A systematic review of psychological interventions for the treatment of nonadherence to fluid-intake restrictions in people receiving hemodialysis

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CRD summary
This review concluded that while the available evidence suggests that psychological interventions to improve adherence to fluid restrictions in haemodialysis patients may have some clinical benefits, the validity of this finding is uncertain given its reliance on a diverse group of generally small, poor-quality studies. Overall, the authors' cautious conclusions appear reasonable.

Authors' objectives
To evaluate the effects on interdialytic weight gain (IWG) of psychological interventions aimed at improving adherence to fluid intake restrictions in haemodialysis patients.

Searching
EMBASE (1980 to 2003), MEDLINE (1970 to 2003), the Cochrane Database of Systematic Reviews (up to January 2004), the Cochrane CENTRAL Register (up to January 2004), CINAHL (1982 to 2003) and PsycINFO (up to January 2004) were searched; the search terms were reported. The reference lists of reviews and retrieved articles were also checked for additional studies. Only articles published in English in peer-reviewed journals were included in the review.

Study selection

Study designs of evaluations included in the review
Experimental and observational study designs were included in the review. Only two trials included more than 30 participants per treatment group.

Specific interventions included in the review
Studies evaluating any psychological or psychosocial intervention were eligible for inclusion. All of the included studies featured some form of behavioural intervention, most incorporating some form of education. Many of the included interventions were multifaceted.

Participants included in the review
Studies of haemodialysis patients attending renal out-patient settings were eligible for inclusion. One study included only paediatric patients, one only included patients with a history of non-compliance, one focused on long-term haemodialysis patients, and one included only patients with end-stage renal disease.

Outcomes assessed in the review
Studies assessing changes in IWG were eligible for inclusion. The included studies used differing definitions of problematic weight gain varying between 0.9 and 3 kg. Eligible studies reported a number of other secondary outcomes: blood-pressure, health beliefs, potassium level, stages of change, knowledge, blood urea nitrogen level and self-efficacy.

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

Assessment of study quality
The studies were awarded a grade between A and E dependent on their risk of bias, as judged by the following criteria which the authors developed: number of patients, population spectrum, matching of study groups, and the use of validated outcome measures. Three reviewers independently assessed the validity of each study; if any researcher disagreed with the rating of a study, a fourth independent reviewer was consulted.
Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction.

Where possible, effect sizes (weighted mean differences) were calculated; otherwise, the data appear to have been reported as in the original study reports.

Methods of synthesis
How were the studies combined?
The studies were combined in a narrative summary.

How were differences between studies investigated?
Some differences between the studies were presented and discussed in the text and tables of the review.

Results of the review
Sixteen studies (n=648) were included: one randomised controlled trial (n=62), one quasi-experimental study (n=316), one experimental study, one cohort study, four case series, five before-and-after studies and three single case reports.

No studies reported adequate concealment of allocation, the use of an a priori power calculation, or the use of an intention-to-treat analysis. Eleven studies were rated as having a very high risk of bias (grade E), two were rated as having a low risk of bias (grade B), and only three studies were rated as having a very low risk of bias (grade A).

Six studies provided sufficient data to calculate an effect size for IWG. Effect sizes in favour of the intervention varied between 0.17 and 1.01.

Authors’ conclusions
Studies suggest that psychological interventions to improve adherence to fluid restrictions in individuals receiving haemodialysis may have some possible clinical benefits. However, the validity of this finding is unclear given that it was based on generally poor-quality studies with inherent methodological flaws.

CRD commentary
This review was based on a clear research question. A reasonable search was carried out with justifiable limits placed on the year of publication. However, the findings of the review may be affected by language and publication bias, given the inclusion of only studies published in English in peer-reviewed journals. It was also unclear whether appropriate steps were taken to prevent bias and error during the study selection and data extraction processes. The quality of the included studies was assessed by three independent reviewers to ensure the accuracy of assessments and the absence of bias. The review included a variety of both experimental and observational study designs with differing interventions, outcome definitions and study populations. In view of the heterogeneity between the studies, the use of a narrative presentation seems justified. Effect sizes were calculated where possible and study details were tabulated. Overall, the authors’ cautious conclusions appear reasonable given the review’s reliance on a heterogeneous group of mainly small, poor-quality studies.

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

Research: The authors stated that clearly reported, large, well-designed, multicentre, controlled trials of psychological interventions for improving adherence to fluid restrictions in haemodialysis patients are required. The authors also noted that uniform criteria for IWG would be useful, and that the majority of current studies fail to consider psychosocial outcomes such as quality of life, anxiety and depression.
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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.