



# ***Cognitive Behavior Therapy for Insomnia (CBT-I)***

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# Speaker Conflict of Interest Disclosure

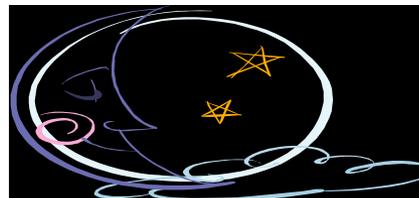
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General Sleep Corporation	Advisory Board Member	YES	<b><u>NO</u></b>
MindWare Consulting Inc	Consultant	YES	<b><u>NO</u></b>
		YES	NO
		YES	NO



# DSM-V: Insomnia Disorder

- A. The predominant complaint is dissatisfaction with sleep quantity or quality.
- B. Report of one of more of the following symptoms
  - Difficulty initiating sleep
  - Difficulty maintaining sleep characterized by frequent awakenings or difficulty returning to sleep.
  - Early morning awakening with inability to return to sleep.
  - Nonrestorative sleep
  - Prolonged resistance to going to bed and/or bedtime struggles
- C. The sleep complaint is accompanied by significant distress or impairment in daytime functioning as indicated by the report of at least one of the following:
  - Fatigue or low energy, daytimes sleepiness, cognitive impairments, mood disturbance, behavioral problems, impaired occupational or academic functioning, impaired interpersonal/social functioning, negative impact on caregiver or family function.

# DSM-V: Insomnia Disorder

- D. The sleep difficulty occurs at least 3 nights per week.
- E. The sleep difficulty is present for at least 3 months.
- F. The sleep difficulty occurs despite adequate age-appropriate circumstances and opportunity for sleep.
  - Duration:
    - Acute: <1 month
    - Sub acute: 1-3 months
    - Persistent: >3 months
  - Clinically comorbid conditions
    - Psychiatric (specify)
    - Medical (specify)
    - Another (specify)

# Insomnia and Pain

- Sleep disruption contributes to hyperalgesia (Smith and Haythornthwaite, 2004).
- Pain may be a factor leading to sleep disruption and sleep disruption in turn exacerbates pain (Stiefel & Stagno, 2004; Foo & Mason, 2005; Moldofsky, 2001, Roehrs & Roth, 2005).
- Pathophysiologic role of sleep disturbance in chronic pain (Smith et. al., 2007).
- Sleep Loss and REM sleep loss leads to hyperalgesia (Roehrs, Hyde, Blaisdell, et. al., 2006).
- The effect size for CBT-I on pain in osteoarthritis was 0.24, whereas a metaanalysis of CBT-P for rheumatoid and osteoarthritis had effect size of .18. (Vitiello et. al., 2009).

# Insomnia and Cardiovascular Disease

- Insomnia symptoms in middle age are strongly associated with the subsequent development of heart failure. *(Laugsand LE, Strand LB, Platou, et al. Eur Heart J 2013).*
- *Insomniac patients had an 85% higher risk of developing stroke. This was reduced to 54% after adjustment for other factors.*
  - *Those with insomnia age 18 to 34 had an 8-fold higher risk for stroke than those of a similar age without insomnia.* *(Ming-Ping Wu et. al., Stroke. 2014;45:00-00).*

# Psychiatric Impact of Insomnia

*Incidence (per 100) of New Psychiatric Disorders during Follow-up  
by Prior History of Insomnia (n=979)*

	Insomnia	No Insomnia
Major Depression	15.9	4.6
Any Anxiety	13.7	7.1
Alcohol A/D	7.1	4.7
Drug A/D	4.1	0.6
Nicotine D	17.8	8.2

# Insomnia and Depression

- Mounting evidence suggests insomnia is a risk factor for onset of Major Depression (Buysse et. al., 2008; Taylor, Lichstein & Durrence, 2003)
- Untreated insomnia may exacerbate or perpetuates depression (Pigeon et. al., 2008; Buysse, Frank, et. al., 1997; Dew et. al., 1997; Reynolds, Frank, Houck et. al., 1997)
- Treatment of insomnia in patients with depression improves depression outcomes. (Manber, Edinger, et. al., 2008; Fava, et. al., 2006; Taylor, et. al., 2007).
  - Manber (2008) comparing CBT-I to a systematic desensitization control in MDD patients with insomnia receiving escitalopram.
    - CBT-I group had greater remission of insomnia (50% vs. 8%)
    - CBT-I group had greater remission of depression (61.5% vs. 33.3%).

**The New York Times**

*Sleep Therapy Seen as an Aid for Depression  
(2013)*

[http://www.nytimes.com/2013/11/19/health/treating-insomnia-to-heal-depression.html?pagewanted=all&\\_r=0](http://www.nytimes.com/2013/11/19/health/treating-insomnia-to-heal-depression.html?pagewanted=all&_r=0)

“I Can't Sleep Without my medication, if I don't take it I won't sleep for days”.



The New York Times

***“Sleep Drugs Found Only Mildly Effective, but Wildly Popular”***



## **The Efficacy and Safety of Drug Treatments for Chronic Insomnia in Adults: A Meta-analysis of RCTs (2007)**

Buscemi, Vandermeer, Friesen, Bialy, Tubman, Ospina, Klassen, & Witmans

***Conclusion:*** Hypnotics put people to sleep **12 minutes** faster than placebo pills according to polysomnography and **17 minutes** faster according to sleep diaries.

# BMJ

## Effectiveness of non-benzodiazepine hypnotics in treatment of adult insomnia: meta-analysis of data submitted to the Food and Drug Administration (2012)

Huedo-Medina, Kirsch, Middlemass, Klonizakis, & Siriwardena

### Conclusions:

- “These data suggest that the placebo response is a **major** contributor to the effectiveness of Z drugs. The remaining effect needs to be balanced against the harms associated with these drugs”.



# “*Sleeping pills for insomnia*

## *They may not be the best treatment option”*



AMERICAN ACADEMY OF SLEEP MEDICINE

*Setting Standards & Promoting Excellence in Sleep Medicine*



**Leading Change. Improving Care for Older Adults.**



### **Sleeping pills have risks and side effects.**

If you take sleeping pills for many days in a row, one risk is that you may start to depend on them.

Other risks and side effects may include:

- Daytime drowsiness
- Dizziness and hallucinations
- Sleepwalking and sleep-eating

All sedative-hypnotic drugs have special risks for older adults. And these drugs may stay in their bodies longer.

These drugs cause confusion and memory problems that:

- More than double the risk of falls and hip fractures. These are common causes of hospitalization and death in older people.
- Increase the risk of car accidents.

# What is Cognitive Behavior Therapy for Insomnia (CBT-I)?

- **CBT-I is NOT....**

- Sleep Hygiene Education
- Traditional Psychotherapy
- Dream interpretation



- **CBT-I is.....**

- Non-drug, Empirically supported, Individualized, Solution focused, Time Limited, Collaborative, Informative, A first line treatment strategy



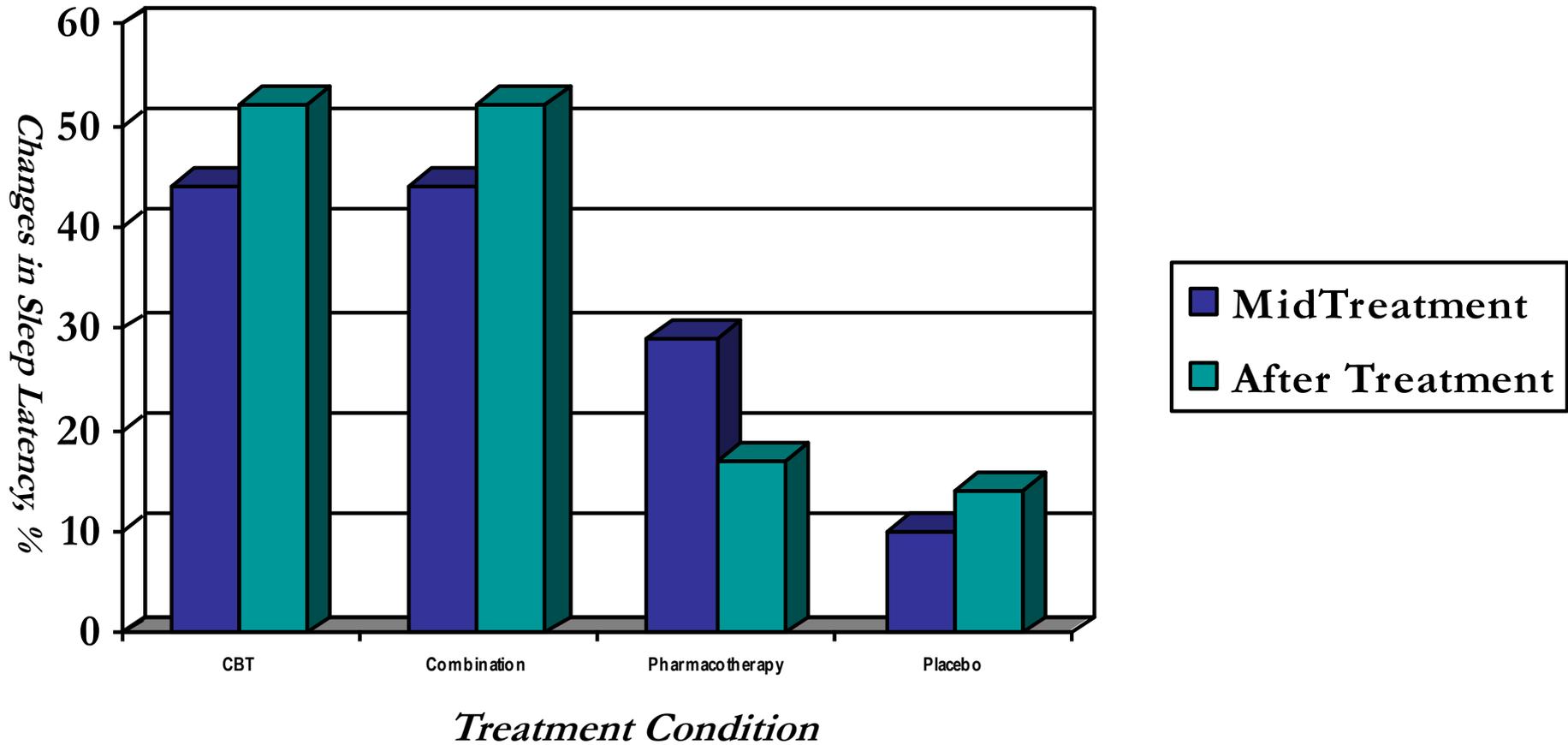
# **CBT-I recognized as first line treatment approach**

- NIH State-of-the-Science Conference Statement on Manifestations and Management of Chronic Insomnia in Adults (2005) recognized behavioral treatment as a first line approach for insomnia.

– <http://consensus.nih.gov/2005/insomniastatement.pdf>

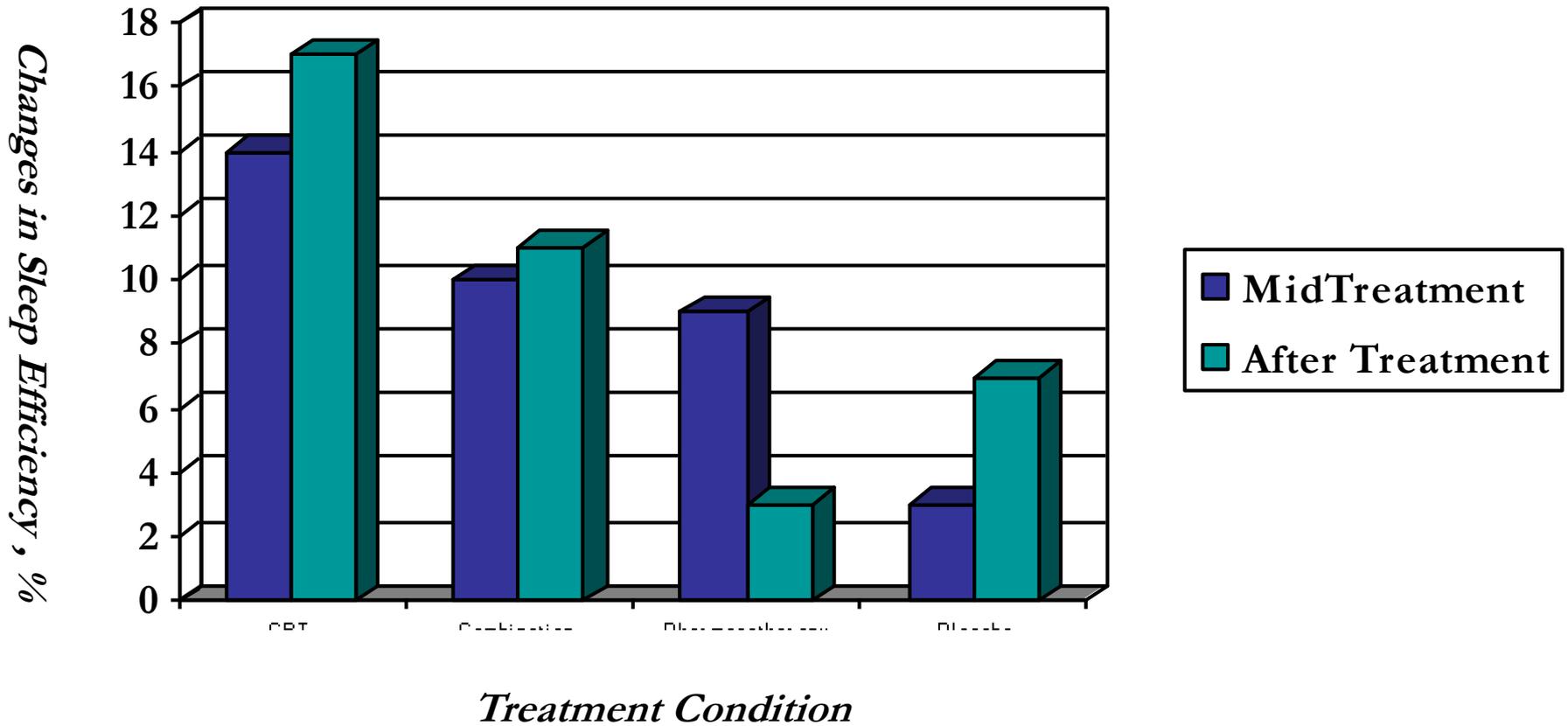
# CBT-I vs Zolpidem

*Changes in Sleep-onset latency as measured by sleep diaries.*



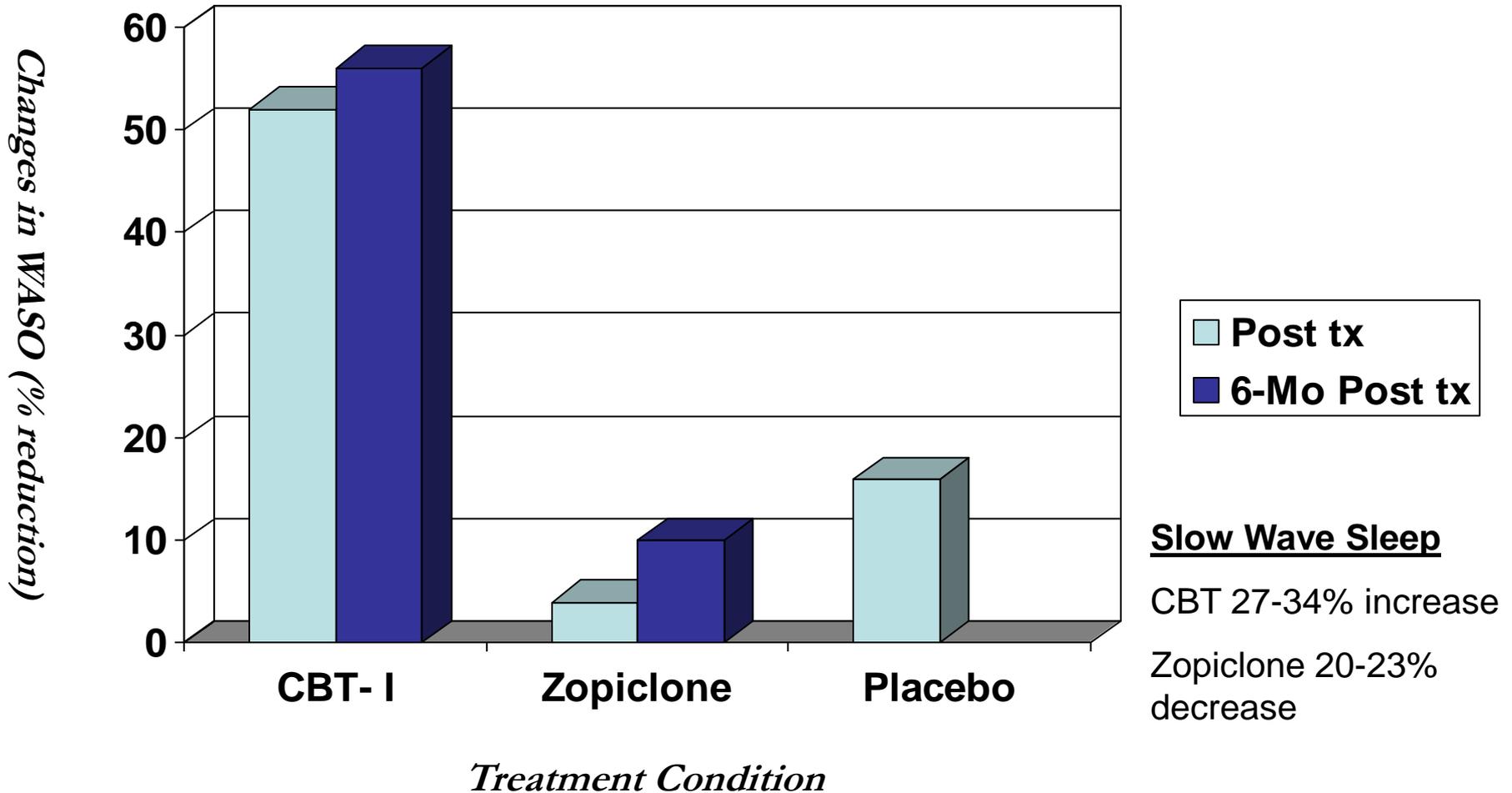
# CBT-I vs Zolpidem

*Changes in sleep efficiency as measured by sleep diaries.*



# CBT vs. Zopiclone in older adults

*Changes in WASO as measured by polysomnography.*



# So this is efficacy, what about insomnia in the *Real World*

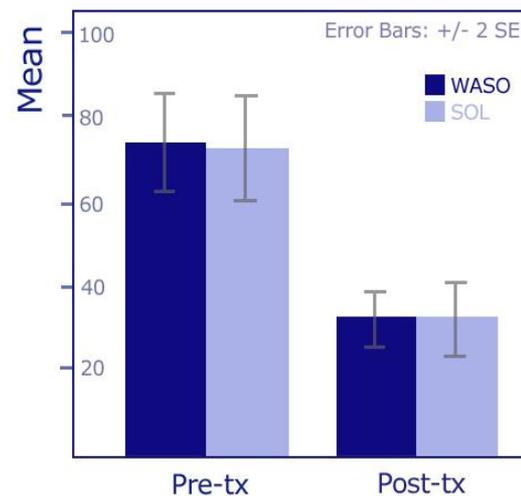
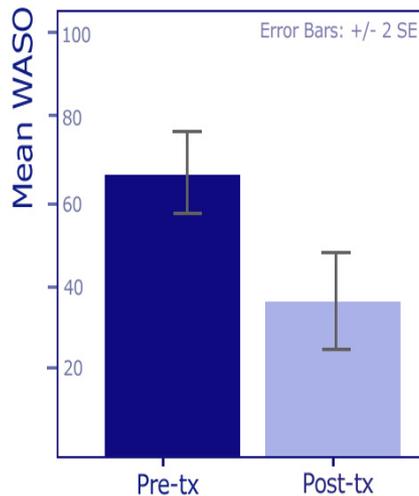
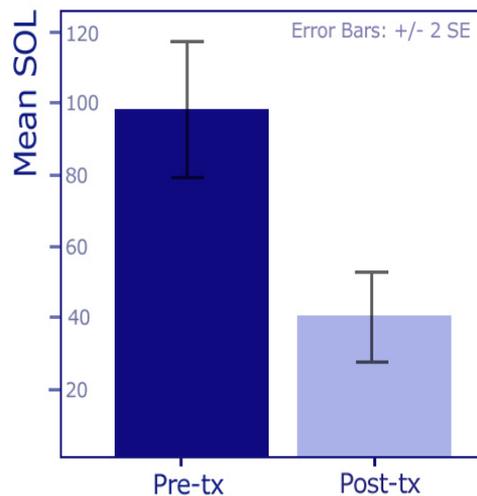
## Mental Health:

- 50.6%-At least mild depression ( $t \geq 60$ )
  - 25.9%-Severe Depression ( $t \geq 70$ )
- 37%-At least mild anxiety ( $t \geq 60$ )
  - 16%-Severe anxiety ( $t \geq 70$ )

## Physical Health:

- 27.9%-Pain condition
- 27.7%-Digestive problem
- 49.4%-Respiratory problem
- 26.5%-Hypertension
- 16.1%-Co-existing OSA
- *95.3% have tried at least 1 sleep medication*

# Effectiveness of CBT-I



Outcome Variable	Mean Difference	<i>T</i> (63)	<i>p</i>	Cohen's <i>d</i>
Number of Awakenings	-.61	2.711	.009	.34
Nights/Week Sleep Medication use	-2.1	4.970	<.0001	.62
Sleep Efficiency %	17.9	10.296	<.0001	1.29
Total Sleep Time (hours)	.58	4.344	<.0001	.54

Remission rates: Sleep onset insomnia 57.8%; Sleep maintenance insomnia 50%; Both 66% SOI, 56% SMI  
78% successfully discontinued use of sleep medication

# Cost/Benefit Analysis

- **Downside of CBT-I**

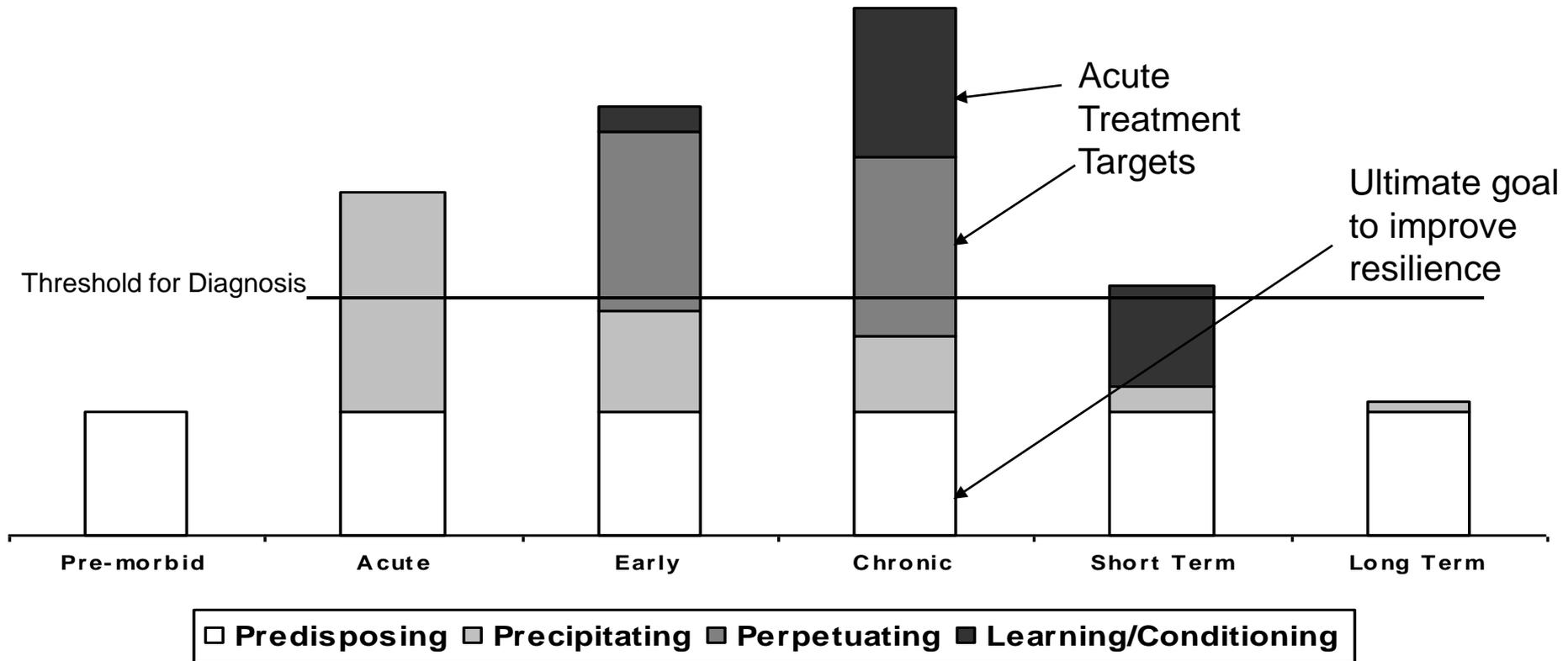
- Short-term symptom worsening
- Transient sleepiness
- 5-6 hours of treatment time.

- **Downside of sleep medication**

- Habituation/Addiction
- Increased parasomnia activity
- Decreased sleep quality
- Nausea
- Vomiting
- Hallucinations
- Altered thought patterns
- Increased appetite
- Inhibited Learning
- Impaired judgment and reasoning
- Increased impulsivity
- When stopped, rebound insomnia may occur
- Headaches
- Short term memory loss



# Conceptual Framework: A Biopsychosocial Diathesis Stress Model



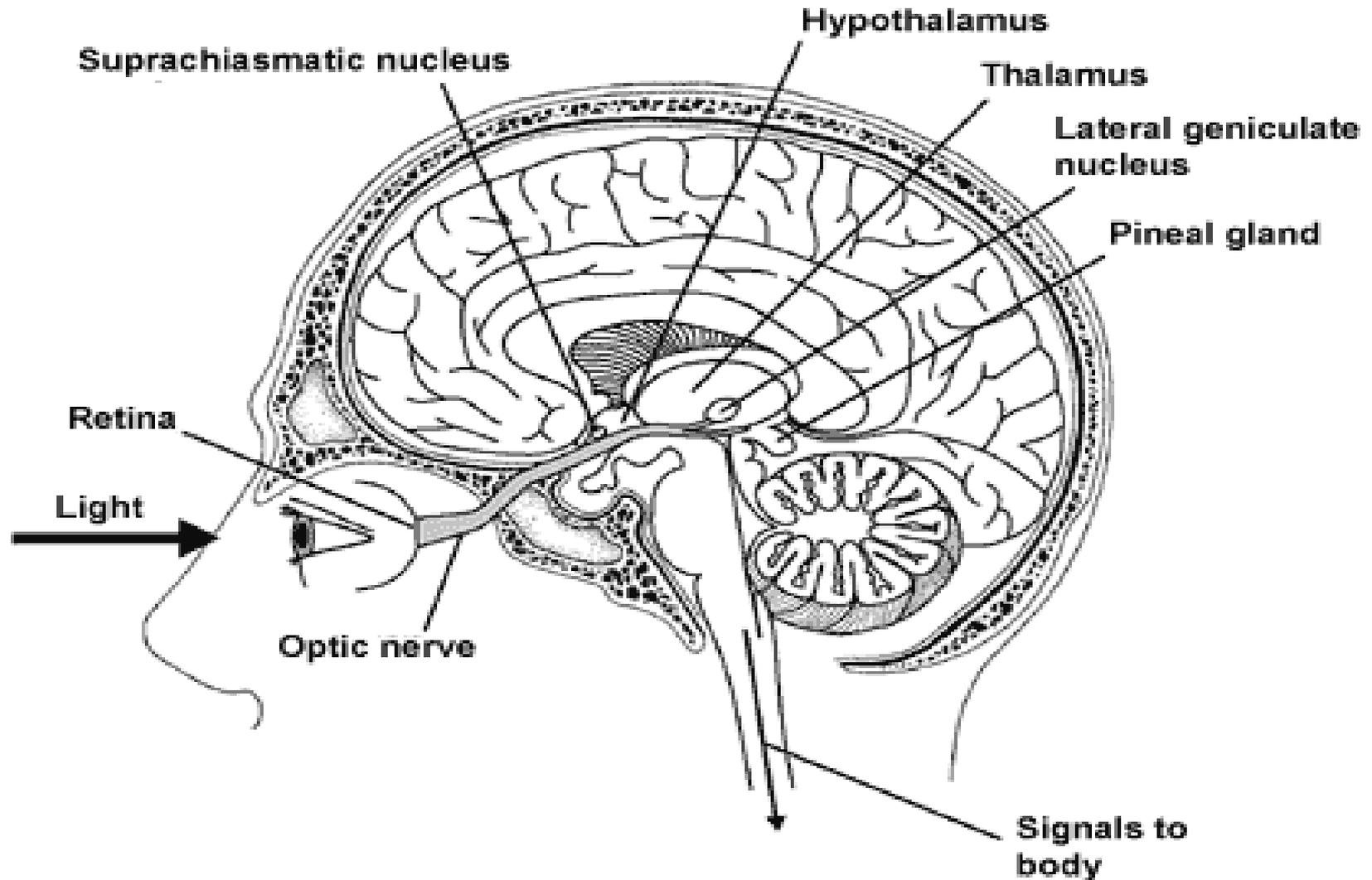
# Goals of Behavioral Evaluation

- Predisposing factors
  - What are the dispositional characteristics which may have rendered this individual vulnerable to this particular sleep problem?
- Precipitating factors
  - What triggered the onset of symptoms?
- Perpetuating factors
  - What are the factors which are maintaining the sleep problem?
- Learned/Conditioned factors
  - What habits and automatic responses have they developed as a result of living with this condition?
- Identify co-existing sleep disorders
  - Sleep apnea, narcolepsy, parasomnias, CRSD's.
- Awareness of co-existing medical conditions
- Identify co-existing psychological/psychiatric disorders
- Develop Individualized Treatment Plan

# What Causes Chronic Insomnia?

- **Insomnia is caused by disruption or dysfunction in 4 interwoven and interacting mind/body processes.**
  - Circadian timing system
    - Determines when we sleep
  - Homeostatic Sleep Drive
    - Makes us sleepy
  - Anxiety response system
    - Alerts us to danger
  - Memory/Learning
    - Teaches us what is dangerous

# Circadian Timing System

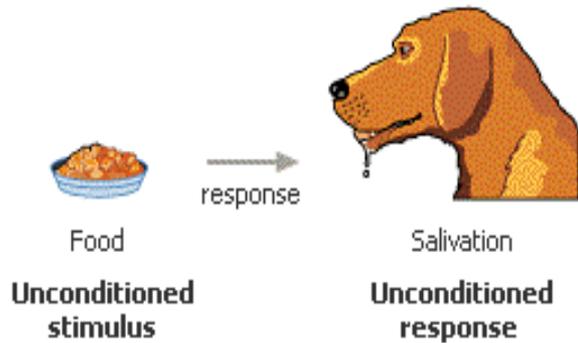


# Homeostatic Sleep Drive

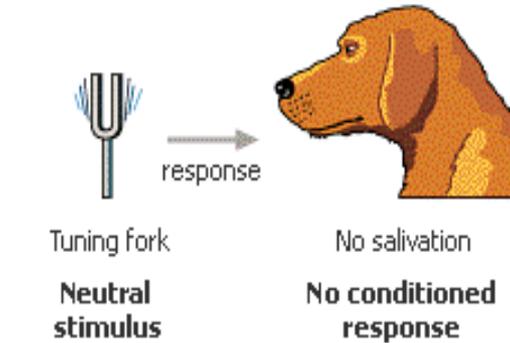
- The longer we are awake, the more likely it is we will fall asleep.
- Factors that affect sleep drive
  - Physical/social activity
  - Circadian factors
  - Stress/Anxiety/Mania
  - Conditioned Wakefulness
  - Others (caffeine, other stimulants/depressants)

# Learning System (Conditioning)

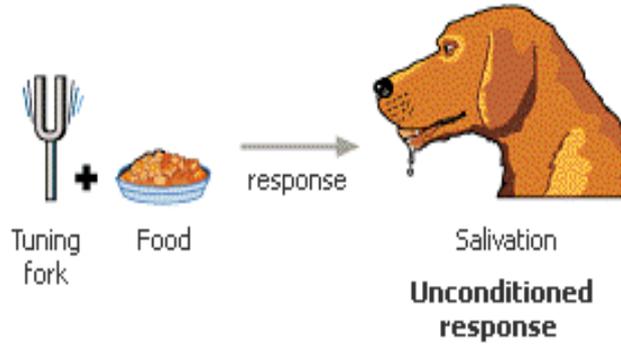
1. Before conditioning



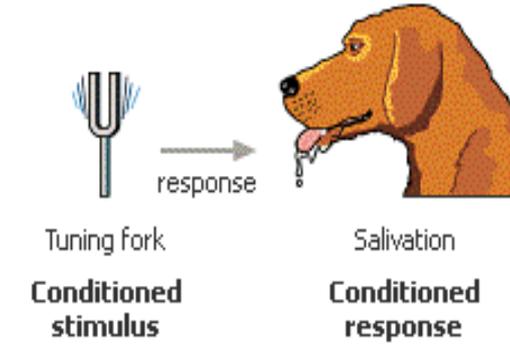
2. Before conditioning



3. During conditioning

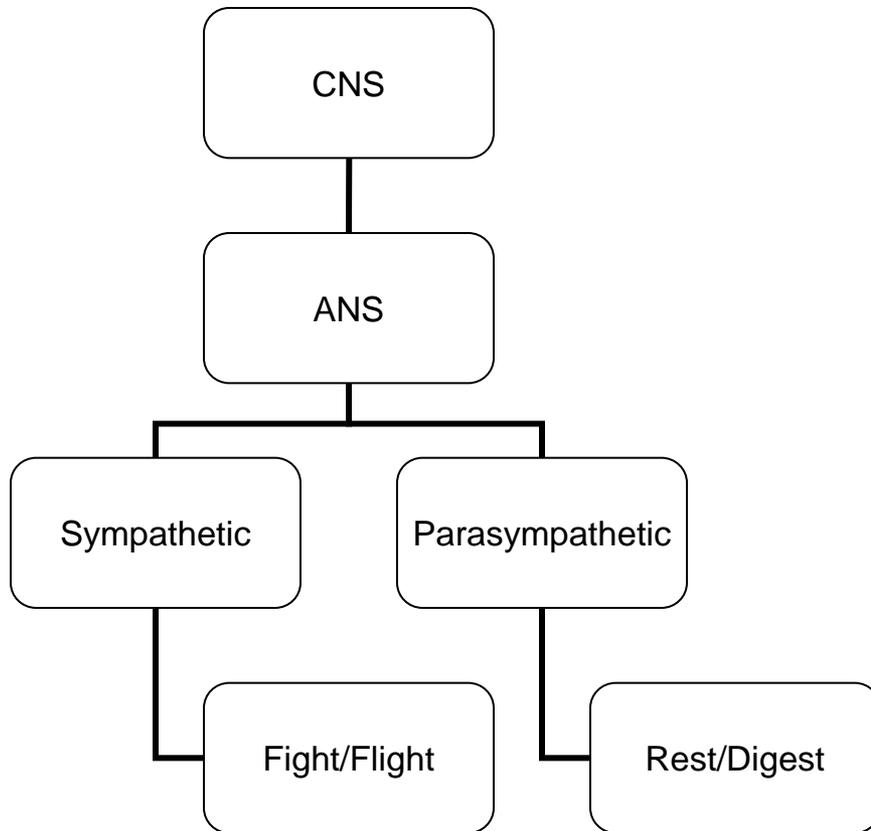


4. After conditioning



- Conditioned Arousal (Wakefulness)
- Due to repetitive experience of counter-productive emotional states in bed.
- Bed and bedroom becomes cue for stress, anxiety, frustration and/or worry vs. relaxation and sleep.

# Introduction to Anxiety Response



- **ANXIETY RESPONSE**

- Heart: Faster and Stronger Contractions
- Arteries: Constriction
- Lungs: Faster and Shallower Breathing
- Muscles: Tight or Tense
- Stomach: Slowed Digestion
- Sweat Glands: Increased Sweating
- Adrenal Glands: Increased Adrenaline
- Immune System: Suppressed (Decreased Resistance to Disease)

# CBT-I

## Intervention Strategy:

- Sleep Hygiene Education
- Motivational Interviewing
- Sleep Scheduling
- Sleep Restriction Therapy
- Stimulus Control Therapy
- Cognitive Therapy
- Relaxation Training
- Self-Monitoring Techniques
- Mindfulness

## Therapeutic Goal:

- Address poor sleep hygiene practices
- Motivation enhancement
- Circadian re-entrainment
- Improve sleep continuity and increase sleep drive.
- Recondition the bedroom as a place for sleep instead of wakefulness.
- Challenge counterproductive thought, beliefs, and attitudes about sleep.
- Reduce physiologic and cognitive arousal
- Enhance insight into perpetuating factors (behaviors) that interfere with sleep.
- Worry reduction

# Availability of CBT-I remains problematic

- In person, individualized CBT-I remains the best option.
  - Lack of providers remains an issue
- Online CBT-I or Apps may be a reasonable option for those without a Behavioral Sleep Specialist in town.



Night Owl—Sleep Coach  
CBT-I in the palm of your hand

<http://nightowl.mobi/>

# Summary

- Insomnia is highly prevalent and under-recognized.
- Insomnia can negatively affects nearly every bodily system and exacerbates many chronic health problems.
- Identification and treatment of insomnia can improve management of common co-existing conditions.
- CBT-I is the best treatment available, however there are few providers.