A systematic review of diabetes self-care interventions for older, African American, or Latino adults

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CRD summary
This review assessed the effectiveness of self-care interventions aimed at improving glycaemic control, or health-related quality of life, among older African American or Latino adults with diabetes. Insufficient evidence was found to be able to reach definitive conclusions. The authors concluded that large-scale clinical trials designed according to cultural and age specific criteria are needed.

Authors' objectives
To assess the effectiveness of published self-care interventions aimed at improving glycaemic control, or health-related quality of life, among older African American or Latino adults with diabetes.

Searching
MEDLINE, HealthSTAR, EMBASE, PsycINFO, AgeLine and Sociological Abstracts were searched from January 1985 to December 2000 for reports published in English; the search terms were stated.

Study selection
Study designs of evaluations included in the review
The inclusion criteria were not specified in terms of the study design. Most of the included randomised controlled trials (RCTs) used patient-level randomisation, but in one RCT randomisation was at the level of the provider team.

Specific interventions included in the review
Studies of self-care interventions aimed at changing knowledge, beliefs or behaviour were eligible for inclusion. The studies had to describe the intervention. The included studies used one or more of the following components in active intervention arms: educational group sessions; exercise class; diet counselling sessions; support group meetings; weekly appointment with the pharmacist; programme of diabetic education; follow-up phone calls; standard or nutritional management programme; group discussion; one-to-one diabetic education programme; and a bicultural community health worker acting as a liaison between patients, families and health care workers. The duration of the interventions, where stated, ranged from 1 month to 5 years.

Participants included in the review
Studies in older persons (aged older than 55 years), African American adults or Latino adults with diabetes were eligible for inclusion. In the included studies, the baseline glycated hemoglobin ranged from 7 to 12.4%. The mean age, where reported, ranged from 50.7 to 70 years. Studies of older adults included Caucasians, African Americans or Latinos. Studies in mixed-age populations included African Americans or Latinos. Most of the studies were in patients from urban settings.

Outcomes assessed in the review
Studies that assessed glycaemic control, diabetes-related symptoms, or self-rated quality of life were eligible for inclusion. Studies in which the participants were asked to rate their health or well-being were considered to assess quality of life. None of the included studies assessed symptoms related to diabetes.

How were decisions on the relevance of primary studies made?
Two reviewers independently selected studies from full papers and resolved any disagreements on inclusions through recourse to a third author. However, the process by which these potentially relevant papers were selected from the titles and abstracts was unclear.
Assessment of study quality
Validity was not formally assessed.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction. Data were extracted on the number of patients enrolled, the number completing the study, and the mean percentage changes in glycated haemoglobin and quality of life scores for each treatment group. The mean difference and 95% confidence interval of the outcomes were also reported.

Methods of synthesis
How were the studies combined?
The studies were grouped by study design and outcome and combined in a narrative. The RCT that reported pre-test post-test results was grouped with the uncontrolled studies. The characteristics of studies reporting positive effects for the intervention were discussed.

How were differences between studies investigated?
Differences between the studies were briefly discussed in the text and some differences were shown in tables.

Results of the review
Eight RCTs (1,656 patients), one RCT analysed as a pre-intervention post-intervention study for both arms (64 patients), and three pre-intervention post-intervention studies (236 patients) were included.

The sample sizes ranged from 5 to 596. Methodological limitations included the weakness of studies with a pre-test post-test design, high attrition rates, and studies with small sample size that lacked statistical power. In addition, only one study analysed data on an intention-to-treat basis.

RCTs (8 studies).
Glycaemic control: 5 of the 8 RCTs found that, compared with the control, the intervention improved glycaemic control by the end of the intervention. However, one RCT had a high (50%) attrition rate and another tested statistical significance using a 1-tailed test. Two of the 3 RCTs reporting 6-month follow-up results found no significant difference between the treatments. The third RCT found that improved control was partially sustained at 6 months.

Quality of life: 3 of the 4 RCTs reporting quality of life outcomes found no significant difference between the treatments in quality of life scores at the end of the intervention. The fourth RCT (11 patients in the intervention arms and 13 patients in the control arm) found that a monthly support group over 18 months significantly improved quality of life scores compared with no support (78 points versus 71 points, P<0.05). The trialists reported no significant difference between the treatment groups at baseline, but the reviewers commented that baseline values were neither provided, nor adjusted for in the analysis.

Uncontrolled studies (4 studies).
Three studies found that glycaemic control significantly improved after the intervention (2 studies immediately after the intervention and a third study 1 month after the intervention). The fourth study found no change in glycated haemoglobin at the end of the intervention. This study found improved quality of life post-intervention and at the 6-month follow-up.

Characteristics of the 10 studies that showed a positive effect for the intervention included: poor glycaemic control at baseline (glycated haemoglobin greater than 11%); interventions aimed at changing behaviour as opposed to using traditional didactic methods (all 10 studies); interventions culturally tailored (4 studies); an intervention modified for older people (1 study); group counselling (8 studies); one-to-one counselling (3 studies); nurse educators (8 studies); nutritionalist educators (8 studies); and the involvement of the family (6 studies).
Authors' conclusions
The authors concluded that the review's findings could only be used to guide future research rather than to provide definitive answers.

CRD commentary
The review question was clear in terms of the participants, intervention and outcomes. The inclusion criteria were not defined in terms of the study design. A number of relevant sources were searched and the search terms were stated. The authors correctly stated that limiting the included studies to those published in English may have resulted in the omission of some relevant studies, and could have led to publication bias. Two reviewers independently selected the studies from full publications, but the methods used to initially screen titles and abstracts were unclear. The methods used to assess validity and extract data were not described; hence, efforts made to reduce errors and bias cannot be judged. The authors did not formally assess validity but they did discuss some aspects of it in the text: study design, attrition rates, the use of intention-to-treat analysis, the appropriateness of the statistical analysis, and statistical power. Some relevant information on the included studies was tabulated, but there were no details of the instruments used to assess quality of life. Given the heterogeneity of the studies, a narrative synthesis was appropriate. The evidence from RCTs was discussed separately, and some limitations of the studies and the review were discussed. The evidence presented in the review supports the authors' conclusions that there was insufficient evidence to reach definitive conclusions.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that large-scale clinical trials are required to assess the effectiveness of age and culturally targeted interventions on diabetic problems among older Latinos and African Americans. They also stated that research is required to assess the effect of self-care interventions on macrovascular complications of diabetes.

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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.