

Cognitive behavioral therapy for insomnia

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Cognitive behavioral therapy for insomnia (CBT-I) is a technique for treating insomnia without (or alongside) medications. Insomnia is a common problem involving trouble falling asleep, staying asleep, or getting quality sleep. CBT-I aims to improve sleep habits and behaviors by identifying and changing the thoughts and the behaviors that are affecting the ability to allow the person to sleep or sleep well.

The first step in treating insomnia with CBT-I is to identify the underlying causes of the insomnia. People with insomnia should evaluate or have their sleep patterns evaluated and take into account all possible factors that may be affecting the person's ability to sleep. This would involve keeping a sleep diary or journal for a couple weeks. The journal will help identify habits of thought or behavior, stress, etc. that could be contributing to the person's insomnia.^[1]

After identifying the possible underlying cause and the factors contributing to the insomnia, the person can begin taking steps towards getting better sleep. In CBT-I these steps include stimulus control, sleep hygiene, sleep restriction, relaxation training, and cognitive therapy. Some sleep specialists will recommend Biofeedback as well.^[2]

CBT-I has been found to be an effective form of treatment of insomnia. It is also effective in treatment of insomnia related to or caused by mood disorders. Those with PTSD have also shown improvement.

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Components of CBT-I

Behavioral practices to treat insomnia^[3]

- Practicing sleep hygiene by keeping a good sleeping environment
 - removing distractions such as television, computers, and other engaging activities^[3]
 - keeping the sleeping space dark and quiet^[3]
 - having a good bed^[3]
 - Committing to a consistent bedtime^[3]
 - Committing to a consistent wake-up time^[3]
 - Avoiding staying in bed while awake for a longer time period than ideal for going to sleep. A recommended practice is relaxing elsewhere, such as by sitting, then returning to bed when one is more likely to sleep.^[3]
- Stimulus control - limit stimulation before bed
 - Finishing meals three hours before bedtime, especially for those prone to indigestion or heartburn^[3]
 - avoiding alcoholic or caffeinated beverages before sleeping^[3]
 - Because medications can delay or disrupt sleep, choosing to take them far in advance of sleeping times is preferred unless a physician directs otherwise^[3]
 - Avoiding smoking for at least 3 hours before bed^[3]
 - Engaging in regular physical exercise, but not within 4 hours of going to sleep^[3]
 - Avoiding stressful situations before time for sleep^[3]
 - Avoiding napping too soon before sleep^[3]

Stimulus control

Stimulus control^[4] aims to associate the bed with sleeping and limit its association with stimulating behavior. People with insomnia are guided to do the following:

- go to bed only when they are tired
- limit activities in bed to sleep and sex
- get out of bed at the same time every morning
- get up and move to another room when sleep-onset does not occur within ten minutes

Sleep hygiene

Sleep hygiene aims to control the environment and behaviors that precede sleep. This involves limiting substances that can interfere with proper sleep, particularly within 4–6 hours of going to bed. These substances include caffeine, nicotine and alcohol. Sometimes a light bedtime snack, such as milk or peanut butter, is recommended. The environment in which one sleeps, and the environment that directly precedes sleep, is also very important. Patients should engage in relaxing activities prior to going to bed, such as reading, writing, listening to calming music or taking a bath. Importantly, they should limit stimulating activity such as watching television, using a computer or being around bright lights.

Sleep restriction

Sleep restriction^[5] is probably the most controversial step of CBT-I, since it initially involves the restriction of sleep. Although it is counterintuitive, it is a significant and effective component of CBT-I. It involves controlling time in bed (TIB) based upon the person's sleep efficiency in order to restore the homeostatic drive to sleep. Sleep Efficiency (SE) is the measure of reported Total Sleep Time (TST), the actual amount of time the patient is usually able to sleep, compared with his or her TIB.

Sleep Efficiency = (Total Sleep Time / Time In Bed)

- First, Time In Bed is restricted to the Total Sleep Time
- Increase or decrease TIB weekly by only 20-30 min
- Increase TIB if SE >90%
- Decrease TIB if SE <80%

This process may take several weeks or months to complete, depending on the person's initial Sleep Efficiency and how effective the treatment is for them individually. Daytime sleepiness is a side-effect during the first week or two of treatment, so those who operate heavy machinery or otherwise cannot safely be sleep deprived should not undergo this process.

Relaxation training

Relaxation training is a collection of practices that can help people to relax throughout the day and particularly close to bedtime. It is useful for insomnia patients with difficulty falling asleep. However it is unclear whether or not it is useful for those who tend to wake up in the middle of the night or very early in the morning. Techniques include hypnosis, guided imagery and meditation.

Cognitive therapy

Cognitive therapy^{[4][6][7][8]} within CBT-I is not synonymous with versions of Cognitive Behavioral Therapy that are not targeted at insomnia. When dealing with insomnia, cognitive therapy is mostly about offering education about sleep in order to target dysfunctional beliefs/attitudes about sleep.

Cognitive therapists will directly question the logical basis of these dysfunctional beliefs in order to point out their flaws. If applicable, the therapist will arrange a situation for the individual to test these flawed beliefs. For instance, many insomniacs believe that if they don't get enough sleep they will be tired the entire following day. They will then try to conserve energy by not moving around or by taking a nap. These responses are understandable but can exacerbate the problem, since they do not generate energy. If instead a person actively tries to generate energy by taking a walk, talking to a friend and getting plenty of sunlight, he or she may find that the original belief was self-fulfilling and not necessarily true.

Worry is a common factor of insomnia. Therapists will work to control worry and rumination with the use of a thought record, a log where a person writes down concerns. The therapist and the patient can then approach each of these concerns individually.

Applications to Mood Disorders

Psychiatric mood disorders, such as major depressive disorder (MDD) and bipolar disorder, are intertwined with sleep disorders. This is evident in the high rate of comorbidity with psychiatric disorders and insomnia and other sleep disorders. Most people with psychiatric diagnoses have significantly reduced sleep efficiency and total sleep time compared to controls.^[9] Thus it is not surprising that treating insomnia with CBT-I can help to improve mood disorders. A study in 2008 showed that augmenting antidepressant medication with CBT-I in patients with MDD and comorbid insomnia helped to alleviate symptoms for both disorders.^[10] The overlap between mood- and sleep disorders is just starting to be rigorously explored,^[11] but the efficacy of CBT-I for MDD and bipolar disorder looks promising.

Application to Post-traumatic Stress Disorder

Post-traumatic Stress Disorder (PTSD) is an anxiety disorder that may develop after a person experiences a traumatic event. Many people with PTSD relive or re-experience a traumatic event; memories of the event can appear at any time and the person feels the same fear/horror as when the event occurred. These can be either in the form of nightmares and/or flashbacks. Those with PTSD also have hyperarousal (fight-or-flight) and can be too alert to go to sleep.^[12] Due to this, many experience some form of insomnia.

Recent studies have shown CBT-I offers some improvement with those suffering from PTSD. For example, a study conducted February 2014, examined if CBT-I improved sleep in those with PTSD along with other PTSD related symptoms. The study showed improved sleep and improved psychosocial functioning.^[13]

Other studies even suggest CBT-I in combination with Imagery Rehearsal Therapy helps improve sleep-related PTSD symptoms. Imagery Rehearsal Therapy (IRT) is a modified Cognitive Behavioral Therapy technique used to treat recurring nightmares. This technique involves recalling the nightmare, writing it down, modifying parts of the dream to make it positive, and rehearsing the new dream to create a cognitive shift that counters the original dream. Imagery Rehearsal Therapy can be used for anyone suffering from recurring nightmares.^[14]

Efficacy

- Patients who have undergone CBT-I spend more time in stages 3 and 4 sleep (also known as slow-wave sleep, delta sleep or deep sleep) and less time awake than those treated with zopiclone (also known as Imovane or Zimovane). They also had lasting benefits according to a review six months later, whereas zopiclone had no lasting results.^[6]
- When the common hypnotic drug zolpidem (more commonly known as Ambien) was compared with CBT-I, the latter had a larger impact on sleep-onset insomnia. Surprisingly, CBT-I by itself was no less effective than CBT-I paired with Ambien.^[15]
- For a thorough review of CBT-I and its effectiveness, see the Morin, Bootzin, Buysse et al. article referenced below.^[4]
- Computer-based CBT-I was shown to be comparable in effectiveness to therapist-delivered CBT-I in a placebo-controlled clinical study.^[16]
- A meta-analysis showed that adherence and effectiveness are related in technology-mediated sleep treatment.^[17]
- For a meta-analysis of cognitive behavioral therapy for insomnia, see the Morin et al. article referenced below.^[18]

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