Health promotion lifestyle interventions for weight management in psychosis: a systematic review and meta-analysis of randomised controlled trials

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CRD summary
This review concluded that preventive, individual, lifestyle interventions that included diet and physical activity were generally effective in reducing weight, and were acceptable to patients with psychosis. These conclusions appear to have over-interpreted the available evidence and should be considered with caution.

Authors' objectives
To evaluate the available evidence on the efficacy of non-pharmacological health promotion programmes to manage the weight of patients with psychosis.

Searching
Five databases including PubMed and The Cochrane Library were searched for articles from 1990 to December 2011. References of retrieved papers and reviews were checked. Only full-text English-language papers were considered.

Study selection
Randomised controlled trials (RCTs) on the efficacy of non-pharmacological weight management interventions (cognitive behavioural, psycho-educational, nutritional or physical activity) were eligible. At least 50% of trial participants had to be aged between 18 and 65 years, and have a diagnosis from the International Classification of Diseases (ICD) that included psychosis or psychotic symptoms (details reported in the paper). The primary outcome was the patients' mean Body Mass Index (BMI) at the endpoint or their change in BMI.

In all but one of the included trials, the control group received treatment as normal; some groups also received brief nutritional information. The intervention lasted between two and 12 months, with follow-up of two to three months, where reported. Trials were conducted in Europe, the USA, Asia or Australia. Patients were taking a range of anti-psychotic medications.

It appeared that one reviewer screened studies for inclusion, uncertain decisions were discussed with a second reviewer.

Assessment of study quality
Trials were assessed for reliability using the Cochrane Risk of Bias tool.

Data extraction
Two reviewers extracted the trial data. Trial authors were contacted if insufficient data for meta-analysis were reported. Where necessary, standard deviations were imputed.

Methods of synthesis
A random-effects, inverse variance, model was used to calculate the pooled mean differences in BMI between the experimental and control groups. Heterogeneity was discussed and quantified using $I^2$. Planned subgroup analyses included: first episode versus chronic psychosis; weight management versus weight loss; group versus individual intervention; cognitive-behavioural therapy versus psycho-education; physical activity versus none; and diet versus none. Differential drop-out was explored.

Results of the review
Thirteen RCTs were included; five were of cognitive-behavioural therapy, and eight were of psycho-education or other interventions. Four trials looked at interventions for individuals, the other nine were for groups. Four trials included physical activity, and three included a diet. The trials were at an unclear risk of bias; randomisation was poorly described and allocation concealment rarely mentioned. Incomplete outcome data was a common problem, and in one trial participants were paid to take part.
A significant difference in favour of the intervention was noted, with a reduction in mean BMI of -0.98kg/m² (95% CI -1.31 to -0.65) across all 13 trials. There were no significant differences in drop-out rates between intervention and control groups.

Subgroup analyses suggested that weight gain prevention, intervention for individuals, psycho-education, and including diet or physical activity, were most effective.

Statistical heterogeneity was not significant (30%), but there were numerous sources of clinical heterogeneity: initial weight, length of illness, diagnosis, concurrent drug therapy, objective of the trial, and type and duration of intervention.

**Authors’ conclusions**
Preventive, individual, lifestyle interventions that included diet and physical activity were generally effective in reducing weight, and were acceptable to patients with psychosis. The average weight-loss might not have been sufficient to reduce weight-related complications, but it could have influenced other metabolic parameters.

**CRD commentary**
This review addressed a clear question with detailed inclusion criteria and reasonably comprehensive searches. The exclusion of abstracts and articles not in English, and the lack of search for grey literature, may have omitted eligible trials. It was not always clear if more than one reviewer was involved at all stages.

The included trials were described, in detail, and assessed for reliability. The sources of clinical variation were clearly identified. The use of a random-effects model was appropriate although the studies were relatively small and of unclear quality. The authors drew comparisons between subgroups, but a direct statistical comparison was needed to establish the differences between them.

The authors’ conclusions may have over-interpreted the available evidence and should be considered with caution.

**Implications of the review for practice and research**
Practice: No recommendations for practice were made.

Research: The authors recommended large well-reported RCTs, measuring health and metabolic parameters.

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