A systematic review of psychosocial outcomes following education, self-management and psychological interventions in diabetes mellitus

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CRD summary
This review assessed self-management and psychological interventions for diabetes. The authors concluded that psychological interventions appeared to have the greatest effect on depression, while self-management had the greatest effect on quality of life. The authors' conclusions about the relative effectiveness were not based on direct comparisons in controlled trials and may not be reliable.

Authors' objectives
To assess the effect of self-management and psychological interventions for diabetes on psychosocial outcomes.

Searching
EMBASE, MEDLINE and PsycLIT were searched from 1980 to 2001 for studies published in English in peer-reviewed journals; the search terms were stated. The reference lists in reviews and identified studies were checked.

Study selection
Study designs of evaluations included in the review
Studies of a pre-test post-test design and controlled studies were eligible for inclusion. The included studies were randomised controlled trials (RCTs), controlled trials (CTs), or pre-test post-test trials (PPTs). Studies with only one relevant treatment arm were classified as PPT. The results from two treatment arms in one study comparing two relevant interventions were combined and treated as a PPT.

Specific interventions included in the review
Studies of interventions with an educational self-management or psychological component were eligible for inclusion. Studies using diet, exercise, or intensive insulin regimens as the sole intervention were excluded. The included studies were categorised in the review as educational (information only), self-management (aimed at improving adherence by teaching practical or psychosocial skills), or psychological (aimed at managing negative moods) interventions. Most studies used interventions based in out-patient departments and most used group-based interventions.

Participants included in the review
Studies of patients aged over 21 years with type 1 or type 2 diabetes were eligible for inclusion. The majority of the studies (54%) were of patients with type 2 diabetes; 11% were of type 1 diabetes and 35% included both types. The mean age of the patients ranged from 24 to 70 years with most studies having a mean patient age in the fifties or sixties. Some studies were of single sex populations; in other studies most of the patients (70%) were female.

Outcomes assessed in the review
Studies that assessed quality of life or psychological well-being (defined as general well-being, depression, anxiety or emotional adjustment) were eligible for inclusion. Half of the studies that assessed depression used the Beck Depression Inventory. Studies assessing quality of life used generic measures (e.g. the SF-36 or SF-20) and/or measures specific for diabetes.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The authors did not state that they assessed validity.
Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction.

Methods of synthesis
How were the studies combined?
The studies were grouped according to the outcome (overall psychological well-being, depression, anxiety, emotional adjustment and quality of life) and combined in a narrative.

How were differences between studies investigated?
Differences between the studies were discussed in the text of the review with reference to the type of intervention, study design, and type of measure used to assess quality of life.

Results of the review
Thirty-six studies were included. This included 19 RCTs (n=2,573), 3 CTs (n=154) and 13 PPTs (n=1,934).

Overall psychological well-being (5 studies): one PPT reported that a self-management intervention significantly improved negative and positive aspects of well-being. The other 4 studies (CTS and PPTs) found no significant difference when compared with controls, or over time.

Depression (15 studies, including 6 studies classified as RCTs): four (3 psychological and 1 educational intervention) of the 6 RCTs showed that the intervention improved depression compared with standard treatment or education.

Seven (all self-management interventions) of the 8 PPTs showed that the intervention improved depression over time. The other PPT (psychological intervention) showed no improvement over time.

Anxiety (8 studies including 7 RCTs): 2 RCTs (1 psychological stress-management and 1 educational intervention) showed that the intervention reduced anxiety compared with controls. Five RCTs (1 educational, 1 self-management and 3 psychological interventions) showed no reduction in anxiety compared with controls. The PPT showed improvement over time with the intervention.

Emotional adjustment (4 studies, including 1 RCT): the RCT found no significant difference between a self-management and an educational intervention. Three PPTs (1 psychological, 1 educational and 1 self-management intervention) found significant or borderline significant improvements over time.

Quality of life (20 studies): one of the 7 studies using either the SF-36 or SF-20 found improvement on all sub-scales at 6 months. Three of the 6 CTs using diabetes-specific measures found that the intervention improved quality of life compared with controls. All 3 PPTs using diabetes-specific measures of quality of life found improved quality over time with the intervention. Three studies used other generic measures. One of these found that a behavioural, diet and exercise, or diet alone intervention improved quality of life compared with education, while another found no difference between adding community resources or telephone follow-up to self-management.

No psychological intervention assessed quality of life.

Authors’ conclusions
Depression appeared to be improved the most when using psychological interventions, while quality of life was most improved after self-management interventions. Detrimental effects were not generally seen following any type of intervention. The authors also concluded that the results were influenced by the method used to assess the outcomes, the type of intervention, and the characteristics of the population.

CRD commentary
The review question was clear in terms of the participants, study design, intervention and outcomes. Three relevant
databases were searched and the search terms were stated. The authors correctly acknowledged that limiting studies to English language publications might have resulted in the omission of other relevant studies. No attempts were made to limit publication bias. The methods used to select the studies and extract the data were not described; hence, any efforts made to reduce errors and bias cannot be judged. Validity was not formally assessed and some aspects were only briefly mentioned in the text. Generally, higher quality evidence from RCTs was highlighted, although this was not done consistently.

A narrative synthesis was appropriate given the small number of diverse studies. Greater clarity in summarising the results might have been achieved by grouping the results according to the intervention type and control type, rather than by the outcome. The authors’ conclusions about the relative effectiveness of types of treatment were not based on direct comparisons in controlled trials, and thus must be regarded as suggestive rather than definitive.

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

**Practice:** The authors stated that the review supports the use of self-management and psychological interventions in the management of diabetes, but the preferred intervention depends on the target population.

**Research:** The authors stated that adequately powered, controlled trials that use diabetes-specific measures and provide full details of the interventions are required to determine which components improve psychological well-being and quality of life.

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