Effectiveness of community health workers in the care of persons with diabetes

CRD summary
The review evaluated the effectiveness of Community Health Workers in the care of diabetics and concluded that interventions involving Community Health Workers showed some improvements in participant knowledge, behaviour and physiological measures and decreased hospital admissions, particularly in minority populations. The review had no major flaws, but the reliability of the conclusions is hindered by limited evidence of unclear quality.

Authors' objectives
To examine the effectiveness of Community Health Workers in supporting the care of people with diabetes.

Searching
MEDLINE, ERIC, CINAHL, Sociological Abstracts, Chronic Disease Prevention Databases, PsycINFO and Web of Science were searched for publications in any language. Search dates ranged from 1963 to March 2004. An initial search of EMBASE was performed. Unpublished articles, dissertations and abstracts were excluded from the review. Search terms were not reported, but a list of alternative names for Community Health Workers was given.

Study selection
Eligible studies were published English-language studies of interventions involving Community Health Workers in the care of adults (18 years old or older) with diabetes with at least one outcome among participants. Community Health Workers were defined as health workers who had no formal paraprofessional or professional training in healthcare, who were carrying out functions related to health care delivery, who were trained in the context of the intervention and who had a relationship with the community being served. Community Health Worker roles comprised a range of direct and indirect healthcare and social support. Community Health Workers were either the sole focus of the intervention or one component of a multi-component intervention or team. Although Community Health Worker training was detailed in most studies, other characteristics were spuriously reported. Intervention settings were unrestricted. Included studies were conducted in clinics, home or community settings. There was no restriction on duration of follow-up and the mean duration was 13.7 months (range two to 36 months). The mean age of most participants ranged from 43.3 to 61.4 years. The proportion of males ranged from zero to 47 per cent. Most studies included participants with type 2 diabetes. Most studies were conducted in USA, all were in developed countries and most targeted minority ethnic populations. The outcomes reported in the included studies included physiological measures and health outcomes, knowledge and behaviour outcomes, attendance, satisfaction and economic outcomes.

Two researchers independently screened potentially relevant articles. Relevant studies were determined by consensus and any disagreements were resolved by consultation with a third reviewer.

Assessment of study quality
Study quality was assessed for characteristics such as method of randomisation, blinding and concealment of allocation, method of participant recruitment and whether they were representative of the target population, comparability of comparison groups, attrition of the participants and Community Health Workers, and whether demographic characteristics were reported. The authors did not state how the validity assessment was performed.

Data extraction
One reviewer extracted the data using a standardised extraction template, which was checked by a second reviewer. Quantitative data was presented using mean values with standard deviations, unless otherwise indicated.

Methods of synthesis
A narrative synthesis was provided, as the included studies assessed different interventions and outcomes in heterogeneous populations and settings. The studies were synthesised by outcomes.
Results of the review

Eighteen relevant studies were identified, including: eight randomised controlled trials (RCTs) (n=2,511); six before-after studies (n=4,903); three studies with non-randomised allocation of treatment and comparison groups (n=301, two cohort studies and one matched-pairs study); and one study with post intervention measures only (n=206). The sample size range of the studies was seven to 4,525. Only two RCTs reported the method of randomisation; two RCTs reported blinding of the assessor; and allocation concealment was reported in three RCTs. Attrition rates were not consistently reported and ranged from five per cent to 37 per cent.

Attendance: Data for 12 studies showed that for most studies more than half the participants either completed the programme or met the required number of contacts with the Community Health Workers.

Knowledge and behaviour outcomes: There was a significant increase in knowledge of diabetes or self-care (p<0.05) in five of the seven studies reporting this outcome. Positive behavioural changes were found for diet (four studies), physical activity level (five studies), self-monitoring of blood glucose (three studies) and other self-care behaviours (one study).

Physiological measures and health outcomes: Significant improvements were found for four studies (including one RCT) of 11 relevant studies of glycosylated haemoglobin level (HbA1C), two of five studies of lipid levels and a reduction in blood pressure (p<0.05) for two of four relevant studies. Two studies also showed improvements in provider monitoring of glycaemic control and rates of retinopathy screening. Two studies reported outcomes related to quality of life, including: an increase in self-efficacy (p<0.0001, one study); a decrease in fatigue (p=0.002, one study); and an increase in self-reported health (p<0.01, one study).

Economic outcomes: Four studies included health care utilisation outcomes. Two studies found a decrease in emergency attendance for the intervention group. One study found a significant decrease in hospital admissions related to diabetes (p<0.05). Another study found a decrease in hospital admissions via the emergency department.

Authors' conclusions

Various inputs from community health workers showed improvements in participant knowledge, behaviour, physiological measures and health care utilisation.

CRD commentary

The review addressed a well-defined question in terms of participants, interventions and study design, although relevant outcomes were not clearly defined. Articles in any language were included in the search, but all the included studies were published in English and most were in USA or other developed countries and targeted minority populations. The generalisability of the results to other populations/settings was, therefore, uncertain. Relevant databases were searched, but the restriction to peer-reviewed journal publications did not provide reassurance that all relevant data were included. There was no assessment of publication bias. The authors attempted to minimise bias and error during the review process by having two researchers carry out study selection independently, resolving disagreements by consensus and by one reviewer checking the data extraction of another. Although study quality was assessed, limited quality details were reported and quality assessment was not subjected to the same transparency as other study aspects. The characteristics of individual studies were reported. The authors’ decision not to pool the studies in a meta-analysis was justified given the apparent differences between studies. The authors’ conclusions reflected the limited evidence presented, and some aspects of the review were well conducted, but reliability was potentially hindered due to the unclear quality of the included studies.

Implications of the review for practice and research

Practice: The authors stated that Community Health Workers may be more effective when certain infrastructures were already in place, including well-developed community networks.

Research: The authors stated that research was needed to find the incremental benefit of Community Health Workers in multi-component interventions and to identify the appropriate settings and optimal roles for Community Health Workers in the care of people with diabetes. Research with more robust designs was needed particularly. There was a need for further research related to patient satisfaction, health-related quality of life, healthcare utilisation and cost.
Implications.

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