A multidimensional meta-analysis of pharmacotherapy for bulimia nervosa: summarizing the range of outcomes in controlled clinical trials

Nakash-Eisikovits O, Dierberger A, Westen D

Authors' objectives
To examine pharmacotherapies for bulimia based on the results of controlled clinical trials published from 1980 to 1999.

Searching
PsycINFO and MEDLINE were searched. In addition, 19 high-impact journals for efficacy research were handsearched and the references of reviews and meta-analyses were checked. The search was limited to studies published in the English language between 1980 and 1999.

Study selection
Study designs of evaluations included in the review
Experimental studies were eligible for the review; this ensured randomised patient assignment, standardised treatment and blind outcome assessment (equivalent to controlled clinical trials). The studies had to have at least 10 participants in each treatment arm. The results of crossover studies were reported, but they were not pooled with the other designs.

Specific interventions included in the review
Studies that analysed the efficacy of a specific pharmacological agent against a control condition, an alternative pharmacological agent, or psychotherapy were eligible for inclusion; studies that analysed the efficacy of combined pharmacological treatment and psychotherapy were also eligible. Follow-up studies were included when the follow-up interval was at least 12 months long, but they were not pooled with the primary studies. Maintenance trials were not eligible for the statistical pooling, but the results were summarised in the review.

The included studies administered monoamine-oxidase inhibitors, selective serotonin re-uptake inhibitors (SSRIs), tricyclics, atypical antidepressants, or a placebo.

Participants included in the review
Participant with a diagnosis of bulimia nervosa were eligible for the review. Studies focusing only on patients with specific subtypes of the disease (i.e. non-purging bulimia) were excluded.

Outcomes assessed in the review
The outcomes considered in the review were the primary symptoms of bulimia nervosa. Only studies that measured bulimic symptoms were eligible for the review.

The mean and standard deviation of self-reported binges and purges per week, pre- and post-treatment, were extracted for the included studies. The results of the self-reported Eating Attitudes Test (EAT) and the author-defined percentages of improved and recovered patients were also used for the analyses.

How were decisions on the relevance of primary studies made?
The studies were selected prior to examining the data. Other details on how the papers were selected for the review, or how many reviewers performed the selection, were not given.

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. The reviewer recorded the number of participants, the number of patients who completed treatment and the percentage of initially entered patients who received treatment.

Cohen's $d$ was calculated as the effect size to compare treatment and control groups. In addition, the within-treatment effect was computed by dividing the pre- and post-test mean by the pre-test standard deviation.

**Methods of synthesis**

**How were the studies combined?**

Sixteen of the total studies were statistically pooled using Cohen's $d$ to estimate the pooled effect size between and within groups.

**How were differences between studies investigated?**

The differences between the studies were not investigated.

**Results of the review**

Twenty-one studies were included in the review. Of these, 16 comparisons (providing data from 918 patients) were subjected to statistical pooling. The results of 3 crossover trials were reported in the text and tables.

**Effect size:** 7 studies (but none analysing SSRIs) provided effect size data comparing treatment success with the control group. The effect size was 0.6 for binges and 0.6 for purges. The pre-test post-test effect sizes were 1.0 for binges (based on 10 studies) and 0.7 for purges (6 studies).

**Post-treatment symptoms:** after treatment, the number of average binges per week was 4.3 (10 studies) and the purges per week 6.2 (7 studies); both still met the American Psychiatric Association's DSM-IV criteria for bulimia. The average EAT score after treatment was 26.1, still above the cut-off point of 20 for clinical significance.

**Inclusion and completion rates:** 11 studies provided data on the reasons for dropping out of the study. They showed that 10% did not complete the treatment due to side-effects.

**Follow up and maintenance studies:** the single located follow-up study showed that 50% of the patients who completed the trial recovered and, of these, 60% remained recovered after 12 months. The average binges and purges were each 4.1 per week at the end of the follow-up period.

**Combined pharmacotherapy and psychotherapy:** some studies provided direct comparisons with purely pharmacological or purely psychotherapeutic interventions. The effect sizes were 0.2 for binges (7 studies) and 0.5 for purges (6 studies) when comparing the combined treatment with a purely pharmacological treatment. When comparing the combined treatment with a purely psychosocial treatment, the effect sizes were 0.3 for binges and 0.3 for purges (2 studies).

The authors also reported further analyses.

**Authors' conclusions**

Pharmacotherapy for bulimia nervosa yields a moderate initial effect. Only a few patients recover and the symptoms continue to meet the DSM-IV criteria for the disorder. Furthermore, combined pharmacotherapy and psychotherapy appears to produce better results than a purely pharmacological treatment. Finally, the authors concluded that there are few data available on sustained recovery over time.

**CRD commentary**

This was a review with carefully selected studies. It was limited to published articles in English, which can introduce publication bias. The authors addressed this bias in terms of discussing the limited generalisability of the review. In terms of effects, the selection of published, English language studies can lead to overestimated treatment effects.
The review seems to have been executed with methodological rigour. No validity check was applied as such, but the methodology of the papers was assessed prior to knowing the results and used as inclusion criteria. The criteria that led to the rejection of papers were presented and the excluded studies were listed in an appendix. However, the process was not described, i.e. whether the reviewers conducted the assessment independently of each other to reduce bias.

Due to the nature of the topic, the outcome measures were various self reports, which are subjective in their nature and may be prone to distortions. For some analyses it was unclear which primary studies were actually pooled. The heterogeneity between the primary studies does not seem to have been measured or investigated further. One applied method of pooling was a within pre- and post-test comparison. The authors acknowledged that the improvement seen in post-tests, compared with the pre-test, can be due to many factors apart from the treatment. The authors reported only point estimates of pooled effect sizes; confidence intervals and significance test results were omitted.

The review also provided data on the extent to which the primary studies excluded patients. The authors stressed the fact that this procedure might exclude difficult to treat patients from these effectiveness studies. The study selection process and the methods applied in the primary studies could potentially overestimate treatment effects. Nevertheless, only limited effects of pharmacotherapy on bulimia nervosa were shown.

The authors' conclusions appeared reliable.

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

Practice: The authors did not state any implications for practice.

Research: The authors stated that investigators and meta-analysts should report a range of indices relevant to efficacy and generalisability to clinical practice, i.e. exclusion rates, reasons for exclusion, percentage recovered, percentage improved, percentage remaining improved or recovered at follow-up, percentage seeking additional treatment at follow-up, and outcome data for both completer and intent-to-treat samples.

**Bibliographic details**


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**Other publications of related interest**


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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.