Effectiveness of nonpharmacological interventions in delaying the institutionalization of patients with dementia: a meta-analysis

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CRD summary
This review of non-pharmacological support programmes for caregivers and people with dementia concluded that such programmes can significantly decrease odds of institutionalisation and increase time to institutionalisation. The considerable statistical and clinical heterogeneity within the primary data means that the authors conclusions should be interpreted with caution.

Authors' objectives
To estimate the effectiveness of non-pharmacological support programmes for caregivers and patients with dementia intended to delay institutionalisation.

Searching
MEDLINE, Web of Knowledge and PsycINFO were searched from January 1990 to March 2006. Search terms were reported. References of included trials were checked for relevant papers. Only English-language studies were considered for inclusion.

Study selection
Controlled studies that evaluated non-pharmacological interventions for community-dwelling patients with dementia and their informal caregivers to delay institutionalisation were eligible for this review. The outcome of interest was institutionalisation.

Most of the studies in this review took place in Europe or USA. All populations were community dwelling dyads of patient and caregiver. Interventions took place in a mixture of home-based and/or outpatient settings. In two studies the patients were hospitalised for the duration of the intervention. All interventions were multicomponent in nature. Psychoeducation featured in approximately half of the studies. The comparator treatments were usually conventional/usual care. Baseline levels of dementia severity varied from mild to severe within all studies. The outcomes reported and analysed were odds of institutionalisation and time to institutionalisation. Follow-up periods ranged from three to 102 months.

Two reviewers independently assessed each study for inclusion. Disagreements were resolved by discussion and consensus.

Assessment of study quality
Two reviewers independently assessed the quality of each study based on guidelines from the Cochrane Consumers and Communication Review Group. The following quality elements were considered: randomisation; allocation concealment; baseline comparability; blinding of outcome assessors, participants or providers; reporting of attrition rate; and the use of intent-to-treat analyses. The maximum possible score was 7 points. Disagreements were resolved by discussion and consensus.

Data extraction
A standardised form was used to extract dichotomous outcomes as odds ratios and continuous outcomes as mean differences. The authors did not report how many reviewers performed the data extraction.

Methods of synthesis
Both fixed-effect and random-effects models were used to calculate pooled odds ratios and associated 95% confidence intervals (CI) for odds of institutionalisation and standardised mean differences and 95% CI for time to institutionalisation. Statistical heterogeneity was assessed using the I^2 statistic. Characteristics of effective programmes were reported in narrative.
Results of the review
A total of 13 studies was included in this review: 10 randomised controlled trials and three non-randomised controlled studies. Samples sizes ranged from 60 to 8,095 patients. Three pairs of studies used the same population with different follow-up periods; numbers of trials included in each analysis reflected the use of only one set of data for each population. Study quality ranged from 1 to 6 out of a possible 7 (mean quality score was 4.2 points).

Odds of institutionalisation (10 trials, n=9,043): Significant heterogeneity ($I^2=63.9\%$) was reported for a random-effects model to be used to pool data. Overall non-pharmacological interventions were reported to significantly reduce the likelihood of patients with dementia being institutionalised (odds ratio 0.66, 95% CI: 0.43 to 0.99, $p=0.05$). Sensitivity analysis that used only high-quality studies (those that scored 5 to 7 points) also found a significant benefit (odds ratio 0.60, 95% CI: 0.43 to 0.85, $p=0.004$). Further analyses appeared to exclude a study based on large sample size and found a stronger difference in odds ratios.

Time to institutionalisation (four unique trials, n=498): Significant heterogeneity ($I^2=96.6\%$) was reported for a random-effects model to be used to pool data. Overall, non-pharmacological interventions were reported to significantly increase the time to institutionalisation for patients with dementia (standardised mean difference 1.44, 95% CI: 0.07 to 2.81, $p=0.04$). Sensitivity analysis that used only high-quality studies (those that scored 5 to 7 points) found no significant benefit of intervention programmes on time to institutionalisation.

Characteristics of effective interventions: Although no distinctive intervention appeared to be related to effectiveness of reducing odds of institutionalisation or time to institutionalisation, programmes that were effective appeared to include both involvement and choice.

Authors’ conclusions
Non-pharmacological support programmes for caregivers and people with dementia significantly decreased odds of institutionalisation and increased time to institutionalisation.

CRD commentary
This review addressed a clear question with adequate inclusion criteria. The searches did not include European databases (such as EMBASE) or grey literature sources, so publication bias cannot be ruled out. Although this study included only English-language papers, the authors reported that none of the potential non-English papers would have met all of the inclusion criteria, which indicated a reduced likelihood of language bias. Study selection and quality assessment were performed by two reviewers, which reduced the chance of reviewer error or bias (although data extraction methods were not fully reported). The authors pooled data from studies with different designs and interventions. Many studies did not report the duration of dementia. Although the reviewers reported using random-effects models where there was significant heterogeneity, for both key outcomes there appeared to be significant levels of heterogeneity even after the use of random-effects analyses, which cast doubt on the appropriateness of pooling this data. Although analyses of high-quality studies found no differences between intervention and control groups for time to institutionalisation, the authors chose to report the larger analyses that reported significant benefits. In light of the considerable statistical and clinical heterogeneity within the primary data, the authors conclusions should be interpreted with caution.

Implications of the review for practice and research
Practice: The authors recommend that support programmes should be intensive and involve both patient and caregiver in actively choosing solutions.

Research: The authors stated that future research should incorporate evaluations of cost effectiveness and net benefit.

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