The impact of culturally competent diabetes care interventions for improving diabetes-related outcomes in ethnic minority groups: a systematic review

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CRD summary
The authors concluded that structured interventions that were tailored to minority ethnic groups with diabetes, and integrated elements of culture, language, religion and health literacy skills, produced a positive impact on a range of patient-important outcomes. This seems to be overly positive given the mixed evidence base and may not be reliable.

Authors' objectives
To examine the evidence on the effectiveness of culturally competent interventions when tailored to the needs of people with diabetes from ethnic minority groups.

Searching
MEDLINE and CINAHL were searched from inception to September 2011 (search terms were reported). Additional searches were conducted using DARE, The Cochrane Library, two NHS specialist databases (ethnicity and health, diabetes). References and review articles were checked for additional relevant publications. Google Scholar, four experts and Google handsearches were used to further expand the searches and include potential grey literature. Publication and language restrictions were not applied.

Study selection
Studies that reported on the impact of culturally competent interventions on any outcome measures in any ethnic minority population, within a majority population, with any type of diabetes were included.

Studies were conducted in the UK, the USA, Denmark and Austria. The ethnic minorities included African-Americans, African-Caribbeans, Asians, Bangladeshis, Hispanics and others. The majority group were South Asians mostly represented in the UK randomised controlled trials (RCTs). Most studies included adults with Type 2 diabetes, one study included children with Type 1 diabetes and another studied women with gestational diabetes. All studies used complex interventions (pictorial material, videos, financial incentives, informal peer learning) and studies varied as to their use of individual, group or a mixture of session types. Number and duration of sessions varied from single sessions to fortnightly two hour sessions over six months and more. Interventions were delivered in primary, community and hospital out-patient settings. Some studies used bilingual/multilingual health educators, advocates or link workers, in some studies a translator was used. Reported outcomes included clinical, psychosocial, lifestyle and health care utilisation measures.

Studies were assessed for inclusion by two reviewers and disagreements resolved by discussion or a third opinion.

Assessment of study quality
Included studies were assessed for quality using tools appropriate to the study design, but it was unclear how many reviewers performed these assessments. Experimental (randomised, quasi and non-randomised studies) were assessed using 15 criteria from Moher et al. (2010) which included items about method of randomisation, follow-up rates, baseline differences and details of the interventions. Each item was scored as yes/no/can't tell. Studies had to score at least 8 out of 15 to be included, with good quality studies scoring yes on 80 to 100% of items (A), moderate quality studies scored yes on 50 to 79% of items (B) and weak quality studies scored yes on less than 50% of items (C).

Action research and qualitative studies were assessed using criteria from Popay (six items, studies had to score at least 3 out of 6 to be included) while retrospective studies were assessed using Critical Appraisal Skills Programme (CASP) criteria (12 items, studies had to score at least 6 out of 12 to be included).

Data extraction
One reviewer piloted data extraction, but it was unclear how many reviewers performed the extraction. Authors were contacted for missing data.
Studies were assessed for cultural competence using a newly developed tool which contained ten criteria with each contributing 10% to the overall score. Cultural competence was judged to be achieved when a score of 70% or greater was attained. Studies were rated as highly-culturally competent (90 to 100%, A), moderately culturally competent (70 to 89%, B) or low culturally competent (less than 70%, C).

Methods of synthesis
A narrative synthesis was adopted using text and tables to present the results.

Results of the review
A total of 11 studies were included (2,616 participants): five randomised controlled trials, one quasi-experimental study, two qualitative action research studies, two retrospective cohort studies and one qualitative study using focus groups/interviews. Where reported, follow-up ranged from 10 weeks to two years.

Overall, five or 11 studies were judged to be good quality (A rated, meeting more than 79% quality criteria) and the remaining six of 11 were moderate quality (B rates, meeting 50 to 79% of quality criteria). Seven of 11 interventions were judged to be highly culturally competent; the remaining four scored as moderately culturally competent.

Diabetes-related outcome measures: Nine studies including four RCTs evaluated HbA1c, total cholesterol and blood pressure. One RCT reported significant between group changes for both African-Americans and Hispanics compared with standard treatment for HbA1c levels. Two trials reported a significant decrease in total cholesterol levels (one immediately post-intervention, one after a year). Two trials reported statistically significant reductions in diastolic blood pressure compared with control treatment (one trial reported at one year, the second trial reported at two year follow-up).

The quasi-experimental study reported small changes in HbA1c in both intervention and control groups. The action research studies reported mixed results and any beneficial effects were not sustained at six month follow-up. Two retrospective cohort studies reported on HbA1c with mixed results.

Knowledge, attitude change and self-efficacy: One RCT assessed diabetes knowledge, attitude towards complications and self-care practices but found no significant differences between groups. The quasi-experimental study evaluated self-efficacy but found no significant differences between groups. Two qualitative studies reported small improvements in knowledge and attitudes, one reported that participants were enthusiastic about the content of the intervention even though they reported that it was difficult. Participant attitudes varied with some not wanting to work in peer groups and in some cases individual sessions had to be provided.

Cost information
One RCT analysed the programme cost of £434 per patient over two years and calculated an incremental cost-effectiveness ratio of £28,933 per quality-adjusted life year. One study estimated annual cost per patient as £365 compared with £264 for treating Type 2 Diabetes, while a second study estimated the cost of training a bilingual healthcare advocate or volunteer as a group facilitator to cost £1,500 and £345 to deliver a 12-week story sharing course per patient.

Authors’ conclusions
Any structured intervention, tailored to minority ethnic groups with diabetes, which integrated elements of culture, language, religion and health literacy skills produced a positive impact on a range of patient-important outcomes.

CRD commentary
This review addressed a clear question with broad literature searches and attempted to locate unpublished and grey literature through a range of strategies. The review processes were only partially described so researcher error/bias may have been present. All studies were assessed for quality using a design-specific criteria. Studies were scored and quality thresholds adopted for inclusion - it was unclear if any studies were excluded based on quality alone. The use of summary scores could obscure key strengths or weaknesses, but the supplementary information provided more detail of the quality results. A narrative synthesis seemed appropriate given the range of study designs and interventions, although the RCT data may have been suitable for meta-analysis.
The quality of the research was not clearly linked to the results, which made it difficult to interpret the reliability of the authors' conclusions which appear to be overly positive given the mixed evidence base.

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

**Practice:** The authors stated that healthcare organisations should provide culturally competent staff and services.

**Research:** The authors stated that research was needed to investigate if formal culturally competent training for diabetes service providers generally produced a positive effect in diabetes related outcomes in ethnic minority populations. Further, culturally competent interventions should include cost-effectiveness evaluation in their design. Studies should also evaluate the satisfaction levels of patients and service providers.

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