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Original article

# Behavioral intervention for special insomnia populations: Hypnotic-dependent insomnia and comorbid insomnia

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**Abstract**

*Background and purpose*: Patients with hypnotic-dependent insomnia and those with secondary (comorbid) insomnia have previously been regarded as being unsuitable for inclusion in studies of cognitive behavioral therapy (CBT). This paper reviews CBT clinical trials that have mainly been published in the past 15 years with these two disorders.

*Patients and methods*: CBT studies that targeted patients taking sleep medication and exhibiting current insomnia qualified for hypnotic-dependent insomnia and patients with comorbid conditions that presented a high risk of producing insomnia, such as depression and chronic pain, were included as secondary insomnia.

*Results*: In recent years, studies in patients with hypnotic-dependent insomnia have shown that supervised hypnotic gradual withdrawal programs can reduce patients' use of hypnotic medications and, when combined with CBT, can also significantly improve parameters such as sleep-onset latency and sleep efficiency. Secondary, or comorbid, insomnia accounts for 60% of all cases of insomnia. A number of reports now show that CBT can lead to improvements in sleep efficiency, latency and quality in a wide range of medical and psychiatric conditions, with similar improvements being seen regardless of the primary disorder. Indeed, it is now believed that insomnia should not be considered as 'secondary' to other causes, pariticularly in patients with chronic illness. In these individuals, the secondary component of insomnia is likely to be greatly reduced, particularly by the time they are referred to a sleep specialist.

*Conclusions*: Previous theory-based beliefs that hypnotic-dependent insomnia and secondary insomnia were unresponsive to CBT intervention have been shown to be unfounded. Data support the psychological treatment of both these conditions.



*Keywords:* Insomnia; Chronic; Comorbid; Hypnotic-tapering; CBT

## 1. Introduction

Before the 1990s, behavioral interventions for insomnia were directed almost exclusively at primary insomnia (i.e. insomnia not attributable to a medical, psychiatric or environmental cause). Patients with insomnia that is secondary to, or comorbid with, other medical or psychiatric conditions, or those who have developed a dependence on their hypnotic medication, were generally excluded from clinical trials of behavioral therapies. In the past 15 years, however, there has been an upsurge in the level of research into behavioral interventions for patients with non-primary insomnia. Individuals with hypnotic-dependent insomnia (HDI) and secondary insomnia, both conditions that were previously believed to be resistant to behavioral treatment, are now being considered as viable targets for cognitive behavioral therapy (CBT). This article will review some of the clinical trials of CBT that have been carried out in patients with HDI or secondary insomnia.

## 2. Why study hypnotic dependence?

Most patients who are treated for insomnia receive some form of pharmacological therapy [1]. In the USA alone, 5 million people each year receive hypnotic medications [1]. Patients receiving chronic treatment with hypnotics, most notably the early generation benzodiazepines, run the risk of developing HDI, which is associated with polypharmacy interactions and withdrawal side effects, as well as impaired

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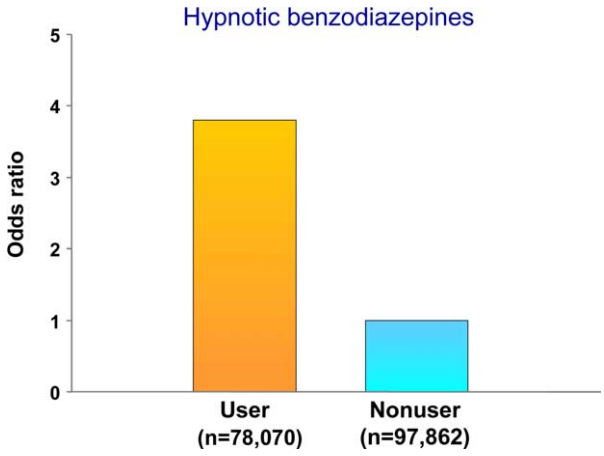


Fig. 1. Increased risk of hospitalization as a result of a road traffic accident in individuals receiving benzodiazepine hypnotics [3].

daytime functioning. For example, an epidemiological study of persons 65 years and older, carried out between 1977 and 1985, demonstrated that those using long half-life ($\geq$24 h) benzodiazepines (e.g. flurazepam and diazepam) had a 70% greater risk of hip fracture than did individuals not using any psychotropic drug, compared with only a 10% increase in risk in those receiving short half-life drugs (e.g. lorazepam and oxazepam) [2]. Given the serious medical, social and economic consequences of hip and other fall-related fractures, long half-life benzodiazepines are now used sparingly in older persons. In a 1995 study of the incidence of injuries sustained in road traffic accidents after a first prescription of early generation benzodiazepines (triazolam, flurazepam, oxazepam, lorazepam and diazepam), there was a significant increase in the risk of hospitalization as a result of a traffic accident for patients receiving benzodiazepine hypnotics (odds ratio: 3.9; Fig. 1) or anxiolytics (odds ratio: 2.5) within 4 weeks of the prescription being filled [3]. Although hypnotic dependence is clearly a problem, the limited data currently available do not indicate development of tolerance to the newer non-benzodiazepines [4,5]. There is also little evidence to suggest that currently available hypnotics have reinforcing qualities in patients without a history of substance abuse [1].

## 3. Treating hypnotic dependence in older adults

Treatment of older adults with chronic insomnia, who have developed hypnotic dependence over a long period of time, presents particular challenges to the successful achievement of hypnotic withdrawal. This can be illustrated by a study of such patients, initiated in 1998, who were dependent on hypnotics, defined as patients with current insomnia who had been using hypnotics at least three times weekly, for at least 6 months.

In this 5-year, randomized study of hypnotic withdrawal, 64 individuals (19 men and 45 women) aged 50 years and older were enrolled. Participants were required to have symptomatic insomnia that was free of medical or psychiatric contributors, to be chronic users of prescription hypnotics, and to be free of clinically significant sleep apnea and periodic limb movement disorder, as determined by polysomnogram [6]. Most patients were taking traditional benzodiazepines, and many patients were taking two hypnotics. During the study, for all participants, hypnotic medication was withdrawn very gradually (typically over 3 months), to avoid side effects and aid patient compliance. In addition, patients were randomized to eight sessions of behavioral treatment (stimulus control, relaxation and sleep hygiene), placebo biofeedback or hypnotic withdrawal only. Patients in the study had a mean ($\pm$SD) age of 63$\pm$8 years, had experienced insomnia for 9.1$\pm$9.1 years and had been using hypnotic medication for 4.3$\pm$4.8 years. Throughout, and for 1 year of follow-up, patients reported sleep patterns using a sleep diary. When groups were combined, the use of gradual tapering had achieved an 86% reduction in medication use. Notably, significant differential improvement in two sleep measures—sleep-onset latency and sleep efficiency—as assessed by sleep diaries, occurred in the CBT group [6]. These results emphasize the value of CBT for improving sleep patterns in older adults with hypnotic dependence, and helping to avoid the chronic, unnecessary use of prescription hypnotics.

## 4. Studies on supervised tapering and CBT

A further study has compared concomitant and sequential schedules of drug tapering and CBT in older adults with hypnotic dependence. A study on the effectiveness of CBT with or without supervised tapering of benzodiazepines in older adults with chronic insomnia was carried out by Morin and colleagues [7]. In their study, 76 patients with a mean age of 62 years who had been receiving benzodiazepine medication for a mean duration of 19.3 years were randomly assigned to one of three treatment groups. One group consisted of 24 patients who received eight sessions of CBT

(sleep restriction therapy, supportive counseling and cognitive therapy), whereas a second group contained 25 patients who underwent a 10-week program of supervised benzodiazepine withdrawal. The third group ($n=27$) underwent the same benzodiazepine withdrawal program, and also received the eight sessions of CBT. The main outcome measures in the study were benzodiazepine use, sleep parameters, and anxiety and depressive symptoms, which were measured at baseline, at the end of the withdrawal/CBT program, and after 12 months of follow-up. The results showed that all three interventions produced a significant, 90% reduction in the quantity of benzodiazepine taken [7]. This was accompanied by an 80% reduction in frequency of benzodiazepine use, leading to a total of 63% of patients being drug-free within an average of 7 weeks. Combined data from the three interventions demonstrated that the main effects of treatment were to increase sleep efficiency and total sleep time, and to reduce sleep-onset latency, with no significant rebound insomnia during the withdrawal period. More patients in the combined therapy group (85%) were benzodiazepine-free after the initial intervention, compared with those who received 'tapered' medication alone (48%) or CBT alone (54%), whereas patients in the two CBT groups perceived greater subjective sleep improvements than those who received tapered medication alone. The authors concluded that CBT and a supervised medication tapering program over 10 weeks, whether alone or combined, are effective methods for reducing use of benzodiazepine medications among older adults with chronic insomnia. Moreover, the results highlight that, in some patients, chronic hypnotic medication may be therapeutically inert and do little to aid sleep.

Similar results have been observed in a number of other recent studies. For example, a study of 192 patients aged 65 years or older who had been receiving long-term benzodiazepine treatment evaluated the effect of tapering the dose to determine whether withdrawal led to changes in patients' cognitive function, quality of life, mood or sleep [8]. Sixty percent of the patients had taken benzodiazepines continuously for more than 10 years, with 27% of the patients having received them for more than 20 years. In total, 104 patients in the study wished to discontinue benzodiazepines and were randomly allocated, under double-blind, placebo-controlled conditions, to immediate tapering of dose or their normal dose for 12 weeks followed by tapering. After 6 months, 80% of patients had successfully withdrawn from benzodiazepine use. This was accompanied by improvements in cognitive and psychomotor tasks at 24 and 52 weeks compared with a control group of patients who had not been withdrawn from benzodiazepine treatment [8]. In a study conducted in a general practice setting, 209 patients aged 31–92 years, with chronic sleep problems who had been receiving hypnotic drugs for at least 1 month, were randomly allocated to a CBT 'sleep clinic' group or a 'no further intervention' group [9]. After 3 and 6 months of treatment, patients receiving CBT reported significant improvements in sleep latency and sleep efficiency, with significant reductions in the frequency of hypnotic drug use (all $P<0.01$). The investigators concluded that psychological treatments for insomnia can improve sleep quality and reduce hypnotic consumption at a favorable cost among long-term hypnotic users with chronic sleep difficulties [9].

Overall, these studies highlight the benefit of very gradual tapering of medication, which achieves substantial reduction of hypnotic use. In addition, CBT is seen to provide improvements in sleep for patients who have been chronically dependent on hypnotic medication. They also demonstrate that for some users who have become 'hypnotic-dependent', their medication had become therapeutically inert.

## 5. Comorbid (secondary) insomnia

Insomnia that occurs as a comorbidity with another medical or psychiatric condition accounts for around 60% of all cases of insomnia, and occurs most frequently in association with depression or pain [10]. Most clinical trials involving patients with insomnia have, however, excluded those diagnosed with comorbid insomnia, and there is a perception among physicians that the insomnia is untreatable as long as the primary condition persists.

There are, however, around 20 published reports demonstrating the successful treatment of comorbid insomnia using CBT without any additional intervention for the 'primary' disorder. Successful intervention, with improvements in sleep efficiency, sleep latency and sleep quality, has been demonstrated in small-scale studies and case reports in cancer patients, using techniques such as group therapy [11], muscle relaxation training [12], somatic focusing and imagery training [13], and multimodal CBT [14]. Patients experiencing insomnia as a result of chronic pain [15–18], or other medical [19–22] or psychiatric [23–27] conditions have also been shown to benefit from CBT techniques.

Notably, the level of improvement with CBT observed in these studies is similar, regardless of the condition with which insomnia is associated. When data from Currie et al., assessing insomnia in patients with chronic pain [17], were compared with those from a study [28] in which patients with a wide range of psychiatric and medical comorbidities were enrolled, patients with CBT experienced almost identical improvements in sleep efficiency in each study (Fig. 2) [29]. The control groups from the two studies were also similar, with sleep efficiency being in the range of 65–70% and showing little improvement.

Depending on the course of the primary comorbid condition, the course of insomnia varies over time (Fig. 3) [30]. In the general population, chronic insomnia is

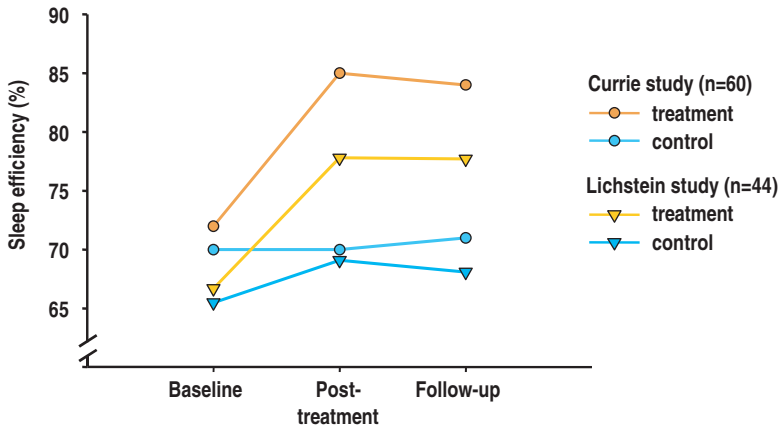


Fig. 2. Sleep efficiency in two studies of comorbid insomnia. Adapted with permission [29].

generally observed at a prevalence of 10–15%. In patients with a condition such as sudden-onset depression, pain or anxiety, the level of insomnia increases to around 70% and often varies with the severity of the comorbid condition. In these patients, the insomnia is likely to be a 'true' secondary insomnia that is causally related to the primary condition. We have hypothesized [30] that when the primary condition becomes chronic, insomnia resolves in around 20–25% of patients who experience insomnia in the acute phase of their illness, for reasons that are currently unclear. Insomnia persists in 30–40% of patients and it is believed that there is a transition in the causes of the insomnia from the primary condition to factors that typically involve the individual's response to their insomnia—such as drinking more caffeine during the day because they feel sleepy, or keeping themselves in bed longer at night to give themselves more sleep opportunity, which simply has the effect of creating more time spent awake in bed at night. Thus, the insomnia becomes functionally independent, having created its own self-perpetuating causes, and can no longer be regarded as a true secondary insomnia. This means that by the time patients are referred to a sleep specialist, the secondary insomnia component is probably very small.

On the basis of this model, secondary insomnia can be divided into types that take into account the possible spectrum of associations between secondary insomnia and comorbidities. Absolute secondary insomnia, which as noted above is rarely encountered by sleep specialists, has a causal relationship with the primary comorbidity, based on temporal sequence, co-variation in severity and absence of alternative explanations. Specious (comorbid) secondary insomnia occurs when the insomnia and primary condition are either independent or mutually interactive. Between these two extremes is partial secondary insomnia, in which the insomnia shows some independence from the primary condition. It is, however, almost impossible to make a differential diagnosis of absolute, partial or specious secondary insomnia, and it is recommended that sleep disturbances in patients with any form of comorbid insomnia are treated no differently from those in patients with primary insomnia. This is confirmed in a recent statement by the National Institutes of Health in the USA, which recognizes that there is not necessarily a cause-and-

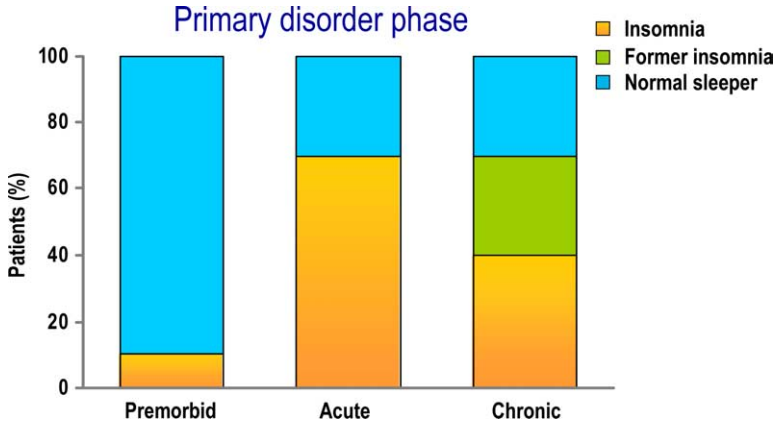


Fig. 3. The course of comorbid insomnia. Reproduced with permission [30].

effect relationship between insomnia and other medical conditions, and has suggested formally replacing the term 'secondary' with that of 'comorbid' [31].

## 6. Conclusions

For many years, individuals with hypnotic-dependent or comorbid insomnia were thought to be resistant to treatment unless the primary condition was first treated successfully. Numerous studies have now shown, however, that CBT can ameliorate insomnia in hypnotic-dependent patients, and in those with any of a wide range of comorbid psychiatric or medical conditions. Moreover, the gradual, tapered withdrawal of hypnotics can substantially reduce their use, potentially sparing patients from important side effects, most notably the unpleasant dependency effects seen with early generation benzodiazepines. When combined with CBT, supervised tapering has been shown to improve sleep in patients with hypnotic dependence and chronic insomnia. In patients who would previously be defined as having 'secondary' insomnia, it should be recognized that insomnia is not necessarily a secondary condition with a causal relationship to the 'primary' disorder, but should be viewed as a true comorbidity, particularly in patients in whom the primary condition is a chronic illness. Importantly, sleep disturbances in patients with comorbid insomnia should be treated no differently from those resulting from primary insomnia.

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