated with cognitive difficulty) and develop strategies to address these needs.</td>
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<tr>
<td>Cognitive Training (CT)</td>
<td>Maintain &amp; enhance cognitive function</td>
<td>Provides guided practice on standardised tasks of memory, attention, or executive function (i.e. problem solving)</td>
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Outcomes

Primary outcomes:
Carer well-being (including QoL, mood and physical and mental health)

Secondary outcomes:
Caregiving relationship and carer burden

Search methods and identification of studies
Medline, Embase, Pubmed, PsycINFO, CINAHL, Alois, The Cochrane Library, Clinical Trials Government,
Terms
People with dementia, dementia, dementia*, Alzheimer*, Alzheimer’s disease, cognitive impairment, cognitive stimulation, cognitive rehabilitation, cognitive training, cognitive support, reality orientation, rehabilitation training and cognitive psychostimulation, carer, caregiver*, randomised controlled trial or random*.

Data extraction and management
- Two reviewers extracted data independently by using a standardised data extraction form.

- Differences in the quality ratings of the papers were resolved by the third reviewer to reach a consensus.
Analyses

Effect size Hedges’ g of continuous data was calculated as the standardised mean difference with 95% confidence intervals (CIs) between the intervention and control groups.

Quality assessment of included studies

The Cochrane Risk of Bias Tool (Cochrane Handbook for Systematic Reviews of Interventions) (Higgins and Green, 2008).
Result

Flow diagram

Records identified through databases (=4721)

Additional records identified through other sources (n=16)

Records after duplicates removed (n=4030)

Records after duplicates removed (n=3712)

Records excluded (n=3728)

Records screened via abstracts & full text (n=302)

Full text articles assessed for eligibility (n=45)

Studies met inclusion criteria (n=9)

Ongoing trial (n=1)

- RCTs with no carer involvement
- Not RCTs with carer involvement
- RCTs with carer involvement, but carer outcomes were not examined
- Ongoing trial no carer involvement
Included studies

- Carers delivered/led the CBI
  - Quayhagen (2000)
    - Individual cognitive training
  - Onder (2005)
    - Individual cognitive stimulation
  - Orrell (2012)
    - Individual cognitive stimulation
  - Neely (2009)
    - Individual cognitive training
- Therapists delivered the CBI plus carers attended some sessions
  - Clare (2010)
    - Individual cognitive rehabilitation
  - Kurz (2012)
    - Group cognitive rehabilitation
- Therapists delivered the CBI plus carers repeated some activities at home
  - Bottino (2005)
    - Group cognitive stimulation
  - Onor (2007)
    - Group cognitive stimulation
Carer outcome measures

Primary outcome measures
Carer quality of life.

- Short Form Health Survey Questionnaire-12 items (SF-12) (Ware et al., 1996)
- Life Satisfaction Philadelphia Geriatric Center Morale Scales (PGCMS) (Lawton et al., 1982).

Carer anxiety/depression

- The subscales of the Brief Symptom Inventory (Derogatis and Melisaratos, 1983)
- Hamilton Rating Scale to measure anxiety (Hamilton, 1959) and depressive symptoms (Hamilton, 1967)
Secondary outcome measures

The carer/person with dementia relationship.
- Marital Needs Satisfaction Scale (Stinnett et al., 1970)
- Carer Patient Relationship Scale (Spruytte et al., 2002)

Carer burden/relative stress
- Caregiver Burden Inventory (Novak and Guest, 1989)
- Zarit Burden Interview (Zarit et al., 1980)
- Relative’s Stress Scale (Greene et al., 1982)
Results
Effects of carer involvement in CBIs for people with dementia

Seven included studies with 803 dyads were included in the meta-analysis. A study of Neely (2009) was not included in this meta-analysis due to data not being available.

Carer involvement in CBIs for people with dementia had a beneficial effect on carers’ wellbeing with effect size Hedges’ $g = 0.22$ and $p = 0.03$.
Carers’ depression levels were reduced in the intervention group with effect size Hedges’ $g = 0.17$ and $p = 0.03$. 

![Graph showing the comparison between control and intervention groups.](image-url)
No significant differences were observed in levels of anxiety symptoms, caregiving relationship and carer burden in the intervention group compared to those in the control group.

Discussion

- Carer involvement in CBIs improves carer quality of life and reduces carers’ depressive symptoms.

- There remains a lack of quality, consistency of results and small sample size in some studies.
A combination of different interventions, various types of carer involvement and duration, intensity and follow-up of the intervention makes results difficult to interpret.

The findings should be interpreted with caution.

**Conclusion**

CBIs are designed to deliver benefit for people with dementia, the collateral benefits for carers have potential implications for developing interventions to support people with dementia and their carers.

Future research should examine the effects of carer involvement where people with dementia in the control group also receive CBIs.
References:


