Home-based behavioral treatments for chronic benign headache: a meta-analysis of controlled trials

Authors' objectives
To examine the effectiveness of home-based behavioural treatment for headache.

Searching
Searches were made of PsycLIT and MEDLINE databases. Reference sections of empirical studies, reviews and relevant book chapters were reviewed and an experienced headache researcher reviewed the list of studies for its inclusiveness.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) of the effect of home-based behavioural treatments were included if the data were published in a peer reviewed report in which home-based behavioural treatments were compared to an alternative or a control condition, and studies reported sufficient outcome data to compute an effect size. Follow-up periods ranged from 4 to 22 weeks.

Specific interventions included in the review
Home based behavioural treatments for headache were studied. No details of the actual interventions are given.

Participants included in the review
Adult and paediatric patients with tension-type, migraine or mixed headache symptoms were included. The ages of the participants ranged from 8 to 67 years and 75.6% were female.

Outcomes assessed in the review
The standardised mean difference was used as a measure of effect size assessed over the various outcome measures used in the included studies (including headache index, headache peak, headache-free days, headache duration and medication index).

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

Assessment of study quality
The authors do not state that they assessed validity.

Data extraction
Two authors coded studies independently using a coding manual which operationally defined all variables used in the analysis. The authors coded and compared outcomes until complete agreement was established. The effect size d representing the standardised score of the treatment group mean in the control or alternative treatment group distribution was calculated within each study.

Methods of synthesis
How were the studies combined?
The effect sizes from the individual studies were combined by weighting each study by an inverse function of the
sample variance.

How were differences between studies investigated?
Sensitivity analysis was performed by analysing data separately for studies in which exact effect sizes were provided and for studies which did not provide enough data to compute exact effect sizes, and by analysing data according to the method of allocation to treatment group.

Results of the review
Nine RCTs were used to assess home-based behavioural treatments versus control.
Five RCTs were used to assess home-based behavioural treatments versus control at follow-up.
Five RCTs were used to assess clinic-based behavioural treatment versus control.
Thirteen RCTs were used to assess home-based behavioural treatments versus clinic behavioural treatment.
Four RCTs were used to assess home-based behavioural treatments versus clinic behavioural treatment at follow-up.
Seven RCTs were used to assess cost-effectiveness of home-based behavioural treatments versus clinic behavioural treatment.

Home-based behavioural treatments (HBT) vs control: $d = 0.51$ (95%CI: 0.27, 0.76) for all headache types and outcomes. At follow-up HBT reduced contact treatments $d = 0.70$ (95%CI: 0.35, 1.06).

Clinic-based behavioural treatment vs control: $d = 0.52$ (95%CI: 0.19, 0.85). At follow-up clinic-based treatment versus control $d = 0.60$ (0.13, 1.07).

Home-based behavioural treatments vs clinic behavioural treatment: overall $d = 0.09$ (95%CI: -0.11, 0.29). Adult $d = 0.09$ (95%CI: -0.15, 0.33).
Paediatric $d = 0.07$ (95%CI: -0.30, 0.44).

Results from separate analysis for individual outcome measures are given. Home-based behavioural treatments vs clinic behavioural treatment at follow-up: $d = 0.11$ (95%CI: -0.28, 0.50).

Sensitivity analysis: studies providing exact effect sizes $d = 0.09$ (95%CI: -0.15, 0.33) compared to studies not providing exact effect sizes $d = 0.07$ (95%CI: -0.28, 0.43); studies in which allocation to groups was randomised $d = 0.08$ (95%CI: -0.14, 0.29) compared to studies with suspect randomisation $d = 0.13$ (95%CI: -0.35, 0.62).

Cost information
Defining cost-effectiveness as % improvement divided by clinician contact time, home-based behavioural treatments produced a cost-effectiveness score of $0.37$ (sd = 0.34) compared to a clinic behavioural treatment cost-effectiveness score of $0.067$ (sd = 0.028). Comparison of scores using t-test gave $P < 0.05$.

Authors' conclusions
Results suggest that home-based behavioural treatments produce comparable, or with certain outcome measures, superior results to clinic behavioural treatment. Cost effectiveness scores of home-based behavioural treatments were found to be five times larger than those for clinic behavioural treatment.

CRD commentary
Sensitivity analyses were performed to investigate certain methodological factors. Some limitations of the review are mentioned in the discussion such as the probability of the study participants being atypical, the potential influence of
patient-treatment interactions and the bias induced by enthusiasts for certain treatments under investigation.

No details are given of the keywords used for the literature search, dates of the databases examined, data extracted or of the methods used to select studies. No formal evaluation of validity is reported with only minimal mention being made of methodological factors in the primary studies. No details of the primary studies are given, no mention is made of the number of participants on which the analysis is based and there are no definitions of the outcome measures used and little investigation or discussion of heterogeneity among trials or among outcome measures. Certain aspects of the review are not clear such as whether all outcomes reported were included in the estimation of the effect size, the definition of behavioural treatments and Headache Index, the timing of the outcome measures on which the initial effect size was calculated and the "coding" of effect sizes. It may have been useful to have included certain pre-defined outcomes in the inclusion criteria, rather than accept all outcomes, which is what appears to have been done.

In the light of the above comments it is not possible to support the authors' conclusions.

Implications of the review for practice and research
A well-conducted systematic review which addresses the aspects mentioned in the comments section above is required.

The authors suggest future research should address the following issues: studies with patient-treatment matching, replication of studies in non-research settings, the influence of clinician time on the effect, combinations of home-based behavioural treatments and pharmacotherapy and group/home-based behavioural treatments.

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Other publications of related interest

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Record Status
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