



Steven Fox, MD
University of Tennessee
College of Medicine
Chattanooga

Joan Nashelsky, MLS
Family Physicians Inquiries
Network, Iowa City, Iowa

Michael Jack, BA
Erlanger Health System
Medical Library,
Chattanooga, Tenn

ASSISTANT EDITOR
Rick Guthmann, MD,
MPH
Advocate Illinois Masonic
Family Medicine Residency,
Chicago

Q/ Can CBT effectively treat adult insomnia disorder?

EVIDENCE-BASED ANSWER

A/ YES. Cognitive behavioral therapy (CBT) administered individually, in a group setting, or on the internet is effective for treating insomnia in adults compared with control (strength of recommendation [SOR]: A, meta-analyses).

CBT is comparable to pharmaco-

therapy for improving measures of sleep (SOR: A, comparative meta-analysis).

CBT produces sustainable improvements in subjective sleep quality for adults with comorbid insomnia (SOR: A, meta-analysis).

Evidence summary

Three meta-analyses that included only randomized controlled trials (RCTs) compared various CBT delivery methods with controls (wait-listed for treatment or general sleep hygiene education) to assess sleep outcomes for adults with insomnia.¹⁻³ TABLE 1¹⁻³ summarizes the results.

CBT is comparable to pharmacotherapy

A 2002 comparative meta-analysis of 21 RCTs with a total of 470 patients examined the effectiveness of CBT (stimulus control and/or sleep restriction) compared with pharmacotherapy (benzodiazepines or benzodiazepine agonists) for treating primary insomnia of longer than one month's duration in adults with no comorbid medical or psychiatric diagnoses.⁴ The CBT group received intervention over an average of 5 weeks, and the pharmacotherapy group received intervention over an average of 2 weeks.

CBT produced greater reductions in sleep onset latency than pharmacotherapy based on mean weighted effect size (1.05 vs 0.45 weighted effect size; 95% confidence interval, 0.17-1.04; $P=.01$). Although both CBT and pharmacotherapy improved sleep out-

comes, no statistical differences were found in wake after sleep onset time, total sleep time, number of awakenings, or sleep quality ratings (TABLE 2⁴).

CBT has significant benefit for comorbid insomnia

A 2015 meta-analysis of 23 studies enrolling a total of 1379 adults with a number of illnesses (chronic pain, alcohol dependence, breast cancer, psychiatric disorders, chronic obstructive pulmonary disease, fibromyalgia) and comorbid insomnia investigated the qualitative effectiveness of individual or group CBT therapy.⁵ Subjects received at least 4 face-to-face sessions and at least 2 components of CBT.

The primary outcome showed that sleep quality improved, as measured by a 6.36-point reduction in the Insomnia Severity Index (ISI; a 7-question scale on which 0=no insomnia and 28=severe insomnia) and a 3.3-point reduction in the Pittsburgh Sleep Quality Index (PSQI; a 7-category assessment tool on which 0=perfect quality and 21=poor quality). The effect size was large for both ISI and PSQI, as indicated by standard mean differences greater than 0.8 (1.22 and 0.88, respectively) and was sustained for as long as 18 months.

TABLE 1

CBT outcomes for insomnia

Type of insomnia (number of RCTs, subjects)	Type of insomnia CBT*	Age (yrs)	Treatment duration	Follow-up time (mo)	Outcomes compared with control (min)	P-value
Primary (20, 1162) ¹	Group or individual	20-77	≥2 sessions	3-12	SOL: -19 WASO: -26 TST: +7.6 SE%: +10%	.04 .026 .42 .017
Comorbid and primary (8, 659) ²	Group	45-68	4-8 sessions	3-12	SOL: -27 WASO: -41 TST: +19 SE%: +13%	<.01 <.01 <.01 <.01
Comorbid and noncomorbid (14, 1604) ³	Internet	39-60	5-9 wk	1-12	SOL: -19 WASO: -31 TST: +35 SE%: +10%	<.001 <.001 <.001 <.001

CBT, cognitive behavioral therapy; RCTs, randomized controlled trials; SE, sleep efficiency (sleep time/time in bed); SOL, sleep onset latency (how long it takes to fall asleep); TST, total sleep time; WASO, wake after sleep onset (how long it takes to fall back to sleep after waking up).

*CBT using at least 2 of 5 modalities (cognitive therapy, sleep hygiene, sleep restriction, stimulus control, relaxation).

TABLE 2

How pharmacotherapy compares with CBT for persistent insomnia⁴

Sleep outcome measure	Pharmacotherapy	CBT
Mean change in minutes (effect size)		
SOL	-14.5 (0.45)	-23.31 (1.05*)
WASO	-25.6 (0.89)	-38.4 (1.03)
TST	40.5 (0.84)	19.6 (0.46)

CBT, cognitive behavioral therapy; SOL, sleep onset latency; TST, total sleep time; WASO, wake after sleep onset.

*Behavioral therapy showed greater reductions in sleep onset latency than pharmacotherapy (t=2.88, degree of freedom=20.62; P=.01).

Recommendations

The American College of Physicians strongly recommends that all adult patients receive CBT as initial treatment for chronic insomnia disorder.

It can be performed in multiple settings, including the primary care setting. Compared with hypnotics, CBT is unlikely to have any adverse effects.⁶

JFP

References

1. Trauer J, Qian M, Doyle J, et al. Cognitive behavioral therapy for chronic insomnia: a systematic review and meta-analysis. *Ann Intern Med.* 2015;163:191-204.
2. Koffel E, Koffel J, Gehrman P. A meta-analysis of group cognitive behavioral therapy for insomnia. *Sleep Med Rev.* 2015;19:6-16.
3. Ye Y, Chen N, Chen J, et al. Internet-based cognitive-behavioral therapy for insomnia (ICBT-i): a meta-analysis of randomized controlled trials. *BMJ Open.* 2016;6:e010707.
4. Smith M, Perlis M, Park S, et al. Comparative meta-analysis of pharmacotherapy and behavior therapy for persistent insomnia. *Am J Psychiatry.* 2002;159:5-11.
5. Geiger-Brown J, Rogers V, Liu W, et al. Cognitive behavioral therapy in persons with comorbid insomnia: a meta-analysis. *Sleep Med Rev.* 2015;23:54-67.
6. Qaseem A, Kansagara D, Forciea M, et al. Management of chronic insomnia disorder in adults: a clinical practice guideline from the American College of Physicians. *Ann Intern Med.* 2016;165:125-133.