Evaluation And Management of Chronic Insomnia Disorder

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Ann Arbor, Michigan

18th Annual Sleep Medicine CME Course

EVALUATION AND MANAGEMENT OF CHRONIC INSOMNIA DISORDER

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MICHIGAN MEDICINE

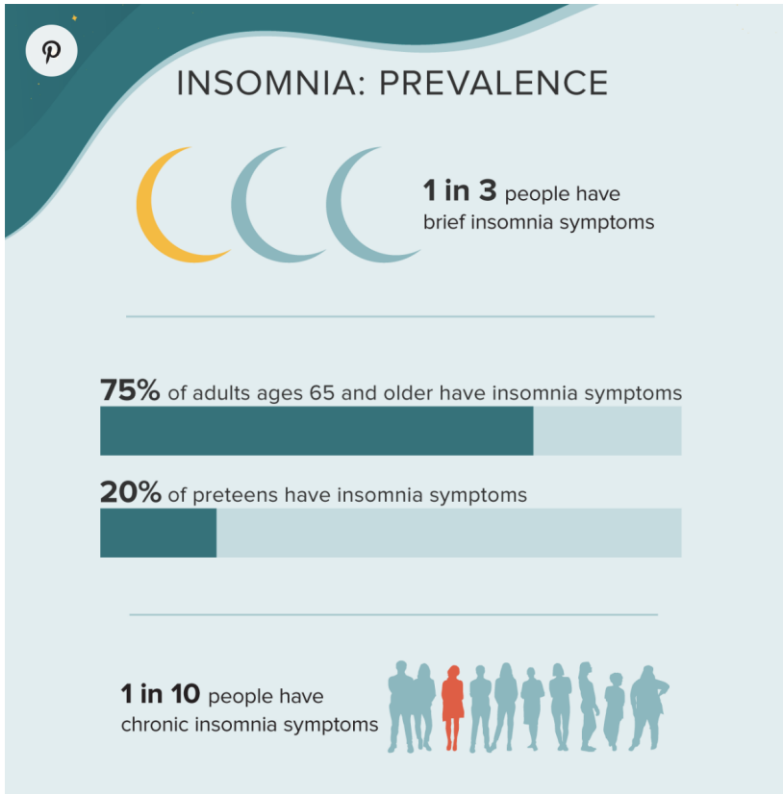
DEIRDRE CONROY PHD PLLC

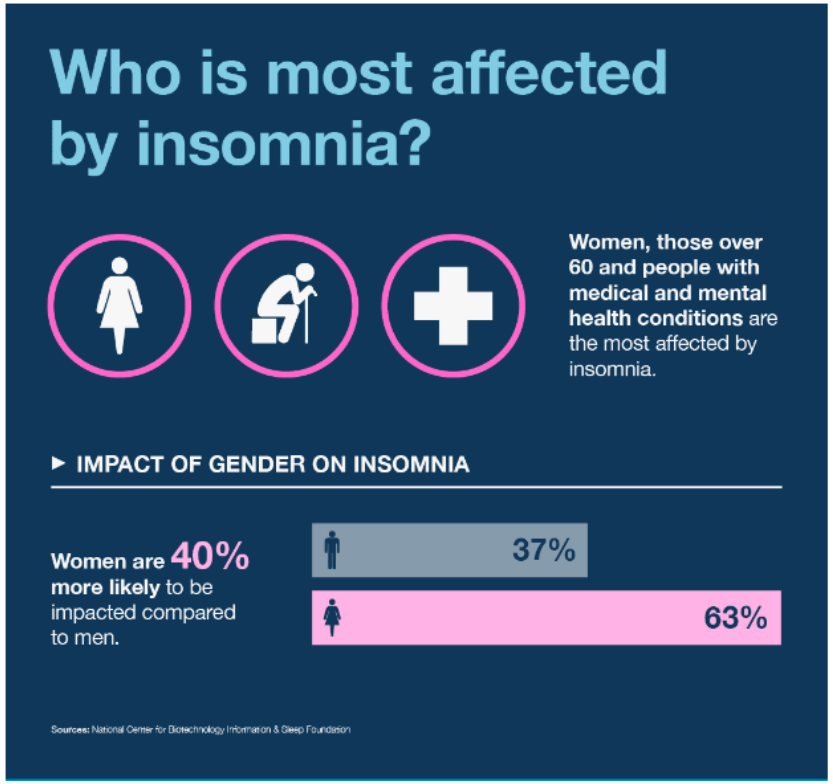
CONFLICT OF INTEREST

- Stellar Sleep PLLC, Scientific Advisor

LEARNING GOALS

- Scope of Insomnia
- Current practices for evaluating and treating insomnia
- Key elements to the insomnia landscape
- The future of insomnia treatment





HOW COMMON IS IT?

WHAT IS INSOMNIA?

DSM 5 (2013) and ICSD-3 (2014)

Impairment in Daytime Function[a]

As shown by one or more of:

- **Fatigue** or low energy
- Daytime sleepiness
- **Mood** disturbance
- **Behavioral difficulties**
- Negative effect on family/caregiver
- Impaired attention, **concentration**, or **memory**
- Impaired occupational or academic function
- Impaired interpersonal or social function

A 24- hour Disorder

Night-Time Symptoms

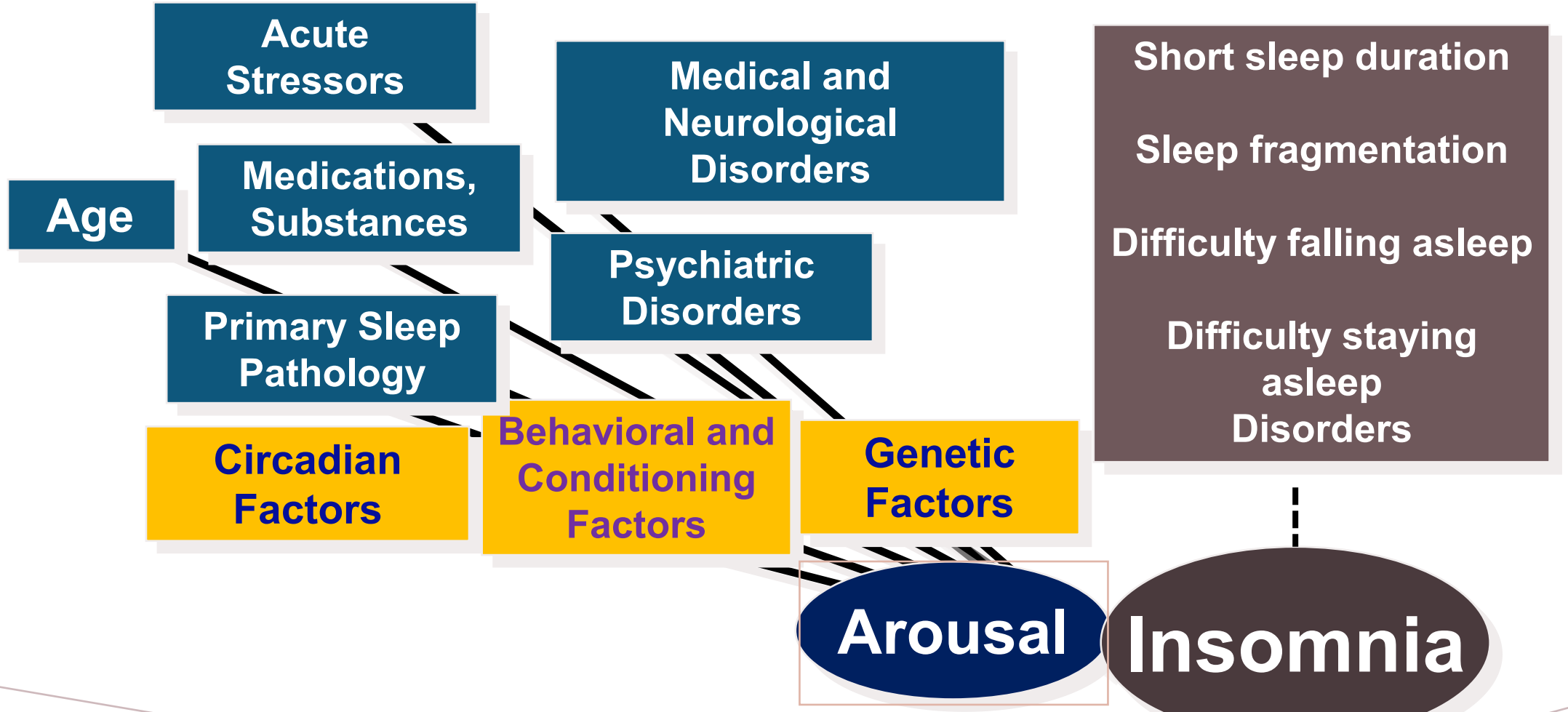
Dissatisfaction with sleep, and reported difficulty initiating or maintaining sleep

Daytime Symptoms

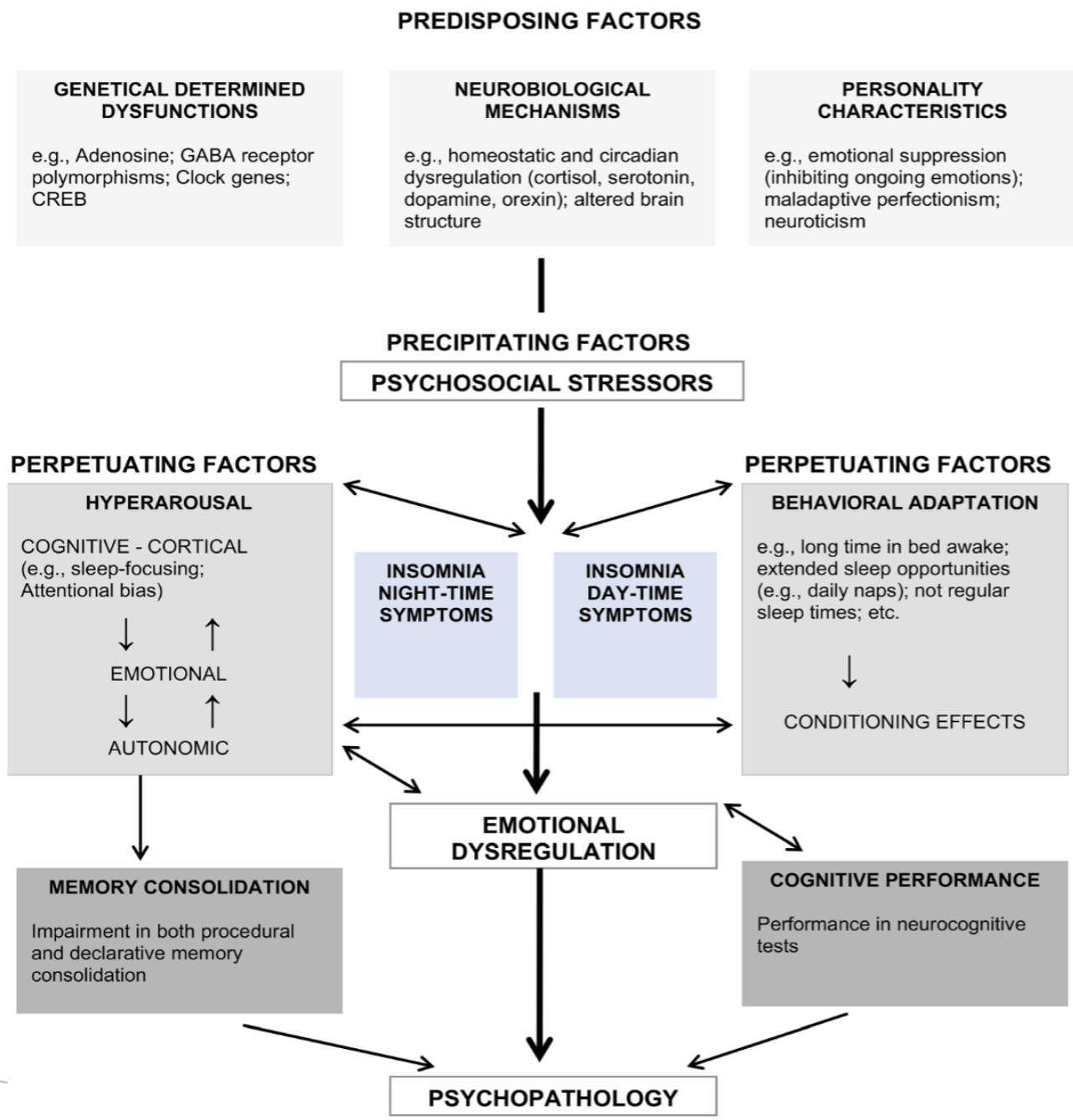
Impaired concentration, mood, behavior, work performance, etc

Winkelman JW. N Engl J Med 2015;373:1437-1444; Sateia MJ. Chest. 2014;146:1387-1394; Morin CM, Buysse D, NEJM 2024.

INSOMNIA PATHOPHYSIOLOGY AND CLINICAL SUBTYPES



Buysse, Diagnosis and classification of insomnia disorders; In Szuba, Kloss and Dinges, *Insomnia: Principles and Management*, 2003, Cambridge University Press.

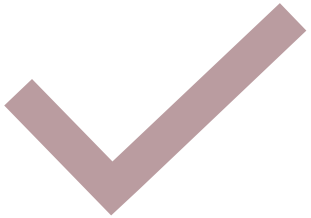

PREDISPOSING FACTORS
GENETICAL DETERMINED DYSFUNCTIONS
e.g., Adenosine; GABA receptor polymorphisms; Clock genes; CREB
NEUROBIOLOGICAL MECHANISMS
e.g., homeostatic and circadian dysregulation (cortisol, serotonin, dopamine, orexin); altered brain structure
PERSONALITY CHARACTERISTICS
e.g., emotional suppression (inhibiting ongoing emotions); maladaptive perfectionism; neuroticism
PRECIPITATING FACTORS
PSYCHOSOCIAL STRESSORS
PERPETUATING FACTORS
HYPERAROUSAL
COGNITIVE - CORTICAL (e.g., sleep-focusing; Attentional bias)
EMOTIONAL
AUTONOMIC
INSOMNIA NIGHT-TIME SYMPTOMS
INSOMNIA DAY-TIME SYMPTOMS
PERPETUATING FACTORS
BEHAVIORAL ADAPTATION
e.g., long time in bed awake; extended sleep opportunities (e.g., daily naps); not regular sleep times; etc.
CONDITIONING EFFECTS
EMOTIONAL DYSREGULATION
MEMORY CONSOLIDATION
Impairment in both procedural and declarative memory consolidation
COGNITIVE PERFORMANCE
Performance in neurocognitive tests
PSYCHOPATHOLOGY

HOW TO ASSESS INSOMNIA

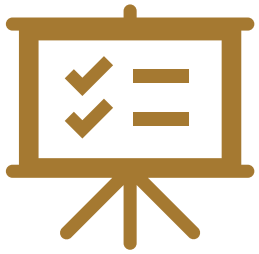
CLINICAL INTERVIEW: PRESENTING PROBLEM

What is the most disturbing part of your sleep?

- Falling asleep (beginning of night)
- Staying asleep (middle of night)
- Waking up too early and not being able to fall back to sleep (end of night)
- Difficulty waking up at intended time



Have patient focus on last week



If last week was not typical, focus on the most recent typical week

This will ensure you have the most relevant information

DAYTIME SYMPTOMS

How does your sleep problem impact your life?

- Mood
- Energy
- Concentration
- Pain
- Sleepiness
- Fatigue

The NEW ENGLAND JOURNAL of MEDICINE

CLINICAL PRACTICE

Patrick G. O'Malley, M.D., M.P.H., *Editor*

Management of Insomnia

Charles M. Morin, Ph.D., and Daniel J. Buysse, M.D.

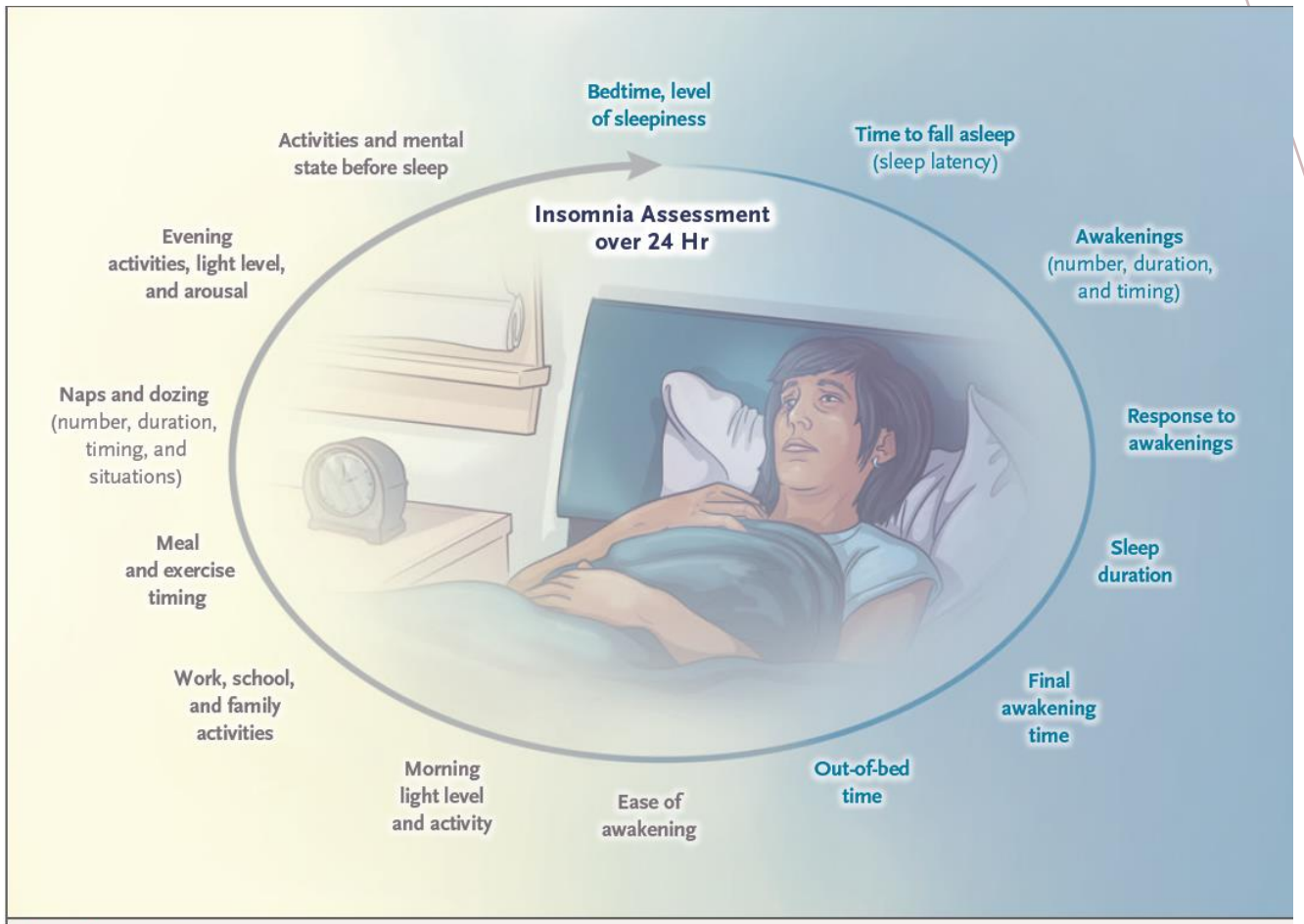


Figure 1. Use of 24-Hour History for Insomnia Assessment.

Insomnia manifests as a sleep problem but affects — and is affected by — daytime behaviors. A thorough insomnia history helps evaluate symptoms and behaviors both at night and during the day. Shown are key parts of an insomnia assessment across a 24-hour day.

DAYTIME BEHAVIORS AND SYMPTOMS

Napping	Dozing	Daytime activity level

• If given the opportunity for a nap, would you be able to fall asleep?
  • If able to nap: assess timing frequency and duration
	• Do you doze off unintentionally?
	  • If so, when, how much, and how frequently
		• If unclear, ask about daytime activity
		  • Sufficient stimulation
		  • Overactivity (no down time)

DAILY SLEEP DIARY

- TO TRACK SLEEP DAILY THROUGHOUT THE INTERVENTION
- ASSIST IN CASE FORMULATION
- GUIDE TREATMENT DECISIONS

Assessment Tools: Daily Sleep Diary/Sleep Log

Consensus Sleep Diary-Core ID/Name:_____

	Sample							
Today's date	4/5/08							
What time did you get into bed?	10:15 p.m							
What time did you try to go to sleep?	11:30 p.m							
How long did it take you to fall asleep?	45 min.							
How many times did you wake up, not counting your final awakening?	3 times							
In total, how long did these awakenings last?	1 hour 30 min.							
What time was your final awakening?	6:30 a.m.							
What time did you get out of bed for the day?	7:20 a.m							
How would you rate the quality of your sleep?	☐ Very poor ☐ Poor ☐ Fair ☐ Good ☐ Very good	☐ Very poor ☐ Poor ☐ Fair ☐ Good ☐ Very good	☐ Very poor ☐ Poor ☐ Fair ☐ Good ☐ Very good	☐ Very poor ☐ Poor ☐ Fair ☐ Good ☐ Very good	☐ Very poor ☐ Poor ☐ Fair ☐ Good ☐ Very good	☐ Very poor ☐ Poor ☐ Fair ☐ Good ☐ Very good	☐ Very poor ☐ Poor ☐ Fair ☐ Good ☐ Very good
Comments (if applicable)	I have a cold							

Sleep Log

Name: DOB: / / Doctor: Unit #:

Date started: / / Comments:

List Medications:

Midnight Noon

Day 6p 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 Comments

Day 6p 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 Comments

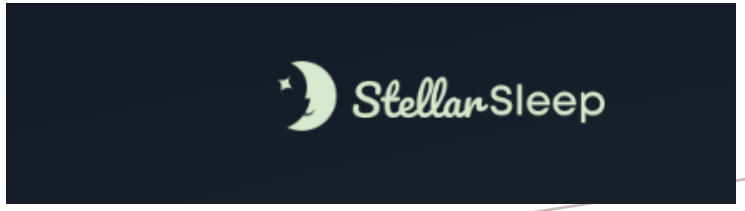
Ex.

Key: ↑=out of bed ↓=in bed Filled in=asleep

©1998 Henry L. Shapiro, M.D., Developmental and Behavioral Pediatrics, All Children's Health System Center for Child Development, 801 6th St. South, Dept 7825, St. Petersburg, FL 33701

Carney CE. Sleep. 2012;35(2):287-302.

ASSESSMENT TOOLS



CURRENT PRACTICES FOR TREATING INSOMNIA

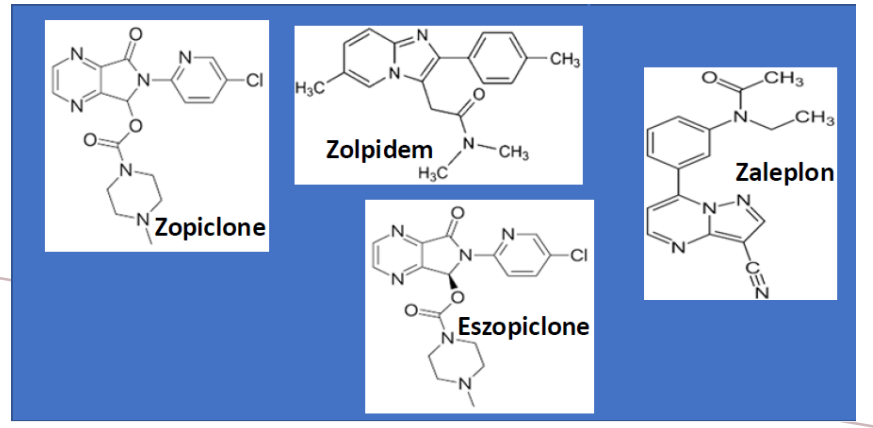
TWO BROAD OPTIONS

Pharmacotherapy

- 1. Benzodiazepines
- 2. Benzodiazepine Receptor Agonists
- 3. Melatonin Receptor Agonists
- 4. Dual Orexin Receptor Antagonist

Cognitive Behavioral Therapy for Insomnia

- Time in Bed Restriction
- Stimulus Control
- Relaxation
- Cognitive restructuring
- And more…



PHARMACOTHERAPY

Indicated for Insomnia by US FDA and/or AASM

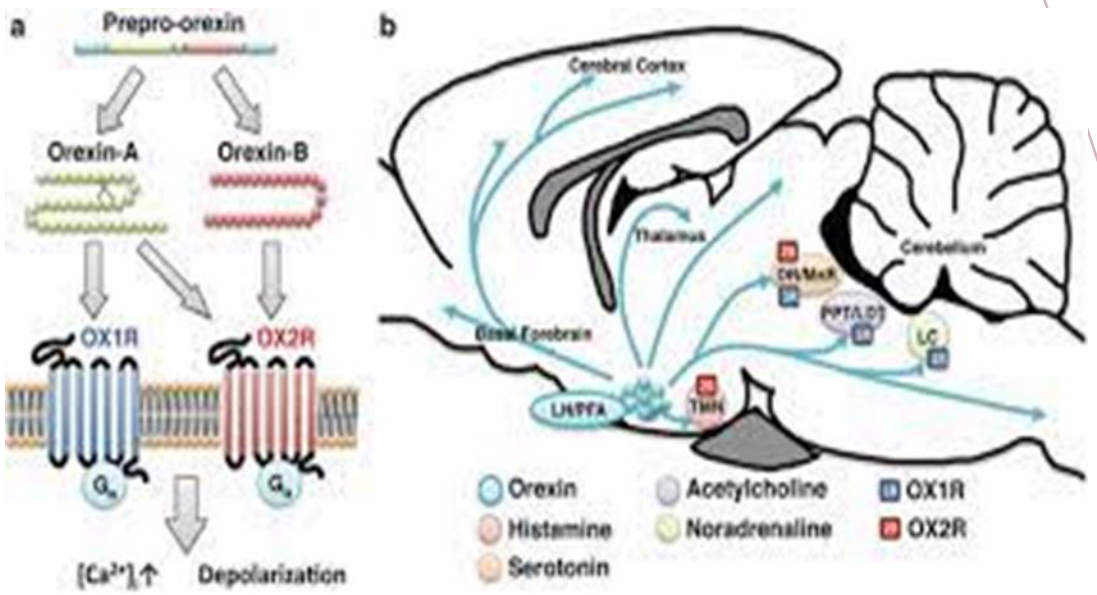
Generic	Brand	$T_{1/2}$ (Hours)	Dose (mg)	Drug Class	Indication[7]
Temazepam	Restoril	8-20	15-30	BZD	SO, SM
Triazolam	Halcion	2-6	0.125-0.25	BZD	SO
Zolpidem[1]	Ambien	1.5-2.4	5-10	BZRA	SO, SM
Zaleplon	Sonata	1	5-20	BZRA	SO
Eszopiclone[2]	Lunesta	5-7	1-3	BZRA	SO, SM
Zolpidem ER[1,2,3]	Ambien CR	1.5-2.4	6.25-12.5	BZRA	SO, SM
Zolpidem SL[1,3,4]	Intermezzo	1.4-3.6	1.75-3.5	BZRA	
Ramelteon[2,5]	Rozerem	1.5-5	8	MT agonist	SO
Doxepin[2,5]	Silenor	15	3-6	TCA	SM
Suvorexant	Belsomra	9-13	10-20[6]	DORA	SO, SM
Lemborexant	Dayvigo	17-19	5-10[6]	DORA	SO, SM
Daridorexant	Quviviq	6-10	25-50	DORA	SO, SM

1. Women start at lower dose.
2. No short-term use limitation
3. Modified formulation.
4. Use for middle-of-the-night awakening when ≥4h remaining in bed.
5. Not a controlled substance.
6. 5-10 mg suvorexant, 5 mg lemborexant, 25 mg daridorexant with CYP3A inhibitor.
7. SO-sleep onset, SM-sleep maintenance insomnia, NR-no recommendation per clinical practice guideline

Satieia MJ et al, J Clin Sleep Med (2017) 13:307-349.

OREXIN ANTAGONISTS

- Orexin, also known as hypocretin, is a neuropeptide that regulates arousal, wakefulness, and appetite.
- Orexin receptor antagonists are sleep promoting because they block the arousal by orexins
- Narcolepsy, type 1 is caused by a lack of orexin in the brain due to destruction of the cells that produce it



NON PHARMACOLOGICAL THERAPY

WHAT IS COGNITIVE BEHAVIORAL THERAPY-INSOMNIA?

- Comprehensive approach targeting factors that maintain insomnia
- Rooted in the science of sleep/wake regulation and principles of behavior change
- Skills-based & brief (approximately 6 sessions)
- Both individual and group formats are effective

CBT-I GOALS

BEHAVIORS

Increase sleep drive
Optimize congruency between circadian clock and placement of sleep opportunity (time in bed)
Strengthen the signals from the circadian clock
Strengthen bed as cue for sleep (conditioned insomnia)
Reduce physiological arousal

COGNITIONS

Reduce sleep effort
Reduce cognitive arousal
Address dysfunctional beliefs about sleep
Address obstacles to adherence

WEIGHING THE DATA

Received: 16 August 2023 | Accepted: 21 August 2023
DOI: 10.1111/jsr.14035

REVIEW ARTICLE

The European Insomnia Guideline: An update on the diagnosis and treatment of insomnia 2023

Dieter Riemann[1,2] | Colin A. Espie[3] | Ellemarije Altena[4] | Erna Sif Arnardottir[5,6] | Chiara Baglioni[7] | Claudio L. A. Bassetti[8] | Celyne Bastien[9] | Natalija Berzina[10] | Bjørn Bjorvatn[11] | Dimitris Dikeos[12] | Leja Dolenc Groselj[13] | Jason G. Ellis[14] | Diego Garcia-Borreguero[15] | Pierre A. Geoffroy[16] | Michaela Gjerstad[17] | Marta Gonçalves[18] | Elisabeth Hertenstein[19] | Kerstin Hoedlmoser[20] | Tuuliki Hion[21] | Brigitte Holzinger[22] | Karolina Janku[23] | Markus Jansson-Fröjmark[24,25] | Heli Järnefelt[26] | Susanna Jernelöv[24,25] | Poul Jørgen Jennum[27] | Samson Khachatryan[28] | Lukas Krone[3,8,19] | Simon D. Kyle[3] | Jaap Lancee[29] | Damien Leger[30] | Adrian Lupusor[31] | Daniel Ruivo Marques[32,33] | Christoph Nissen[34] | Laura Palagini[35] | Tiina Paunio[36] | Lampros Perogamvros[34] | Dirk Pevernagie[37] | Manuel Schabus[20] | Tamar Shochat[38] | Andras Szentkiralyi[39] | Eus Van Someren[40,41] | Annemieke van Straten[42] | Adam Wichniak[43] | Johan Verbraecken[44] | Kai Spiegelhalder[1]

Stimulus control and sleep restriction are the most active ingredients of CBT

Meta-Analysis > J Clin Sleep Med. 2021 Feb 1;17(2):263-298. doi: 10.5664/jcsm.8988.

Behavioral and psychological treatments for chronic insomnia disorder in adults: an American Academy of Sleep Medicine systematic review, meta-analysis, and GRADE assessment

Jack D Edinger [1,2], J Todd Arnedt [3], Suzanne M Bertisch [4], Colleen E Carney [5], John J Harrington [6], Kenneth L Lichstein [7], Michael J Sateia [8], Wendy M Troxel [9], Eric S Zhou [10], Uzma Kazmi [11], Jonathan L Heald [11], Jennifer L Martin [12,13]

- Cognitive behavioural therapies
- Brief behavioural therapies
- Stimulus control
- Sleep restriction therapy
- Relaxation training
- Sleep hygiene
- Biofeedback
- Paradoxical intention
- Intensive sleep retraining
- Mindfulness

Slide courtesy of Dr. Colin Espie

WEIGHING THE OPTIONS

Medications

Advantages	Disadvantages
Work quickly	Side effects
Well tolerated	Tolerance
Efficacious	Drug interactions
Minimal patient burden	Safety concerns in certain populations

CBT-I

Advantages	Disadvantages
Efficacious	Delayed gains
Maintenance of benefits	Greater patient burden
Fewer side effects	Close follow-up needed
Increased patient self-efficacy	Less widely available

THE INSOMNIA LANDSCAPE

FOUR KEY ELEMENTS

Insomnia is a disorder	CBTi is first line	Mental Health ⟷ Insomnia	Scaling Digital CBT-I
Recognition that insomnia is a disorder in its own right; and that it should be actively treated	Guidelines that CBT is the best evidenced treatment; and that CBT should be first line clinical care	Evidence that treating insomnia effectively may alleviate comorbid mental and physical conditions	Regulatory clearance of dCBT products that make guideline treatment possible at population scale

CBT is the guideline treatment for chronic insomnia; not medication

Slide courtesy of Dr. Colin Espie

PRACTICE GUIDELINE FROM THE AMERICAN COLLEGE OF PHYSICIANS (ACP)

RECOMMENDATION 1

- ACP recommends that all adult patients receive cognitive behavioral therapy for insomnia (CBT-I) as the initial treatment for chronic insomnia disorder.
- Grade: strong recommendation, moderate-quality evidence

RECOMMENDATION 2

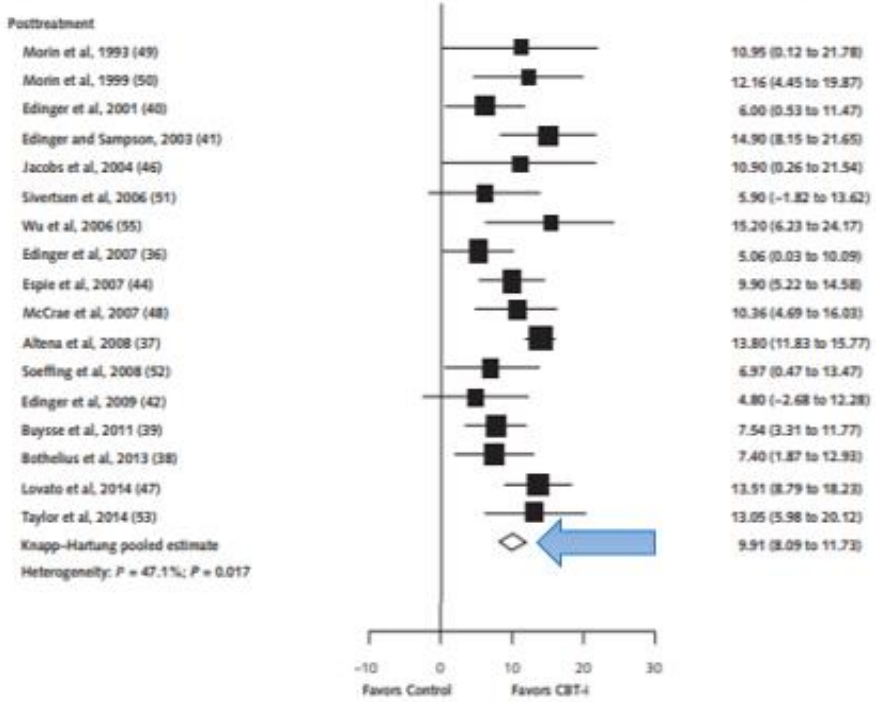
- ACP recommends that clinicians use a shared decision-making approach, including a discussion of the benefits, harms, and costs of short-term use of medications, to decide whether to add pharmacological therapy in adults with chronic insomnia disorder in whom cognitive behavioral therapy for insomnia (CBT-I) alone was unsuccessful.
- Grade: weak recommendation, low-quality evidence

Qaseem, *Ann Int Med* (2016) 165 doi:10.7326/M15-2175

CBT-I IS BENEFICIAL AND SAFE FOR CHRONIC INSOMNIA WITH AND WITHOUT COMORBID HEALTH CONDITIONS

No other health conditions[1]

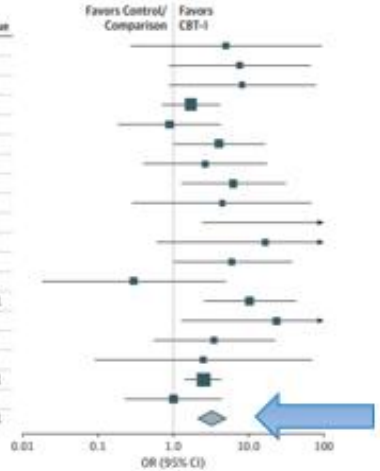
Figure 5. Meta-analysis of the effect of CBT-i on SE%.



With other health conditions[2]

Figure 2. Remission From Insomnia at Posttreatment

Source	OR	Statistics for Each Study: OR	95% CI	z Value	P Value
Alcohol dependence: Arnedt et al,[23] 2011	ISI	5.00	0.27-91.52	1.09	.28
Chronic pain: Currie et al,[40] 2000	PSQI	7.56	0.87-65.87	1.83	.07
Alcohol dependence: Currie et al,[26] 2004	PSQI	8.14	0.88-75.48	1.85	.06
Breast cancer: Dirksen and Epstein,[37] 2008	ISI	1.73	0.71-4.17	1.21	.22
Mixed psychiatric: Edinger et al,[27] 2009	PSQI	0.88	0.19-4.16	−0.16	.87
Hearing impairment: Jansson-Frajmark,[45] 2012	ISI	3.96	0.97-16.27	1.91	.06
COPD: Kapella et al,[47] 2011	PSQI	2.63	0.39-17.46	1.00	.32
Depression: Manber et al,[28] 2008	ISI	6.26	1.27-30.80	2.26	.02
PTSD: Margolies et al,[29] 2013	Combined	4.45	0.29-67.55	1.07	.28
Chronic pain: Pigeon et al,[24] 2012-1	ISI	143.00	2.42-8467.01	2.38	.02
Chronic pain: Pigeon et al,[24] 2012-2	ISI	16.20	0.59-441.68	1.65	.10
Cancer: Ritterband et al,[52] 2012	ISI	6.00	0.97-37.30	1.92	.05
PD: Rios Romenets et al,[53] 2013	ISI	0.30	0.02-4.91	−0.84	.40
Breast cancer: Savard et al,[54] 2005	ISI	10.38	2.55-42.33	3.26	<.001
PTSD: Talbot et al,[31] 2014	ISI	23.57	1.29-430.80	2.13	.03
Chronic pain: Tang et al,[57] 2012	ISI	3.50	0.55-22.30	1.33	.18
PTSD: Ulmer et al,[32] 2011	ISI	2.48	0.09-68.14	0.54	.59
Osteoarthritis: Vitiello et al,[58] 2013	Combined	1.00	1.43-4.30	3.22	<.001
Depression: Wagley et al,[33] 2012	PSQI	3.17	0.23-4.37	0.00	>.99
			2.09-4.83	5.40	<.001



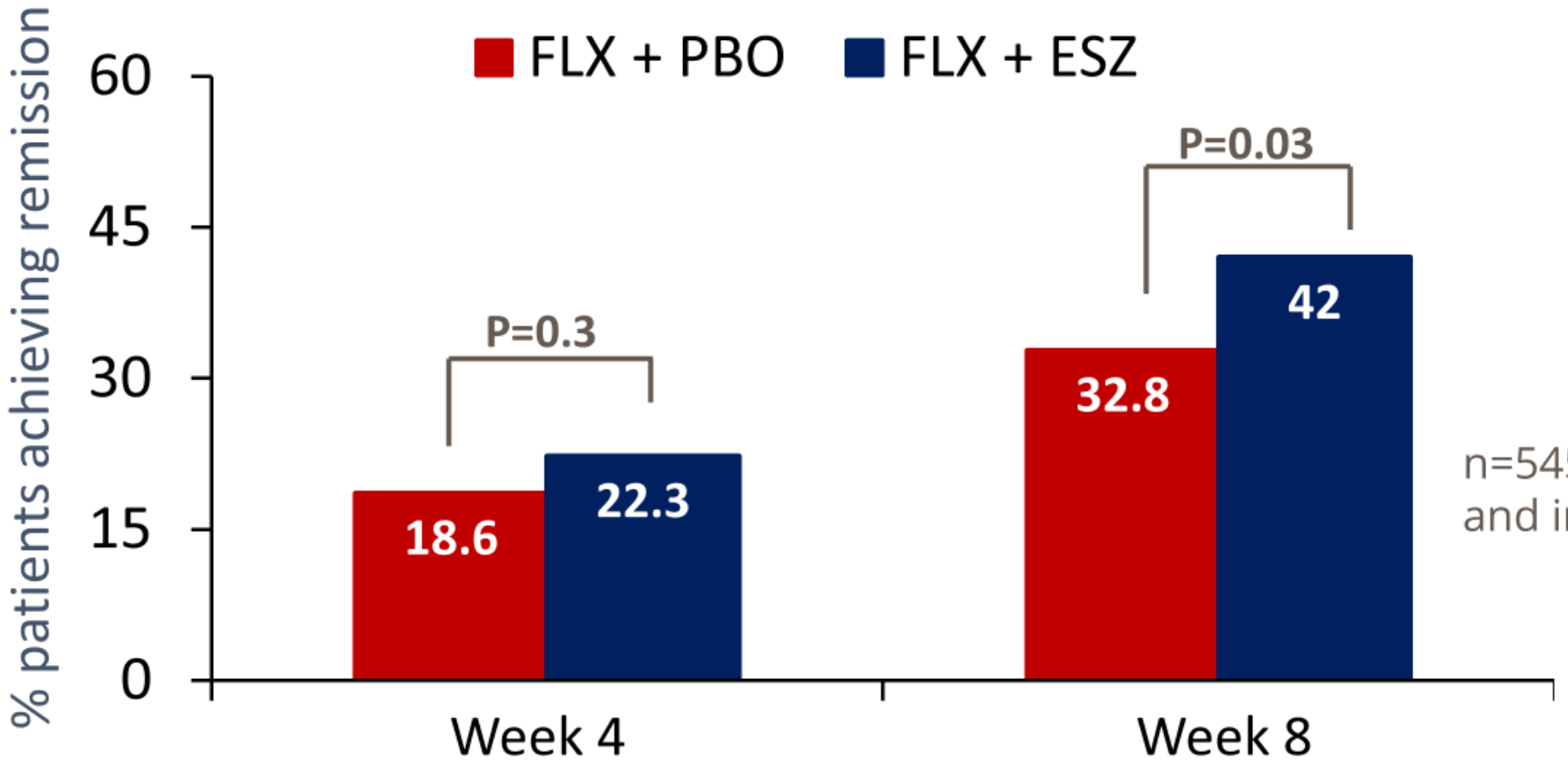
Variation in data marker size indicates relative weighting by sample size. CBT-I indicates cognitive behavioral therapy for insomnia; COPD, chronic obstructive pulmonary disease; ISI, Insomnia Severity Index; PD, Parkinson disease; PSQI, Pittsburgh Sleep Quality Index; and PTSD, posttraumatic stress disorder.

Pooled OR = 3.28 (95% CI 2.30 – 4.68, p<.001)

[1]Trauer JM. *Ann Intern Med* 2015;163:191-204

[2]Wu JQ. *JAMA Intern Med* 2015; 175(9):1461-72

Eszopiclone accelerates remission to depression among people with comorbid depression and insomnia



n=545 adults with depression and insomnia

Fava M. *Biol Psychiatry* 2006;59:1052-60.

DELIVERY OF CBT-I

CBTI CAN BE DELIVERED BY A VARIETY OF HEALTHCARE PROVIDERS

CBTi is provided by psychologists, social workers, nurses, physicians

Professionals need to have a license to practice and operate within the limits of their qualifications

Licensing and training bodies must ensure policy standards/training/supervision

Stepped care models ensure the best treatment and practice

SLEEP®

Sleep Research Society®

JOURNAL ARTICLE CORRECTED PROOF

PRO: CBT-I for insomnia treatment can be delivered by a range of healthcare providers

Get access

Colin A Espie ✉, Michael A Grandner, Christopher L Drake

Sleep, zsaf124, https://doi.org/10.1093/sleep/zsaf124

Published: 21 May 2025 **Article history** ▾

JOURNAL ARTICLE CORRECTED PROOF

CON: CBT-I for insomnia treatment can be delivered by a range of healthcare providers

Get access

Christina S McCrae ✉, Ashley F Curtis, Melanie A Stearns

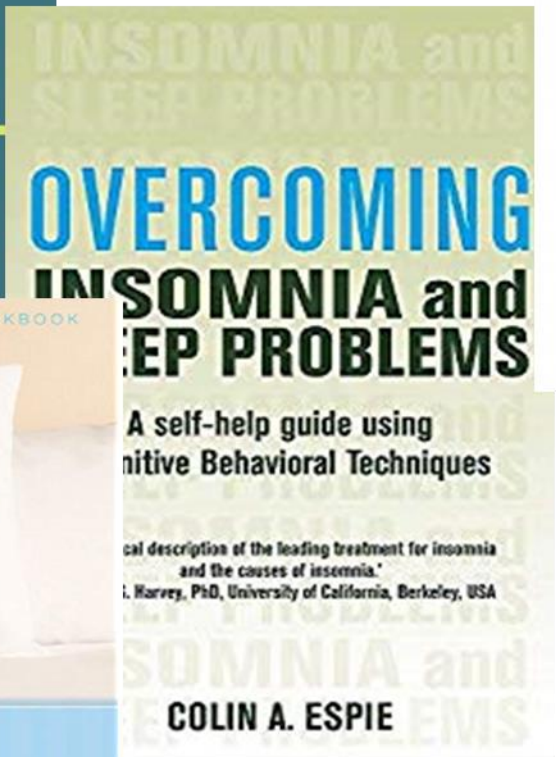
Sleep, zsaf123, https://doi.org/10.1093/sleep/zsaf123

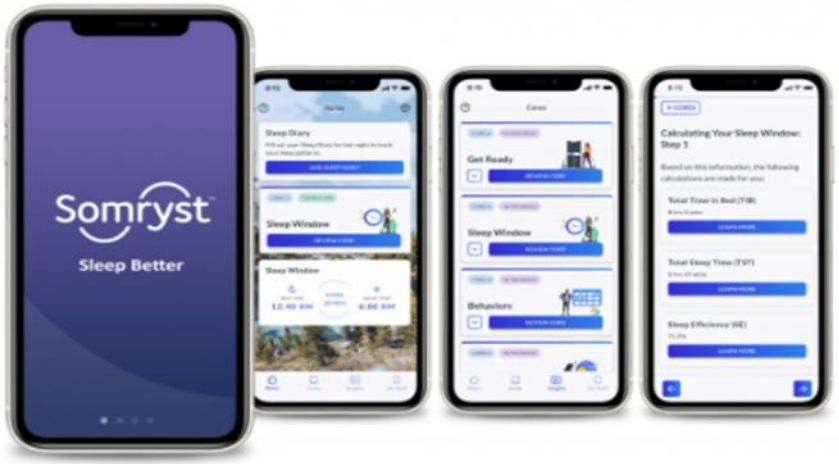
Published: 21 May 2025 **Article history** ▾

HOW CAN WE DISTRIBUTE TO MORE PEOPLE?

- Individual
- Group
- Large group
- Teletherapy (online, text, phone)
- Bibliotherapy
- Digitally enhanced/ supported
- Fully automated digital (dCBT)
- Virtual reality
- Avatar
- Generative AI

UPDATED EDITION
"A LANDMARK BOOK."—DR. KENNETH R. PELLETIER, STANFORD UNIVERSITY SCHOOL OF MEDICINE
SAY GOOD NIGHT TO
A NEW HARBINGER SELF-HELP WORKBOOK
quiet your mind & get to sleep
solutions to insomnia for those with depression, anxiety, or chronic pain
COLLEEN E. CARNEY, PH.D. • RACHEL MANBER, PH.D.
Foreword by Richard R. Bootzin, Ph.D.

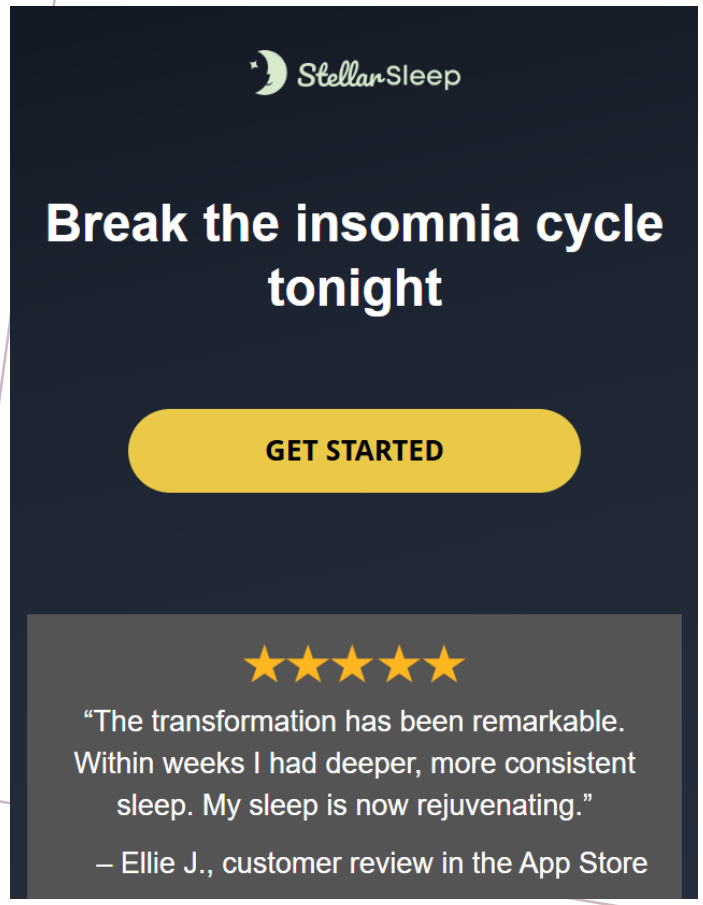

OVERCOMING
INSOMNIA and
SLEEP PROBLEMS
A self-help guide using
nitive Behavioral Techniques
cal description of the leading treatment for insomnia and the causes of insomnia.'
. Harvey, PhD, University of California, Berkeley, USA
COLIN A. ESPIE

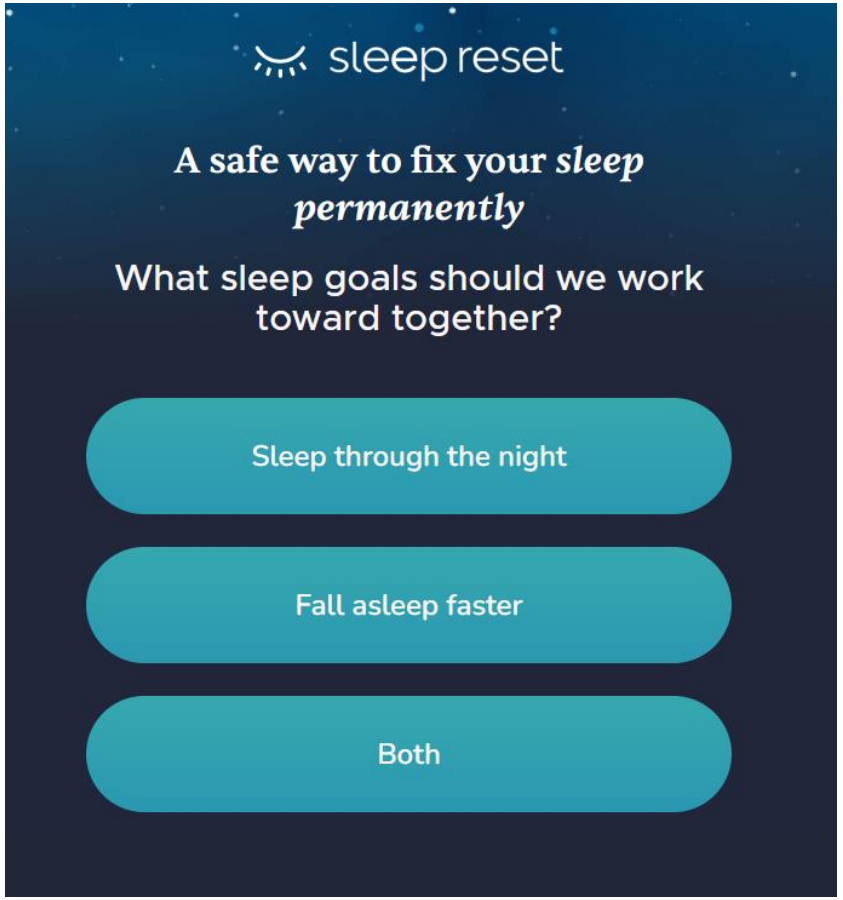

Somryst
Sleep Better

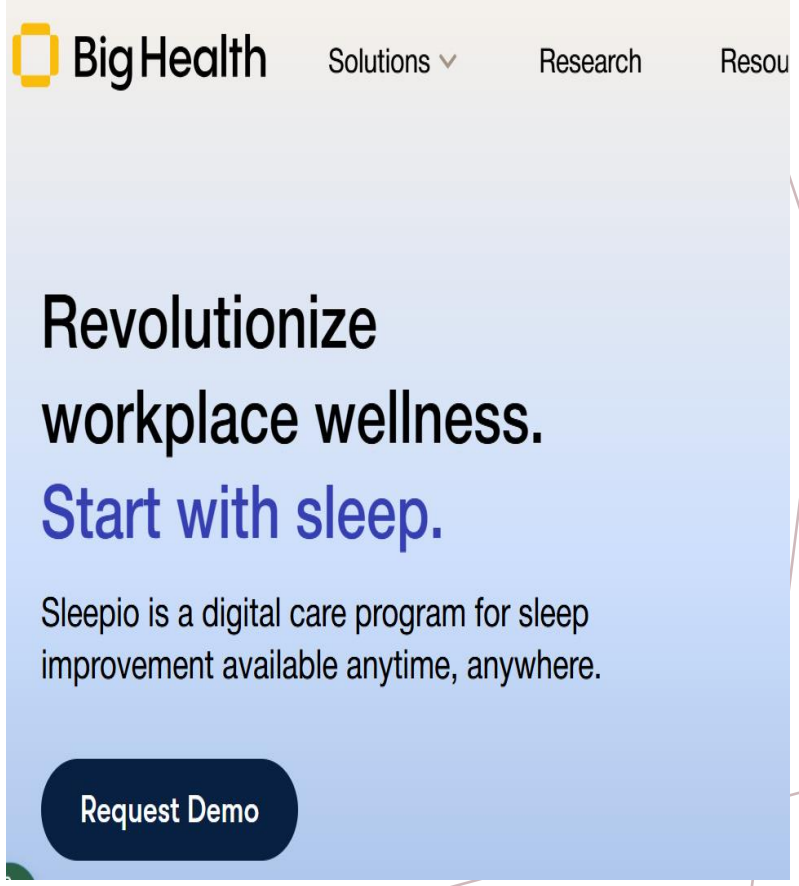
SLEEP DIARY
AUGUST 2014
Tue 12
Wed 13
Thu 14
44%
70%
78%
"I'm not going to sleep a wink"

Sleepio

AVAILABLE D-CBTI APPS







SUMMARY

- Insomnia is a complex disorder involving nighttime and daytime symptoms that requires close assessment and management
- Current practices for treating insomnia include pharmacological options and CBT-I
- Insomnia can be treated as an independent disorder and may improve other comorbidities
- The future of insomnia treatment include scaling the delivery of CBT-I through digital options