A systematic review of the translational research on the Diabetes Prevention Program

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CRD summary
The author acknowledged that a lot of research had attempted to apply the protocol from the Diabetes Prevention Program into practice, with promising results, but further development and research was needed. These conclusions seem reasonable and reflect the evidence, but due to limited searching, limited synthesis, and no quality assessment, conclusions on the efficacy of the interventions cannot be drawn.

Authors' objectives
To review research on applying the protocol from the Diabetes Prevention Program, for adults at risk of type 2 diabetes, to real-world health care settings.

Searching
MEDLINE and CINAHL were searched for eligible studies from January 2002 to February 2011. Search terms were reported. Reference lists of included studies were checked for further eligible papers. Only published studies were eligible for inclusion. No language restrictions were reported.

Study selection
Studies had to evaluate an intervention for the prevention of diabetes, based on the Diabetes Prevention Program protocol. Participants had to be adults at risk of type 2 diabetes. It appears that studies had to report outcomes related to the intervention, such as weight loss in kilograms, the percentage of body weight lost, or the percentage of participants who met their weight loss goals. Studies were excluded if they were conducted in schools or were of adults with cognitive impairment.

In the included studies, where reported, the mean participant age ranged from 46 to 58 years. The percentage of female participants ranged from 55 to 90, and the percentage of non-White participants ranged from zero to 100. Equal numbers of studies were conducted in each of four settings: hospital out-patient care (diabetes education), primary care, the community, and churches or workplaces. In some studies, mainly of hospital out-patients, participants were charged a fee to participate in the intervention sessions.

The number of reviewers involved in study selection was not reported.

Assessment of study quality
No quality assessment was reported.

Data extraction
Data on the efficacy, reach, and maintenance of the Diabetes Prevention Program interventions were extracted. The author did not report how many reviewers extracted the data.

Methods of synthesis
A meta-analysis could not be conducted due to too much variability in outcome reporting, so the data were synthesised in a narrative.

Results of the review
Three controlled studies (222 participants) and 13 uncontrolled studies (1,783 participants) were included in the review. Sample size ranged from eight to 1,003 participants. The attrition rates at follow-up ranged from zero to 43%. For the efficacy outcomes, follow-up ranged from three to 12 months. Adoption of the Diabetes Prevention Program varied across studies. Health care providers delivered the intervention in most studies, but trained volunteer health professionals and trained community peer educators were also used.

Across studies, weight loss at last follow-up ranged from 1.0 to 8.6kg (16 studies). The percentage of participants reaching their 5% weight loss goal ranged from 11 to 64 (nine studies). The percentage of participants who experienced
elevated depressive symptoms ranged from 33 to 35 (number of studies unclear). The authors described how the included studies differed from the Diabetes Prevention Program benchmarks.

The included studies had a wider reach than the initial Diabetes Prevention Program, but sample sizes were considerably smaller, with studies conducted in church or community settings having the smallest samples. Studies conducted with hospital out-patients reported the greatest weight loss in kilograms, followed by primary care settings, community settings, and workplace or church settings. For weight loss, studies with varying levels of diversity had inconclusive findings. Other findings were reported.

Cost information
Three of the included studies evaluated cost. Two (one in primary care, and one in a community setting) estimated costs of around $300 (275 to 325) per participant. One church-based study estimated costs of $108 for supplies for 10 participants. All estimates were considerably lower than the Diabetes Prevention Program benchmark of $1,400.

Authors’ conclusions
The author acknowledged that a considerable amount of research had attempted to apply the protocol from the Diabetes Prevention Program into clinical practice, with promising results, but there was a need for further development of the interventions and more research.

CRD commentary
The review question and inclusion criteria were clear. A few relevant sources were searched. As only published studies were eligible for inclusion, there was a risk that relevant, unpublished material was missed. Studies not in English may have been missed, as it was unclear if these were included in the search. There was only one author and checking of study selection and data extraction was not reported, leaving a risk of reviewer error and bias.

The author’s decision not to synthesise the studies in a meta-analysis seems appropriate given the large variability between studies, but the synthesis was very basic and did not take into account any effect sizes. For efficacy, it was difficult to estimate the size and relevance of any effects observed. The synthesis was inconsistent and not fully reported for some outcomes. No quality assessment of the included studies was reported, so the reliability of the included studies is unknown, which weakens the reliability of the overall conclusions.

The author's conclusions seem to be reasonable and appear to reflect the presented evidence. Due to a limited search, a limited synthesis, and no quality assessment, no conclusions on the efficacy of these interventions can be drawn.

Implications of the review for practice and research
Practice: The authors recommended the ongoing development of interventions for at-risk adults, with low health literacy, low socioeconomic status, or both.

Research: The authors recommended more rigorous research into programme reach, adoption, implementation, and maintenance.

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Record Status
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.