Nonpharmacologic treatment of chronic insomnia
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Authors' objectives
To assess the efficacy of non-pharmacological treatments for primary chronic insomnia.

Searching
PsycLIT and MEDLINE were searched from 1970 to 1997 using the following keywords: insomnia, nonpharmacological-nondrug, behavior-cognitive-psychological and treatment-therapy-intervention-management. Bibliographies of meta-analyses or other literature reviews and references cited in empirical studies were reviewed.

Study selection
Study designs of evaluations included in the review
Studies of a group design with a control/comparison condition or a clinical case series with a minimum of 10 clinical patients were included. Case reports and single subject design studies were excluded. Studies actually included were of the following designs: meta-analysis; randomised clinical trial; non randomised clinical trial; clinical replication series; and studies without a control group.

Specific interventions included in the review
The following non-pharmacological interventions were compared with each other and/or no treatment or placebo treatment: stimulus control therapies; sleep restriction; relaxation therapies; cognitive therapies; paradoxical intention; sleep hygiene education; and multi-component interventions.

Participants included in the review
Individuals (male and female) whose primary diagnosis was insomnia were included. Studies composed predominately of college students were excluded. Insomnia may involve problems falling asleep, problems staying asleep, or early morning wakening with an inability to resume sleep.

Outcomes assessed in the review
Sleep onset latency, number and/or duration of awakening, total sleep time, and sleep quality were assessed.

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 reviewers performed the selection.

Assessment of study quality
No formal assessment of validity was undertaken. The studies were assessed according to criteria defined by the American Psychological Association (APA) for empirically-validated psychological treatment in which at least two between-group design studies demonstrated efficacy in one or more of the following ways: superior to pill or psychological placebo or to another treatment; equivalent to an already established treatment in a study with adequate statistical power; or a large series of single case design experiments (sample size > 9) demonstrating efficacy; used experimental design and compared the intervention to another treatment; studies have treatment manuals; sample well defined; effects demonstrated by at least two different investigators or investigatory teams (see Other Publications of Related Interest no.1). Some sources of bias were mentioned in tables of study characteristics.

Data extraction
From tables of study characteristics it would appear that the following data were extracted: author; date of publication; study design; sample size; % female; intervention; format of treatment (individual or group); treatment duration; follow-up; bias; and outcomes. The authors do not state how data were extracted for the review, or how many of the reviewers
performed the data extraction.

**Methods of synthesis**

How were the studies combined?

Narrative review with grouping of studies by treatment modality.

How were differences between studies investigated?

Results from studies that met the APA criteria were presented separately. There was no formal assessment of differences.

**Results of the review**

Overall 48 primary studies were included (> 2000 patients).

Methodological problems in the primary studies included: small sample size; short-term or no follow-up; high attrition at follow-up; no control or comparison group; and the use of retrospective measures. Only results from studies meeting the APA criteria for empirically-validated psychological treatments are reported below as stated by the authors. Outcomes from individual studies were reported in tables of study characteristics with no point estimates, confidence intervals or levels of significance making interpretation difficult.

Stimulus control therapy (4 studies): all demonstrated improved sleep for treatment compared to placebo controls or other single interventions (progressive muscle relaxation, imagery training).

Sleep restriction (1 study): improved sleep compared to placebo.

EMG Biofeedback (4 studies): all showed this to be a more effective treatment for insomnia than no treatment, waiting list control or placebo.

Paradoxical intention (2 studies): both reported greater benefit compared to placebo.

Multicomponent cognitive behavior therapy (2 studies published by same author in same year): both reported greater benefit compared to waiting list control or placebo.

**Authors' conclusions**

Non-pharmacological therapies produce reliable and durable changes in several sleep parameters of chronic insomnia sufferers. Between 70% and 80% of patients treated with nonpharmacological interventions benefit from treatment. In the typical patient with primary persistent insomnia, treatment is likely to reduce the main target symptoms of sleep onset latency and/or wake time after sleep onset below or near the 30 minute criterion initially used to define insomnia severity. Sleep duration is also increased by a modest 30 minutes and sleep quality and patient's satisfaction with sleep patterns are significantly enhanced. Sleep improvements achieved with these behavioural interventions are sustained for at least 6 months after treatment completion. However, there is no evidence that improved sleep leads to meaningful changes in daytime well-being or performance. Three treatments meet the American Psychological Association (APA) criteria for empirically-supported psychological treatment for insomnia: stimulus control, progressive muscle relaxation, and paradoxical intention; and three additional treatments meet the APA criteria for probably efficacious treatments: sleep restriction, biofeedback and multifaceted cognitive-behaviour therapy. Additional research is needed to examine the effectiveness of treatment when it is implemented in clinical settings (primary care and family practice), by non-sleep specialists and with insomnia patients presenting medial or psychiatric conditions.

**CRD commentary**

The aims and inclusion criteria were stated though diagnostic criteria used in actual studies were not described. Relevant details of the primary study characteristics were clearly presented in tabular format though verification of results mentioned in the text and tables was hampered by the omission of the reference number of individual studies (given in the text) in tables presenting study details.
It was not stated whether language restrictions were applied to the literature search. No attempt was made to locate unpublished studies thus raising the possibility of publication bias. Methods used to select primary studies and extract data were not described. Neither validity nor heterogeneity were assessed. Results from individual studies were reported with no point estimates, confidence intervals or levels of significance making interpretation difficult. Results reported in the conclusion appear to be based on results from two meta-analysis and were quoted without any critical appraisal of the quality of evidence offered.

As a consequence of the above, the quality of the evidence presented cannot be considered adequate to support the authors' conclusions.

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

**Practice:** The authors state that three treatments meet the American Psychological Association (APA) criteria for empirically-supported psychological treatment for insomnia: stimulus control, progressive muscle relaxation and paradoxical intention.

**Research:** The authors state that prospective research is required to evaluate the effectiveness of non-pharmacological interventions and to validate available treatment procedures with patients seeking treatment in various clinical settings (primary care) and with various co-existing illness (secondary insomnia). They consider additional research is required to define more precisely several parameters mediating treatment outcome and to examine the indications, risks and benefits, and limitations of integrating behavioural and pharmacological interventions.

**Bibliographic details**


**PubMedID**

10617176

**Other publications of related interest**


**Indexing Status**

Subject indexing assigned by NLM

**MeSH**

Biofeedback, Psychology; Chronic Disease; Cognitive Therapy /methods; Humans; Outcome and Process Assessment (Health Care); Relaxation Therapy; Sleep Initiation and Maintenance Disorders /therapy

**AccessionNumber**

12000008310

**Date bibliographic record published**

31/03/2001

**Date abstract record published**

31/03/2001

**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.