Nonpharmacological interventions for insomnia: a meta-analysis of treatment efficacy

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Authors' objectives
To examine the efficacy and durability of psychological treatments for the clinical management of chronic insomnia.

Searching
A computer search was carried out (database not specified), bibliographies of previous reviews were examined, and references cited in reports were retrieved.

Study selection
Study designs of evaluations included in the review
Group design (51% of all studies were controlled trials).

Specific interventions included in the review
Short-term sleep-focused interventions: stimulus control therapy (instructional procedures designed to curtail sleep-incompatible behaviours and to regulate sleep-wake schedules); sleep restriction therapy (curtailing the amount of time spent in bed to the actual amount of sleep); relaxation therapies (e.g. muscle relaxation, biofeedback, meditation to alleviate somatic or cognitive arousal); paradoxical intention (persuasion of patient to engage in their most feared behaviour - staying awake -to induce sleep); and sleep hygiene education (regulation of health and environmental factors that may be detrimental or beneficial to sleep).

Participants included in the review
Patients with either sleep-onset, maintenance or mixed insomnia.

Outcomes assessed in the review
Sleep-onset latency, time awake after sleep-onset, number of night-time wakenings or total sleep time, all of which were based on self-reported sleep diary data.

How were decisions on the relevance of primary studies made?
Two reviewers independently assessed each study.

Assessment of study quality
Each study was coded on six dimensions for the quality of its design on a scale of 1 to 3, to yield a composite score ranging from 6 to 18. Two reviewers independently rated each study, and any disagreements were resolved by averaging ratings of design and quality to yield a single score. Inter-rater reliability was computed for a 30% sample of the codings.

Data extraction
Two reviewers extracted the predefined data.

Methods of synthesis
How were the studies combined?
Average effect sizes were calculated by subtracting the mean of the control group from the mean of the treated group at post-treatment, and dividing by the pooled standard deviations of the 2 groups.

How were differences between studies investigated?
T-tests were carried out for independent samples on baseline sleep measures to test for differences between treatment
and control patients. There were no significant differences between treatment and control patients on sleep measures at baseline.

**Results of the review**
Fifty-nine studies with 2,102 patients were included.

Psychological interventions averaging 5 hours of therapy time produced reliable changes in 2 of the 4 sleep measures: the average effect sizes were 0.88 for sleep latency and 0.65 for time awake after sleep-onset. Stimulus control was the most effective single therapy procedure for either sleep-onset (0.81) or maintenance insomnia (0.70).

**Authors’ conclusions**
Psychological treatment may be more expensive and time-consuming than pharmacotherapy, but the current data indicate that it may prove more cost-effective in the long run. Psychosocial interventions are under used in the management of insomnia, yet the current findings indicate that non-pharmacological interventions produce reliable and durable changes in the sleep patterns of patients with chronic insomnia.

**CRD commentary**
Very little information is presented about the characteristics of individual studies, including study design (no information is given about how the participants were allocated into intervention and control groups) and the quality ratings for each study. The searches performed appear limited, in that both the databases searched and the search dates were unspecified. It is unclear how many relevant studies may have been missed.

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