Effectiveness of community health workers in the care of people with hypertension

CRD summary
The review evaluated the effectiveness of community health workers in the care of people with hypertension and concluded that interventions that involved community health workers can improve rates of blood pressure control, particularly in under-served diverse racial/ethnic populations. Other significant health outcomes were reported. The review had no major flaws and the conclusions are likely to be reliable.

Authors' objectives
To examine the effectiveness of community health workers in the care of people with hypertension and in particular whether interventions that involved community health workers increased the number of people with sustained control of their blood pressure.

Searching
Seven databases were searched from their inception to May 2006 (MEDLINE, ERIC, CINAHL, Sociological Abstracts, Chronic Disease Prevention Databases, PsycINFO and Web of Science) for publications in any language. Unpublished articles or dissertations were excluded from the review. Search terms were not reported, but a list of alternative names for community health workers was given.

The authors screened potentially relevant articles under the guidance of an information specialist.

Study selection
Any type of study of interventions that involved community health workers in the care of people with hypertension was eligible for inclusion so long as there was at least one outcome among participants. Community health workers were defined as health workers who had no formal paraprofessional or professional designation, who carried out functions related to health care delivery, who were trained as part of an intervention and who had a relationship with the community being served. Mean durations of follow-up were three months to eight years. Mean age of participants ranged from 34 to 57 years. The proportion of males ranged from 22% to 100%. All the included studies were in USA and most targeted minority populations (most commonly African Americans), many of whom had high risk behaviours or situations.

Interventions were conducted in healthcare settings, community settings (generally participants' homes) or a combination of the two. Community health workers were either the sole focus or one component of the intervention. Community health workers' roles were to provide relevant health education, protocols for treatment and medication and to try to reduce barriers to compliance with treatment.

The primary outcome was sustained blood pressure control. Other outcomes reported included physiological measures, health outcomes, healthcare system outcomes, participant awareness and behaviour outcomes and satisfaction.

Assessment of study quality
Study quality was assessed through characteristics such as method of randomisation, blinding and concealment of allocation for RCTs, loss to follow-up, comparability of comparison groups, and whether the characteristics of the participants and community health workers were reported.

The authors did not state how the validity assessment was performed, but referred to a previous publication. The authors did not report quality grades for the included studies, but reported attrition rates for both participants and community health workers.

Data extraction
One reviewer extracted the data using a standardised extraction template that was checked by a second reviewer. Any disagreements were resolved by consensus. Quantitative data were presented using mean values, with standard deviations, percentages or median values.

**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**

Fourteen relevant studies were identified: eight randomised controlled trials (RCTs) (n=4,954); one non randomised trial (n=800); three before-after studies (n=366); one time series study (n=262); and one survey (n=84). Attrition rates were reported for six of the RCTs and ranged from 5.7% (at three months) to 40.3% (at five years). The attrition rate was 18% (at two years) for the time series study. Randomisation method was reported in six RCTs. Concealment of allocation was reported in just one RCT.

Ten studies (seven RCTs, two before-after studies and one time series study) examined the effect of community health workers on blood pressure control. Nine studies reported positive improvements (excluding one RCT). The RCTs showed increased blood pressure control in the community health worker group compared to the control group, ranging from 4% to 46% over six to 24 months. Significant improvements were also reported for other physiological measures and health outcomes, including a decrease in left ventricular mass and a decrease in Framingham risk scores for coronary heart disease. Other relevant outcomes reported included hypertension-related hospitalisation and mortality, LDL (low-density lipoprotein) cholesterol goals and ideal weight-related measurements.

There were positive behavioural changes in nine of 10 relevant studies, including appointment keeping and taking hypertensive agents. Other participant awareness and behaviour outcomes reported included taking medication, using a card to fill prescriptions, attending follow-up appointments, patient satisfaction, taking exercise and smoking.

Two RCTs, one non-RCT and one before-after study reported improvements in healthcare utilisation and system outcomes.

**Authors' conclusions**

Community health workers may have an important impact on self-management of hypertension. Programmes involving community health workers as part of a multidisciplinary team held promise, particularly for under-served diverse racial/ethnic populations.

**CRD commentary**

The review addressed a well-defined question in terms of participants, interventions, study design and outcomes. Although articles in any language were included in the search, all the included studies were performed in USA (mostly in minority populations) and the generalisability of the results to other populations/settings was uncertain. Relevant databases were searched, but the restriction to peer-reviewed journal publications did not provide reassurance that 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 carrying out study selection under the guidance of an information specialist, by one reviewer checking the data extraction of another and by assessing study quality. Although study quality was assessed, limited quality details were reported and no study quality grades were given. The characteristics of individual studies were reported, but some study results were not presented clearly and there were some apparent errors. The authors' decision not to pool the studies in a meta-analysis was justified for most outcomes given the apparent differences between studies. A meta-analysis may have been possible for blood pressure control. The authors’ conclusions seem reliable based on the evidence presented.

**Implications of the review for practice and research**

**Practice**: The authors stated that specific competencies and skills for community health workers should be identified and guidelines provided on how often health professionals needed to reinforce and evaluate them.

**Research**: The authors stated that there were numerous gaps in the research about community health workers. Gaps
included a need to: test the applicability of the community health worker model in various populations; specify the system supports needed by community health workers; evaluate participant and community health worker satisfaction; and assess optimal performance by community health workers. Other aspects of community health workers that required investigation included accreditation of community health workers, policy matters related to community health workers and cost effectiveness of community health workers.

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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.