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# Computerised Cognitive Behavioural Therapy for Insomnia: A Systematic Review and Meta-Analysis

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**Key Words**
CBT-I · Cognitive behavioural therapy · Computerised programme · Insomnia · Self-help therapy

**Abstract**
***Background:*** Computerised cognitive behavioural therapy (CCBT) is an innovative mode of delivering services to patients with psychological disorders. The present paper uses a meta-analysis to systematically review and evaluate the effectiveness of CCBT for insomnia (CCBT-I). ***Method:*** A comprehensive search was conducted on 7 databases including MEDLINE, PsycINFO, EMBASE, CINAHL, Cochrane Library, Social Sciences Citation Index and PubMed (up to March 2011). Search terms covered 3 concepts: (1) [*internet, web, online, computer-aided, computer-assisted, computer-guided, computerized* OR *computerised*] AND (2) [*CBT, cognitive therapy, behavio(u)ral therapy* OR *behavio(u)r therapy*] AND (3) [*insomnia, sleep disorders* OR *sleeping problem*]. ***Results:*** 533 potentially relevant papers were identified, and 6 randomised controlled trials (RCTs) that met the selection criteria were included in the review and analysis. Two RCTs were done by the same group of investigators (Ritterband and colleagues) using the same internet programmes. Post-treatment mean differences between groups showed that the effects of CCBT-I on sleep quality, sleep efficiency, the number of awakenings, sleep onset latency and the Insomnia Severity Index were significant, ranging from small to large effect sizes. However, effects on wake time after sleep onset, total sleep time and time in bed were non-significant. On average, the number needed to treat was 3.59. The treatment adherence rate for CCBT-I was high (78%). ***Conclusion:*** The results lend support to CCBT as a mildly to moderately effective self-help therapy in the short run for insomnia. CCBT-I can be an acceptable form of low-intensity treatment in the stepped care model for insomnia.


## Introduction

Insomnia is a common and significant public health problem worldwide. Population-based studies in the United States, Canada, Spain, Finland, Sweden, France, New Zealand, Japan, Korea, Malaysia, Hong Kong and China have revealed that 20–40% of adults suffer from insomnia and that 10–15% meet the diagnostic criteria for an insomnia disorder [1–12]. The high prevalence rate of insomnia is associated with large costs to the society in terms of diminished work performance as well as increased absenteeism and health care utilisation [13–18]. For instance, in the United States, the direct costs of insomnia (such as health service utilization and medications) have been estimated at USD 13.9 billion annually and the non-direct costs (such as absenteeism and loss of productivity) at USD 77–92 billion annually [13, 14]. In the province of Quebec in Canada, the total annual costs of insomnia have been estimated at CAD 6.6 billion [16], whereas in France, the annual direct costs of insomnia are approximately USD 2.07 billion [17].

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