Review of nurse home visiting interventions for community-dwelling older persons with existing disability

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CRD summary
This review found that components of home visiting by nurses that may benefit older adults with disability included multiple visits, geriatric training and experience, interdisciplinary collaboration, multidimensional assessment, and use of theory. Due to methodological problems, including heterogeneity between the trials and a lack of strong evidence of causality between the interventions and outcomes, these conclusions should be regarded cautiously.

Authors' objectives
To assess the effectiveness of components of interventions involving home visits by a nurse for disability maintenance or improvement in older adults with existing disability and to identify the population group most likely to benefit from home visits.

Searching
MEDLINE (1996 to 2006), CINAHL (1982 to 2006), EMBASE (1980 to 2005), the Cochrane Central Register of Controlled Trials (CENTRAL), DARE, the ACP Journal Club, and the Internet were searched. The search terms were reported and unspecified journals and the reference lists of reviews were handsearched. Experts in the field were consulted.

Study selection
Randomised or quasi-experimental studies of multiple home visits by nurses to community-dwelling adults aged at least 65 years with a disability were eligible for inclusion. Those with disability were defined as frail elderly. Studies were required to deliver a multidimensional interdisciplinary intervention to prevent or delay worsening of disability, using components of comprehensive community-based care or case management. The required outcome was a change in disability score from baseline. Studies with subgroups of the eligible population were also eligible. Studies were excluded if they used telephone contact as the primary intervention, included other interventions in addition to home care, were not based in primary care, or were disease specific.

The criteria for baseline disability varied widely. Participants were recruited mainly from referrals, registries, or through hospital or emergency discharges. Most of them had impairment or deficit in one or more activity of daily living (ADL), with or without other risk factors (such as a high probability of hospital admission or chronic illness) or characteristics of disability (such as eligibility for home assistance or personal support services). The intervention generally included traditional nursing case management expanded to include other components, such as geriatric assessment, service provider referrals, advocacy, self-care education, and networking. The intervention was delivered either by individual nurses or by multidisciplinary teams (nurses, physicians, social workers, and aides) and was usually targeted to specific participant needs. Controls received the usual or traditional care, where reported. Each study used a different instrument to measure outcomes. The review outcome was the effect of structural and process components of interventions on the disability outcomes. Where reported, the duration of follow-up in the included studies ranged from six months to three years and the frequency of home visits ranged from approximately four times per month to four times over three years.

The authors did not state how the papers were selected for the review, nor how many reviewers performed the selection.

Assessment of study quality
Studies were scored for the following components of validity: design, allocation concealment, blinding of assessment, baseline comparability, follow-up, and use of intention-to-treat analysis. The maximum score was 21 points.

The authors did not state how many reviewers performed the assessment.
Data extraction
Descriptive and/or statistical data on between-group differences in change score were extracted from each study. Findings were categorised according to components of the interventions: structural or service delivery (theoretical framework, nurse education and experience, training, intervention dose, and selected population) and process or treatment (nurse-patient relationship, geriatric assessment, care/case management, and collaborative care environment), using a published framework (Donabedian, 1966. see 'Other Publications of Related Interest').

The authors did not state how many reviewers performed the data extraction.

Methods of synthesis
The studies were combined in a narrative synthesis, organised by structural and process components of the interventions.

Results of the review
Ten trials (n=6,791 participants, range 200 to 1,966) were included; nine of these were randomised controlled trials (RCTs; n=5,388) and one had matched controls (n=1,403). Most of the trials were deemed to be at low risk of bias, with quality scores ranging from 16 to 21 points.

Summary findings: Five trials reported benefits for all or some of the intervention groups compared with controls, with effect sizes ranging from small to moderate (where reported).

Structural components: Only one trial reported the use of a theoretical framework; its effect on outcomes was unclear. The most effective interventions were undertaken by nurses with experience and/or advanced education in community health nursing and/or geriatrics. Provision of extra training specific to the intervention was beneficial in three of four relevant trials. In four trials, frequent (at least four per year) nurse visits were associated with benefit. No conclusion could be drawn on the best means of recruiting a population likely to benefit from the intervention.

Process components: Few trials reported on the nurse-patient relationship, but two reported positive outcomes related to the use of active nurse-patient communication. The extent to which geriatric nursing assessment improved disability outcomes was unclear (10 studies). Four of nine trials using extensive care or case management reported positive outcomes. Four trials reported that collaborative care planning or a team approach was of benefit, but these approaches did not consistently prevent disability worsening.

Authors' conclusions
Components of home visiting by nurses that might benefit older adults with disability included multiple visits, geriatric training and experience, interdisciplinary collaboration, multidimensional assessment, and use of theory.

CRD commentary
The objectives of the review were not entirely clear and it seemed that one of the objectives was to define the target population. The wide scope of the inclusion criteria meant that the included trials differed greatly in their populations, interventions, and outcomes, which makes it difficult to interpret the applicability of overall findings. Relevant sources were searched for studies, though it was unclear whether the search was limited by language or publication status. Publication bias was not assessed and it does not appear that steps were taken to minimise the risk of reviewer bias and error, such as having more than one reviewer independently select studies, assess validity, and extract data. The relevant components of quality were assessed, but the details of the criteria used were not reported and some aspects of study quality were unclear (e.g. follow-up rates). The narrative synthesis was structured using a well-established model, but the overall findings were hard to interpret due to the large number of different measures and outcomes used in the primary studies, a lack of information about the control interventions, and discrepancies in the text. There was strong potential for confounding between the various components of interventions assessed. Some studies suggested a correlation between the interventions and outcomes, but the evidence was not sufficiently conclusive nor consistent to indicate causality.

Due to methodological problems in the review, including heterogeneity between the included trials and a lack of strong
evidence of causality between the interventions and outcomes, the authors’ conclusions should be regarded cautiously.

Implications of the review for practice and research

**Practice:** The authors stated that new and existing home care delivery programmes to frail elderly people should include nurse home-visit approaches identified as beneficial. The most successful interventions used a comprehensive approach to promote health behaviour and target risk factors associated with disability.

**Research:** The authors stated that further research was needed on the best-practice models of home visiting by nurses, using standardised measures, targets, and methods of analysis. Interventions should target disability maintenance and should be structured using theoretical frameworks. Studies should give details of the settings and process measures used, to facilitate the identification of the effective components of interventions.

**Funding**

Not stated.

**Bibliographic details**


**PubMedID** 19114607

**DOI** 10.1177/1077558708328815

**Original Paper URL**

http://mcr.sagepub.com/cgi/content/abstract/66/2/119

**Other publications of related interest**


**Indexing Status**

Subject indexing assigned by NLM

**MeSH**

Aged; Community Health Nursing /organization & administration; Disabled Persons; Geriatric Assessment; Home Care Services /organization & administration; Humans; Models, Theoretical; Nurse-Patient Relations; Outcome and Process Assessment (Health Care); Residence Characteristics

**AccessionNumber**

12009105597

**Date bibliographic record published**

30/09/2009

**Date abstract record published**

21/04/2010

**Record Status**

This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.