Cardiovascular health disparities: a systematic review of health care interventions

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CRD summary
This review addressed hypertension, hyperlipidaemia, physical activity, tobacco use, coronary artery disease and heart failure in "communities of color" in North America, concluding that high-quality research on reducing cardiovascular racial and ethnic disparities was virtually non-existent; data supporting the value of registries, multidisciplinary teams and community outreach were found. The authors' conclusions were vague but appear reasonably reliable.

Authors' objectives
To review clinically oriented studies in "communities of color" (including African American, Alaskan Native, Native American, American Indian, American Mexican, Hispanic, Asian and other minority ethnic populations) that addressed hypertension, hyperlipidaemia, physical activity, tobacco use, coronary artery disease and heart failure.

Searching
The authors searched a range of electronic databases for relevant studies published between 1995 and 2006: MEDLINE, Cochrane Controlled Trials Register, EMBASE, EPOC, Research and Developments Resource Base, and CINAHL. Search terms were reported. In addition, the authors handsearched two years of issues from 13 relevant journals and followed up relevant references from retrieved studies and review articles.

Study selection
Studies were eligible for inclusion if they evaluated an intervention designed to improve the delivery of care relating to hypertension, hyperlipidemia, physical activity, tobacco use, coronary artery disease or heart failure for adult patients from "communities of color" (where patients from "communities of color" made up at least 50% of all patients or were described in a study subgroup). In addition, studies had to be conducted in a North American health care setting.

Included studies evaluated a wide range of interventions, predominantly in African-American populations.

Studies were independently selected for inclusion by two reviewers with disagreements resolved by consensus.

Assessment of study quality
The quality of studies was assessed according to 26 criteria intended for use with randomised and non-randomised studies, with a maximum possible score of 27 points.

It appeared that validity assessment was conducted by four reviewers, but it was not clear if these reviewers checked each other's assessments to ensure accuracy.

Data extraction
Data were extracted on key study characteristics by four reviewers.

It was not clear if these reviewers checked each other's extraction to ensure accuracy.

Methods of synthesis
The included studies were presented in a narrative synthesis, grouped by the health condition of interest.

Results of the review
A total of 62 studies evaluating 62 different interventions were included in the review.

Hypertension (27 studies, n=11,446 patients, ranging from 26 to 2,860 per study): The included studies ranged in quality score from 10 to 22 points. Across the range of included interventions, sodium restriction resulted in benefits in
terms of blood pressure control, with less evidence available for the benefits of exercise, weight loss or psycho-social interventions. A small number studies of general clinic reorganisation recommendations reported beneficial effects on blood pressure control, as did a few small pharmacist and community health worker intervention studies. Nurse-led interventions were more commonly evaluated, and were generally reported to have beneficial effects on blood pressure control.

**Hyperlipidaemia** (nine studies, n=4,544 patients, ranging from 36 to 2,860 per study): The included studies ranged in quality score from 12 to 21 points. These reported mixed results in terms of the effects of interventions designed to improve lipid levels. However, some interventions targeted at overall improvement in cardiovascular risk factors via health care organisation-level interventions, or care management with nurses, were shown to improve lipid levels.

**Tobacco use** (18 studies, n=14,533 patients, ranging from 93 to 2,595 patients per study): The included studies ranged in quality score from 16 to 23 points. Patient directed pharmacologic interventions for smoking cessation were reported to be effective in terms of tobacco use in African Americans, particularly in combination with counselling. These interventions were less frequently evaluated in other minority groups. Culturally targeted health education interventions were highly heterogeneous and reported mixed effects on tobacco use. Some evidence suggested that clinic-wide tobacco cessation programmes might be more effective than isolated provider-targeted education programmes.

**Physical inactivity** (eight studies, n=1,889 patients, ranging from 21 to 551 patients per study): The included studies ranged in quality score from 10 to 22 points. These studies reported mixed results for interventions designed to increase physical activity, and generally had high drop-out rates.

**Coronary artery disease**: No studies described interventions designed to improve acute coronary heart disease.

**Heart failure** (seven studies, n=1,221, ranging from 18 to 406 patients per study): The included studies ranged in quality score from 16 to 24 points. Across the range of evaluated interventions, heart failure care management programmes were reported to decrease hospitalisation rates, with successful programmes consisting of education, specialty nurse case management, frequent telephone follow-up with medication adjustment, and oversight by a specialist in heart failure.

**Authors' conclusions**

High-quality research specifically addressing reduction of cardiovascular racial and ethnic disparities was virtually non-existent. Data supporting the value of registries, multidisciplinary teams and community outreach were found across several conditions.

**CRD commentary**

This review was based on a very broad question, which was appropriately defined in terms of the participants and interventions/outcomes of interest. The search for relevant studies was reasonably thorough and covered a wide range of sources, but no attempt was made to identify unpublished studies, so the potential publication bias could not be excluded. The validity of included studies was assessed using a published checklist, with summary scores presented in tables alongside other key study details. Multiple authors were involved in the selection, extraction and validity assessment of studies, although it was not entirely clear whether attempts were made to minimise bias and error during the extraction and assessment processes. Given the heterogeneity of the included studies, the use of a narrative synthesis appeared appropriate. Given the breadth of the review, the authors’ conclusions were necessarily vague but appear reasonably reliable.

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

*Research:* The authors stated that further research would be of value on interventions addressing care transitions, using telephonic outreach, and promoting medication access and adherence.

*Practice:* The authors did not state any implications for practice.

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