U.S. Department of Veterans Affairs

Diagnosing and Treating Insomnia in Women

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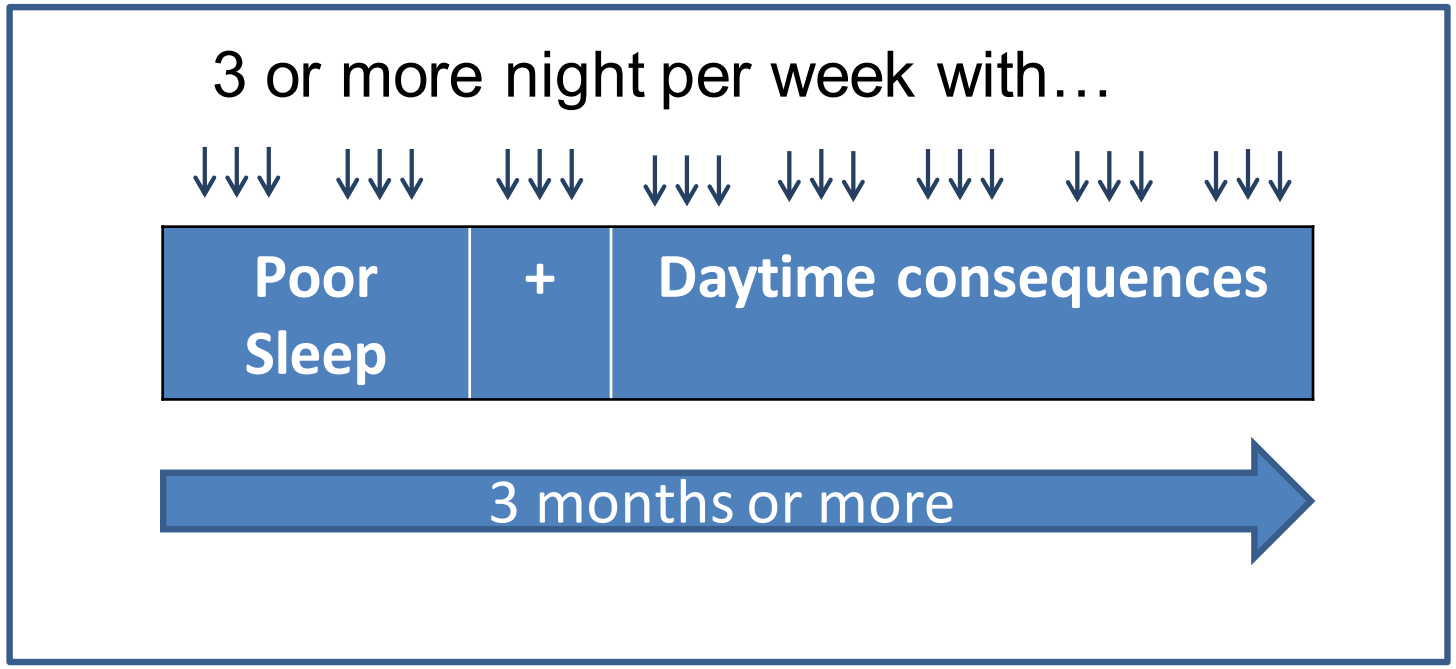
CONFLICTS OF INTEREST STATEMENT

We have no conflicts of interest to disclose.

DSM-5 CRITERIA FOR INSOMNIA DISORDERS



Insomnia is diagnosed based on a clinical evaluation/interview and DOES NOT require objective monitoring or an overnight sleep study. Objective monitoring IS indicated if patient does not respond to treatment.

APA 2015

INSOMNIA AMONG WOMEN

- Women are 1.4 times more likely to have insomnia compared to men[1]
- In the US, 23% of women have insomnia
- Among women Veterans: 54%[2]
- 1 in 5 women meet criteria for insomnia in 3rd trimester of pregnancy

[1] Zhang G, Wing YK. Sex differences in insomnia: a meta-analysis. *Sleep* 2006;29:85-93
[2] Martin, JM, unpublished data.

IMPORTANCE OF TREATING INSOMNIA

- Disturbed sleep is common in depression, PTSD, and other psychiatric conditions

- In depression disturbed sleep is associated with:
  - Greater severity (increased suicide risk)
  - Slower and lower rates of remission
  - Higher treatment dropout rates
  - Less stable response to treatment
  - Greater relapse

- Disturbed sleep may not fully resolve with treatment of depression and/or PTSD

ACP American College of Physicians®
Leading Internal Medicine, Improving Lives

CLINICAL GUIDELINE

Management of Chronic Insomnia Disorder in Adults: A Clinical Practice Guideline From the American College of Physicians

Amir Qaseem, MD, PhD, MHA; Devan Kansagara, MD, MCR; Mary Ann Forciea, MD; Molly Cooke, MD; and Thomas D. Denberg, MD, PhD; for the Clinical Guidelines Committee of the American College of Physicians*

Description: The American College of Physicians (ACP) developed this guideline to present the evidence and provide clinical recommendations on the management of chronic insomnia disorder in adults.

Methods: This guideline is based on a systematic review of randomized, controlled trials published in English from 2004 through September 2015. Evaluated outcomes included global outcomes assessed by questionnaires, patient-reported sleep outcomes, and harms. The target audience for this guideline includes all clinicians, and the target patient population includes adults with chronic insomnia disorder. This guideline grades the evidence and recommendations by using the ACP grading system, which is based on the GRADE (Grading of Recommendations Assessment, Development and Evaluation) approach.

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)*

Ann Intern Med. 2016;165:125-133. doi:10.7326/M15-2175 **www.annals.org**
For author affiliations, see end of text.
This article was published at www.annals.org on 3 May 2016.

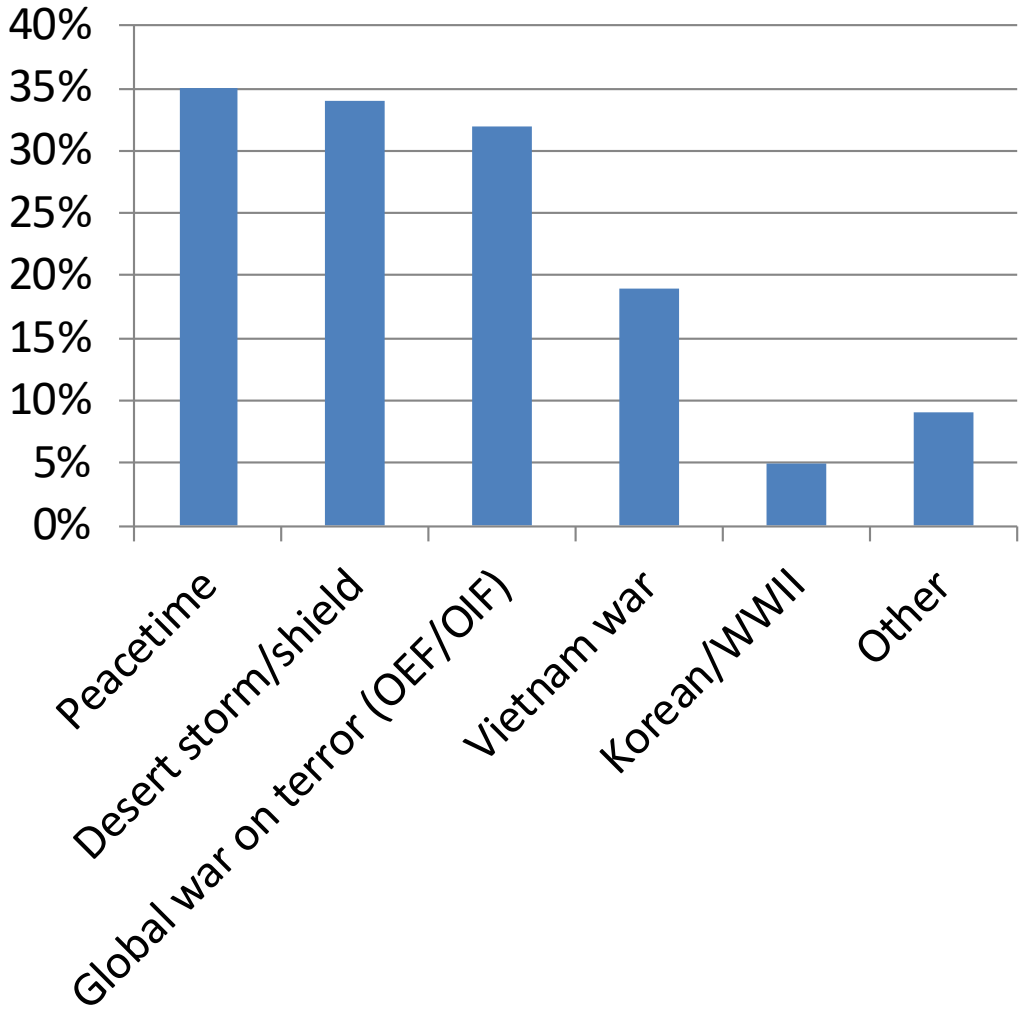
VA/DoD CLINICAL PRACTICE GUIDELINE FOR THE MANAGEMENT OF CHRONIC INSOMNIA DISORDER AND OBSTRUCTIVE SLEEP APNEA

Department of Veterans Affairs
Department of Defense

https://www.healthquality.va.gov/guidelines/CD/insomnia/index.asp

NATIONAL SURVEY OF SLEEP DISORDERS IN WOMEN VETERANS (N=1,560)

	Mean or %
Mean (SD) Age, years	52 (15)
% Non-Hispanic White only	72%
% Married	41%
% Employed for wages	41%
% With children at home	30%



Culver, et al. *Clinical Therapeutics, 2016; 38*, 2373-2385

Slide courtesy of Jennifer Martin, Ph.D.

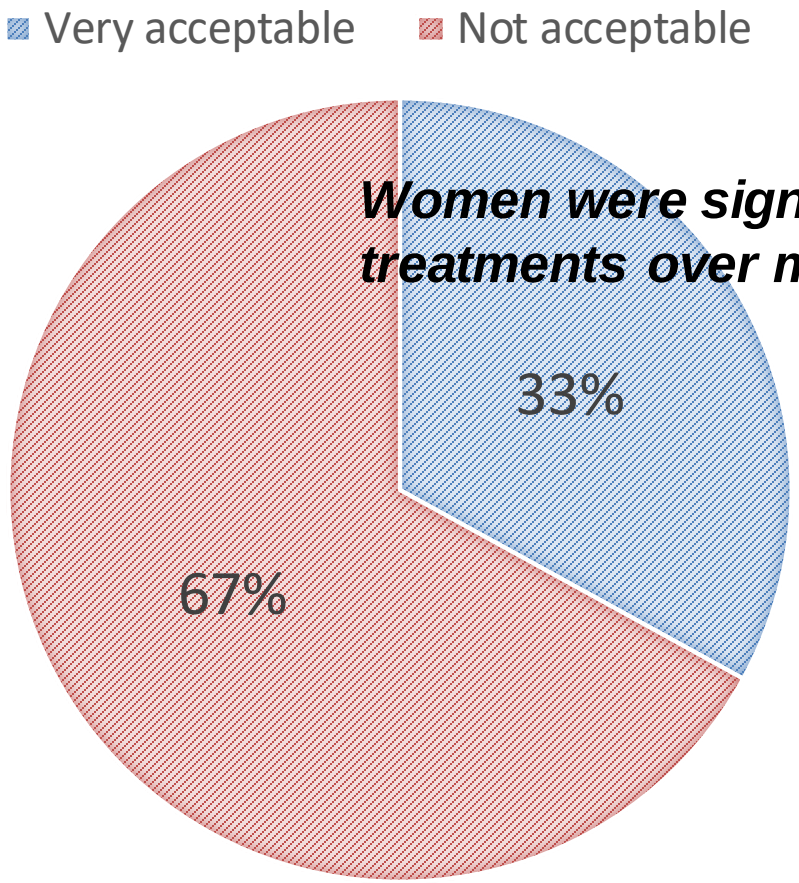
AUDIENCE POLL

Most women would prefer to receive a behavioral treatment for insomnia (rather than sleeping pills)?

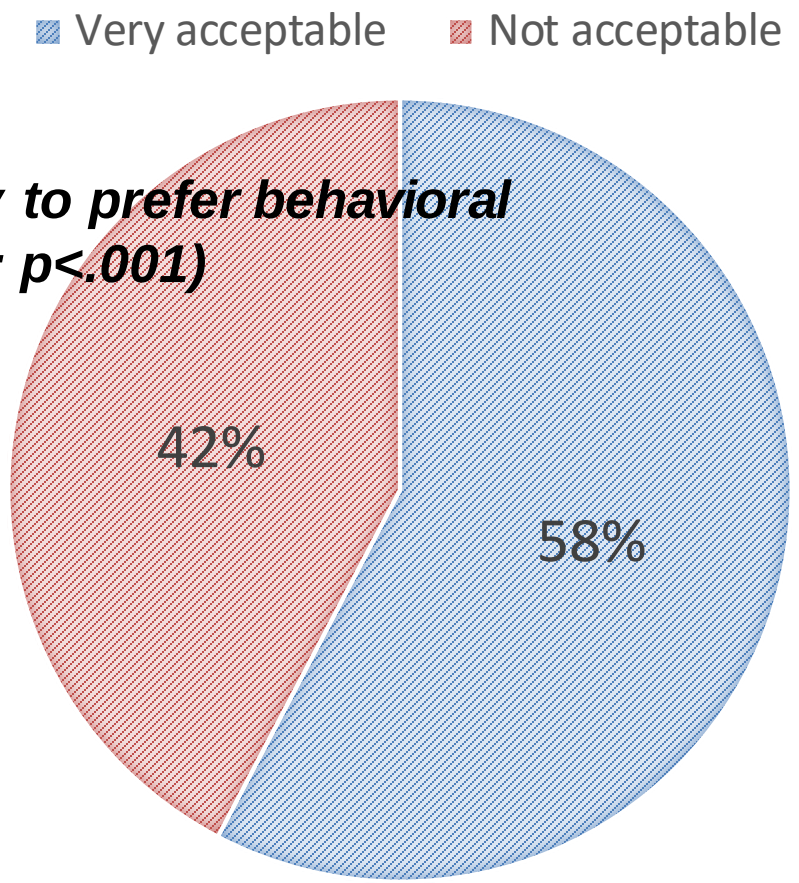
True or False

ACCEPTABILITY OF TREATMENT FOR INSOMNIA

- Sleeping pills



- Behavioral treatments

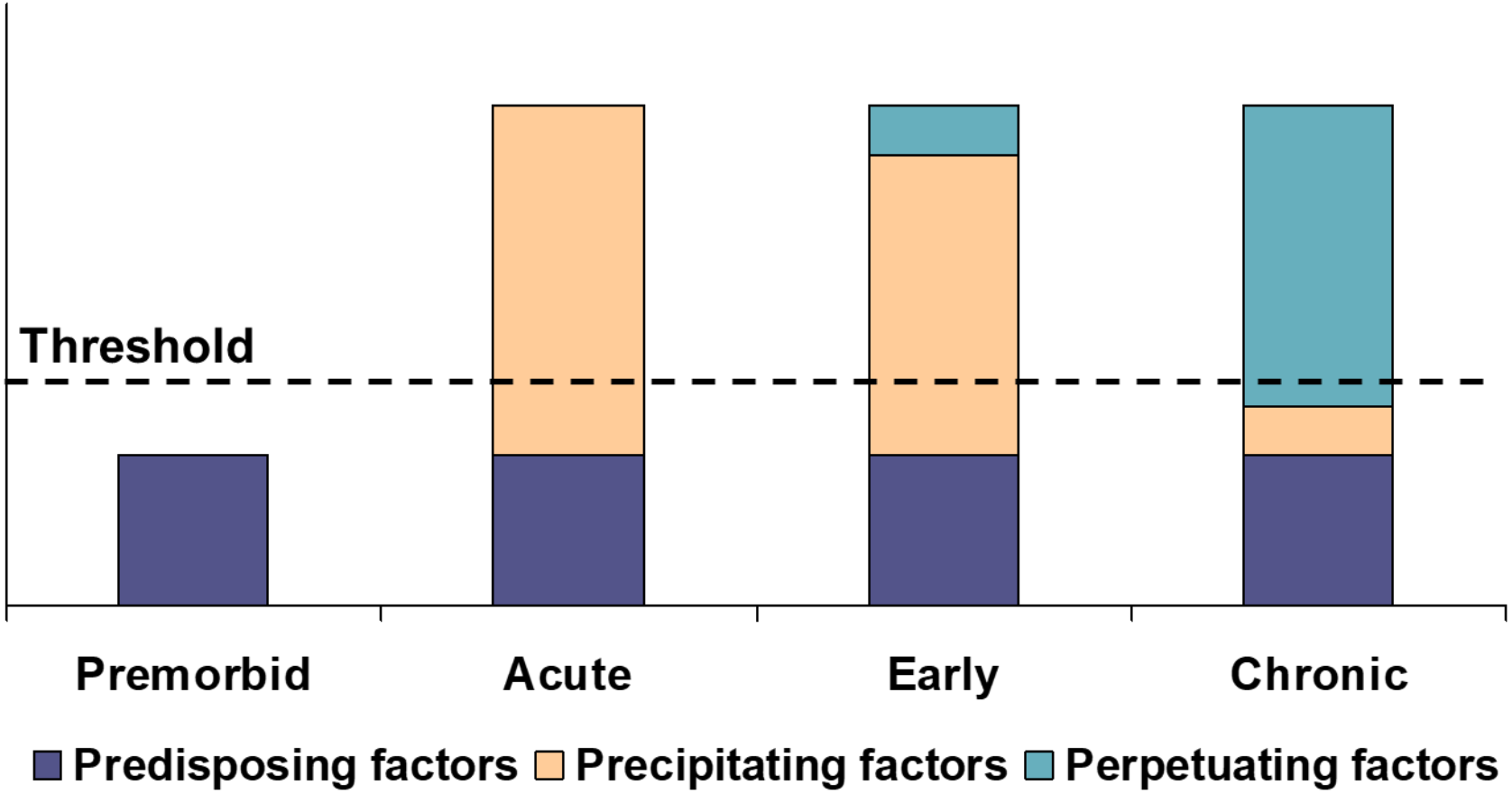


Women were significantly more likely to prefer behavioral treatments over medications (Z=13.3; p<.001)

Culver, et al. *Clinical Therapeutics, 2016; 38*, 2373-2385

Slide courtesy of Jennifer Martin, Ph.D.

A MODEL OF INSOMNIA



Spielman, Glovinsky. The varied nature of insomnia. In: Hauri P, ed. *Case studies in insomnia*. New York: Plenum Press; 1991:1-15.

THE 3 P'S SPELLED OUT

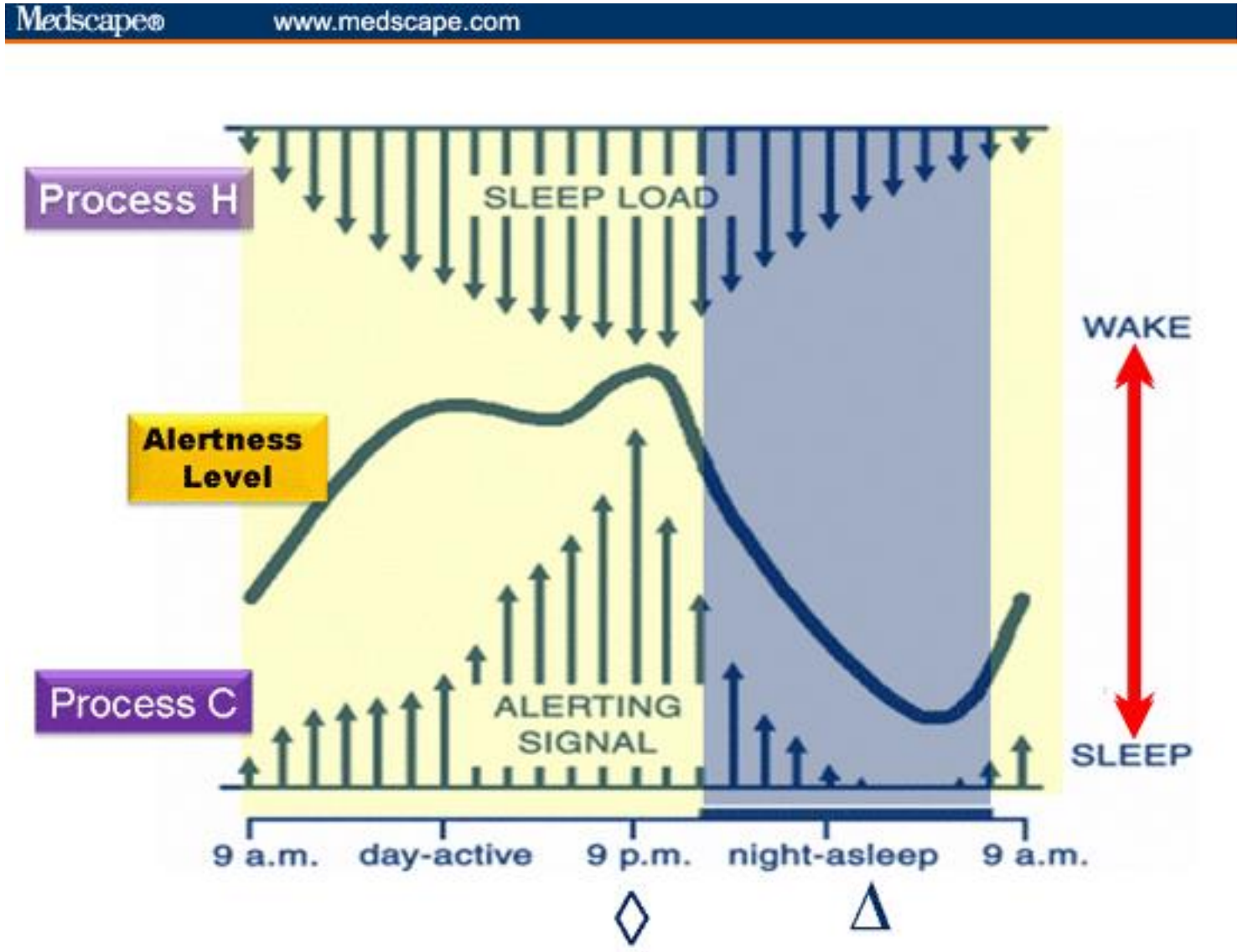
Predisposing Factors	Precipitating Factors	Perpetuating Factors
Factors that increase risk for insomnia disorder	Events that lead to sleep disruption	Factors that sustain poor sleep over time
•Genetics •Early learning •Chronic conditions •Depressive disorders	•Marriage (or divorce) •Job loss (or new job) •Birth (or death) •Illness •Relocation •Depressive episode	•Going to bed early •Getting up late •Taking naps •Canceling things because of insomnia •Worrying about your sleep problems!

Cognitive-Behavioral Therapy

MODEL OF INSOMNIA IN WOMEN

Predisposing Factors	Precipitating Events	Perpetuating Factors
Factors that increase risk for insomnia disorder	Events that lead to sleep disruption	Factors that sustain poor sleep over time
• Childhood or interpersonal trauma • Chronic mental health conditions • Shift work/irregular schedule during deployments	• Accidents during training or deployments; resulting injuries and pain • Trauma: combat-trauma, Military Sexual Trauma (MST), Interpersonal Violence (IPV) • Discharge from military; return to civilian life • Childbirth • Menopause	• Poor sleep environment • Sleep as an avoidance strategy to escape physical/emotional pain • Fear of sleep and vulnerability at night • Anxiety about sleep loss • Child rearing • Hot flashes • Urinary frequency

SLEEP REGULATION: SLEEP DRIVE (S) AND CIRCADIAN CLOCK (C)



AUDIENCE POLL

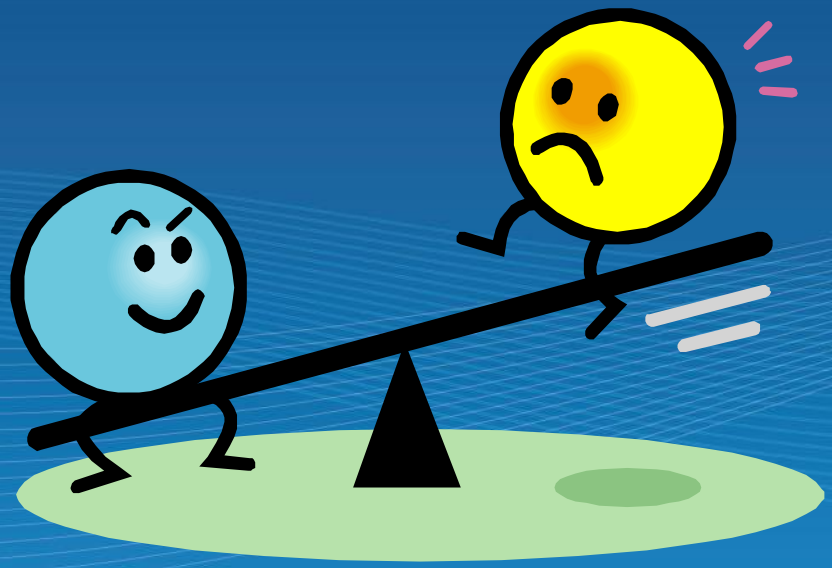
Are you currently trained in CBT-I and/or do you use components of CBT-I in your daily work with women Veterans and/or Service Members?

COMPONENTS OF CBT-I

Strategy	Purpose
Sleep Education	2-process model of sleep regulation; 3-p's model of insomnia
Sleep Restriction	Restrict time in bed to increase sleep drive and consolidate sleep
Stimulus Control	Reduce and eliminate conditioned arousal; strengthen bed & bedroom as sleep cues
Sleep Hygiene	Improve conditions conducive to sleep; address substances, exercise, environment
Relaxation, buffer zone, worry time	Reduce arousal
Cognitive Restructuring*	Address thoughts and beliefs that interfere with sleep & adherence

U.S. Department of Veterans Affairs

Sleep Restriction + Stimulus Control



SLEEP RESTRICTION (SRT)

- Improve sleep continuity by limiting time spent in bed to match time asleep
  - Total sleep time determined from sleep diaries

- Useful for both sleep onset and sleep maintenance problems

Morin CM. *J Clin Psychiatry.* 2004;65(suppl 16):33-40.
Spielman AJ, Saskin P, Thorpy MJ. *Sleep.* 1987;10:45-56

AUDIENCE POLL

What is one example of why (or how) you would need to adapt CBT-I for women?

CASE EXAMPLE

Tanya is a 36 year old African American woman. Tanya had her first child 4 months ago and has been struggling with her sleep, even before she was pregnant. Tanya has kept a sleep diary for 2 weeks and it showed an average of 6 hours total sleep time with 8 hours in bed. Tanya reported increased middle of the night awakenings and reported feeding her son twice during the night.

What should her first sleep schedule prescription be?

SLEEP RESTRICTION MODIFICATIONS

- Traditional CBT-I:
  - Time in Bed (TIB) = Total Sleep Time (TST)
  - Prescribed 6 hours in bed for the first week, if following SRT
- How do we modify SRT for women in pregnancy or postpartum?

SLEEP RESTRICTION IN PREGNANCY/POSTPARTUM

	Time in Bed	Sleep Efficiency
Pregnancy	Total Sleep Time + 30 minutes	$\frac{\text{Total Sleep Time}}{\text{Time in Bed}}$
Postpartum	Total Sleep Time + 30 mins + Time caring for infant	$\frac{\text{Total Sleep Time}}{\text{Time in Bed - time caring for infant}}$

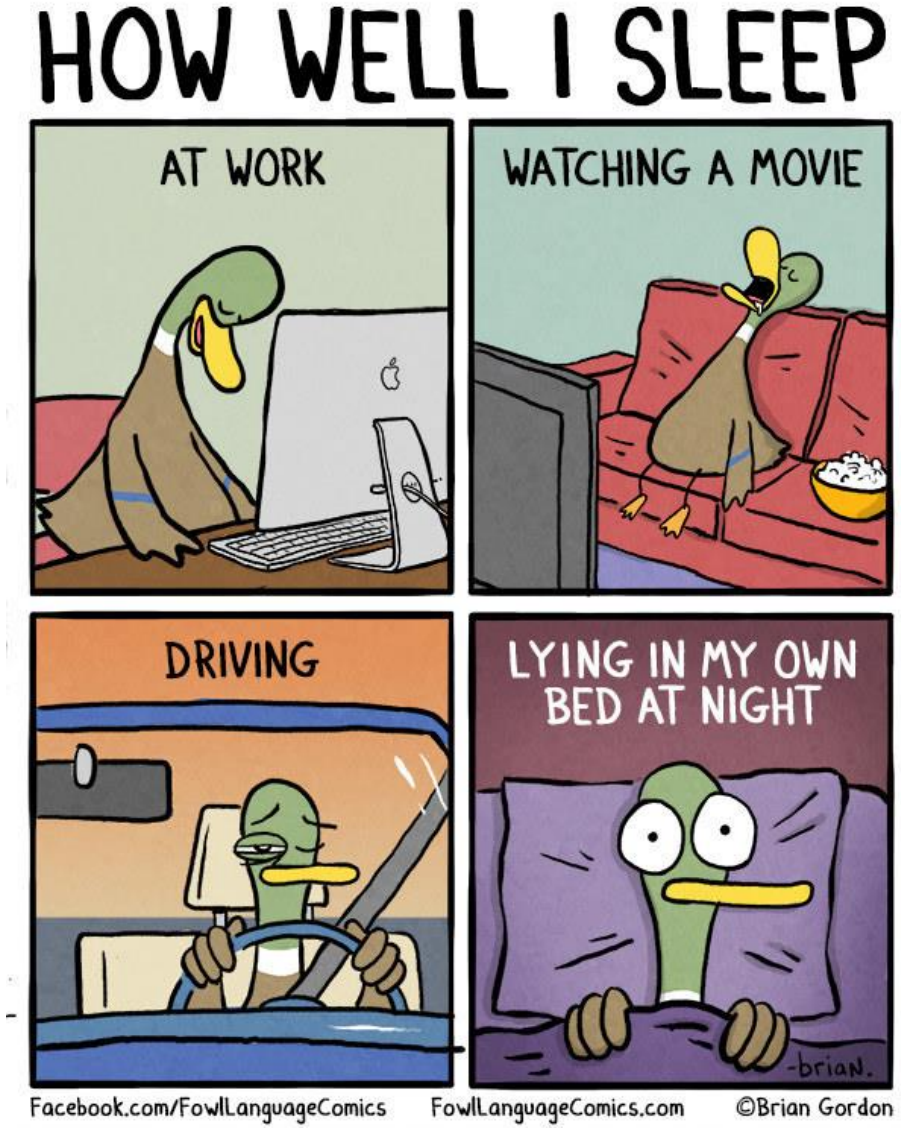
- SE >= 85%, increase TIB by 15min if desired, by 30mins if high daytime sleepiness
- SE <85%, continue based on TST, address adherence

Manber et al., 2019

CONDITIONED INSOMNIA

Also known as conditioned arousal

CONDITIONED AROUSAL



STIMULUS CONTROL (SCT)

- You have been spending a lot of time awake in bed TRYING to sleep…
- Your brain associates your bed with exactly that…
- Changing that association will take practice…
  - Go to bed only when sleepy
  - Get up at the same time every day
  - Get out of bed when you are struggling with sleep
  - Go back to bed only when you are sleepy
  - Do not nap to make up for lost sleep
  - Use the bed ONLY for sleep (and sex)

CASE EXAMPLE

Glenda is a 58-year-old Hispanic woman. Glenda started going through menopause 2 years ago. She now has hot flashes several times per week that awaken her. She reported that she will awaken drenched in sweat. Although she has been a good sleeper for most of her life, her sleep has become disturbed and she has difficulty returning to sleep following a hot flash. She reported that she will lay in bed with the fan blowing on her until she cools down and eventually returns to sleep.

What should we consider in prescribing stimulus control?

HOT FLASHES AND SLEEP

- Prevalence rates[1]:
  - 12.5% Premenopause
  - 79.0% Perimenopause
  - 39.3% Postmenopause
- Hot flashes negatively impact sleep[2]
  - Average of 3.5 objective HF per night
  - 69.4% associated with an awakening

1. Ohayon (2006) *JAMA*
2. de Nambotti et al (2014) *Fertil Steril*

STIMULUS CONTROL CONSIDERATIONS

- Environmental
  - Cool temperature (e.g., fan, window, AC)
- Logistical
  - Change of clothes/sheets by bedside
- Behavioral
  - Drink cool water, splash water on face
  - Mindfulness, diaphragmatic breathing, relaxation
- Cognitive
  - Self-messaging about the impact of HF on sleep

PROCESS W: THE AROUSAL SYSTEM

- Arousal system can trump sleep-promoting system
- In response to stress, our brains can keep us awake EVEN WHEN the sleep drive is high and the circadian clock indicates it time for sleep
  - Respond to danger
  - "Fight or flight"

PROCESS W: THE AROUSAL SYSTEM

- Modern stressors don't require "fight or flight", but the system still works the same…

  AND -- over-active arousal system can interfere with the two processes regulating sleep (Sleep Drive and Circadian Clock)

STRATEGIES FOR ADDRESSING AROUSAL

- Schedule a worry time
  - Stimulus control for worry
- Create a buffer zone
  - Create a wind down routine to start 30mins -1 hour before bedtime
    - Reduce light exposure, relaxing activities, warm bath
    - Keep it consistent
- Relaxation techniques
  - Mindful Breathing
  - Diaphragmatic Breathing
  - Visual Imagery
  - Progressive Muscle Relaxation

CASE EXAMPLE

Deb is a 38-year-old Caucasian woman. At her intake, she disclosed that she experienced MST during her military tenure but declined to offer further information. In early treatment sessions, she reported anxiety that increased as she got closer to her prescribed bedtime. She reported "I hate going to sleep" and noted often having the TV on as distraction.

What should we consider in prescribing strategies for arousal?

What should we consider regarding stimulus control?

PTSD: CONTEXTUAL ASSOCIATIONS

History of trauma that occurred at night or during sleep

- Nighttime combat activity or exposure
- Sexual abuse or being subject to interpersonal violence in bed
- Exposure to natural disasters that happened during sleep
- Unsafe environment (e.g., conflict-ridden neighborhoods)

Learned hypervigilance

WOMEN VETERANS AND TRAUMA

- 81-93% Any type of trauma
  - 30-45% military sexual assault
    - 1 in 3 women screened at VHA report MST
  - 38-64% lifetime sexual assault
- 4.9% active duty women report being sexually assaulted within the last year
- PTSD rates higher in women Veterans than among civilian women
- Among women Veterans with insomnia, any identified traumatic event associated with more severe insomnia symptoms

Carslon et al., accepted.; Castro et al, 2015; Foynes, et al, 2018; Zinzow et al., 2007

ADDRESSING FEARS: SILENCE

Explore meaning

Learned association between bed and trauma

Silence as distraction

Educate

Changes in sound volume and light intensity interfere with sleep

Cost benefit analysis

(Utility of behavior)

Reduced discomfort *vs.* lighter /less sleep and prolonged insomnia

Contrast military and home environment

Fear reduction

Gradual exposure to silence (TV off) allows anxiety to habituate

Consider white noise carefully

- Not congruent with Prolonged Exposure

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CASE EXAMPLE

- 56-year-old divorced/single African-American female
- 20-year history of insomnia symptoms “on & off”. Significant episodes during postpartum & around retirement/menopause; diagnosis of mild Obstructive Sleep Apnea in 2015 with excellent adherence to CPAP
- Most recent episodic onset of insomnia symptoms x 3 months in context of chemotherapy treatment and loss of long- term romantic relationship
- Sought treatment for insomnia due to return to work and noticeable daytime complaint secondary to insufficient sleep
- Zolpidem (CR) x 2.5 months per oncologist with ‘some benefit”; no other meds at time of intake
- Concerned about persisting insomnia symptoms despite nightly sleep aid use, potential effects of long-term zolpidem use; also concerned about worsening of insomnia with discontinuation

BASELINE SLEEP DIARY: ZOLPIDEM CR (12.5)

SUMMARY DATA (Weekly)	Week 1	Week 2	Week 3
Medication Usage (mg)	12.50	12.50	7.07
Sleep Onset Latency:	0:20	0:23	0:15
Wake after Sleep Onset:	0:19	0:54	0:16
Total Sleep Time:	6:09	5:18	5:45
Time in Bed:	8:30	8:49	8:10
Frequency of Nighttime Awakenings	2.57	1.71	1.29
Sleep Efficiency	75%	61%	70%

3P's CONCEPTUALIZATION

- *Predisposing*: Irregular schedule due to trainings; deployed x2

  Single parent during majority of military career

- *Precipitating*: Pregnancy/Post-partum

  Menopause

  Cancer treatment, loss of long-term relationship

- *Perpetuating*: Extended TIB

  Sleep as avoidance; staying in bed upon awakening:

  ("not ready to face the day")

  Remaining in bed for extended periods of wake (WASO)

  Worrying about impact of insomnia on daytime performance

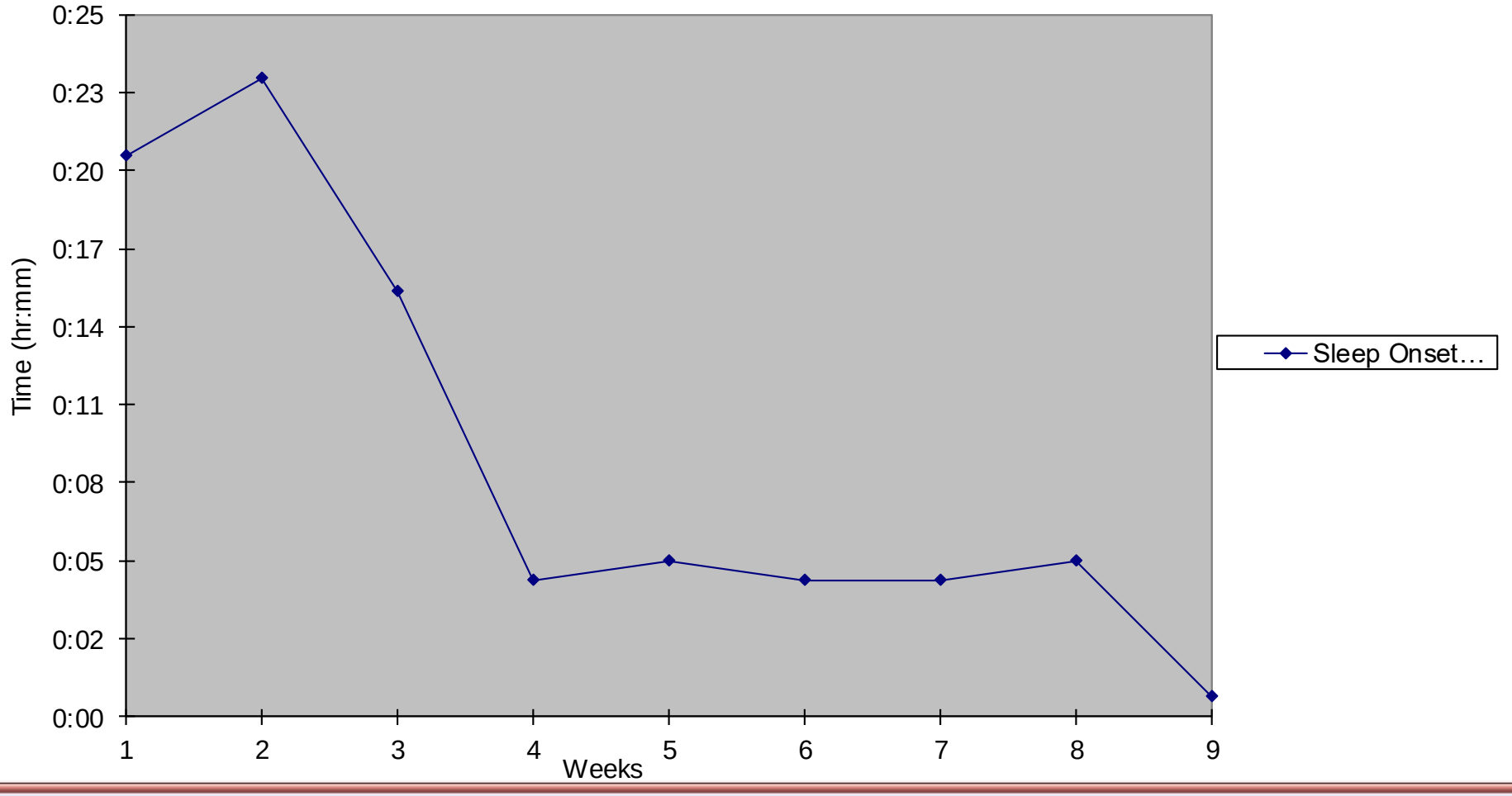
RECOMMENDATIONS

- Sleep diary data (concurrent actigraphy study) estimate current sleep ability @6:30 TST
- Half-life of sleep aid must be considered for safety purposes when setting TIB prescription
- Initial TIB set at 7:00 TIB, 2230-0530 based upon data
- Sleep aid recommended to be taken each night at 2200 to facilitate adherence to the sleep schedule recommendation
- Firm wake time 0530; advancing bedtime 0:15 each week if sleep efficiency at/above 90%
- STIMULUS CONTROL: OOB within 5-10 minutes of awakening; discussed methods to manage prolonged middle of the night awakenings as well

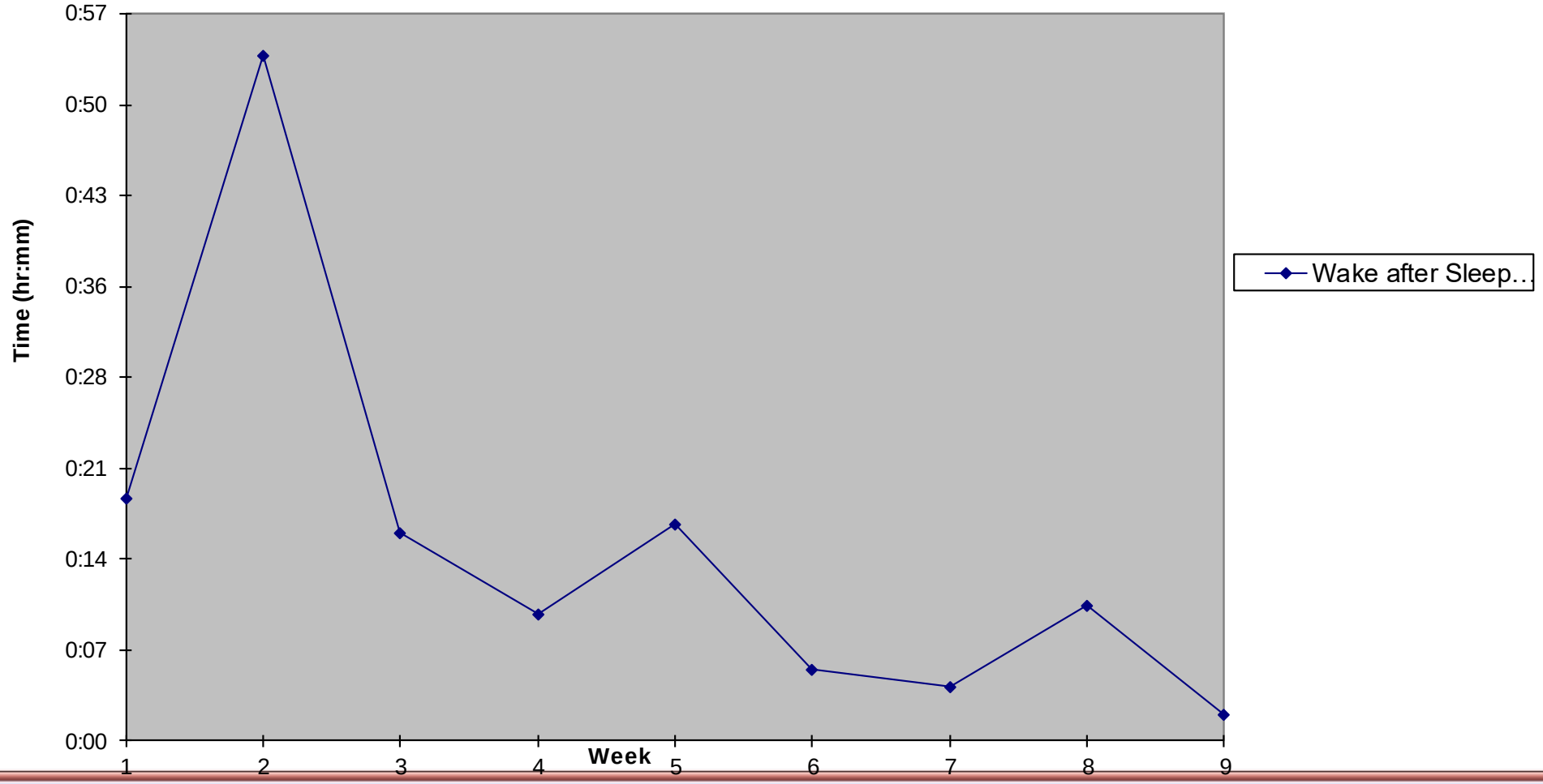
SLEEP DIARY DATA WEEKS 1-8: ZOLPIDEM CR (12.5) BEHAVIORAL INTERVENTION BEGINNING WEEK 4

SUMMARY DATA (Weekly)	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Medication Usage (mg)	12.50	12.50	7.07	12.50	12.50	12.50	12.50	12.50
Sleep Onset Latency:	0:20	0:23	0:15	0:05	0:05	0:05	0:05	0:05
Wake after Sleep Onset:	0:19	0:54	0:16	0:10	0:17	0:05	0:04	0:10
Total Sleep Time:	6:09	5:18	5:45	7:05	6:35	6:55	7:12	7:08
Time in Bed:	8:30	8:49	8:10	7:26	7:12	7:10	7:25	7:30
Sleep Efficiency	75%	61%	70%	95%	91%	96%	97%	95%

SLEEP ONSET LATENCY (SOL)



WAKE AFTER SLEEP ONSET (WASO)



RECOMMENDATIONS

- Sleep diary data estimates current sleep ability @7:00-7:30 TST
- High sleep efficiency with TIB advanced 2130-0530
- Patient feels ready to reduce sleep aid dose, which was approved by prescriber to taper from 12.5 to 6.25 initially
- For final taper from 6.25 to 0, discussed with patient option to reduce sleep window to 7:00 TST x 2 nights prior to final reduction
- Firm wake time remains at 0530

SLEEP DIARY WEEKS 9-15: ZOLPIDEM CR (12.5-0)

SUMMARY DATA	W9	W10	W11	W12	W13	W14	W15
Medication Usage (mg)	8.93	6.25	5.36	6.25	6.25	5.36	0.00
Sleep Onset Latency:	0:05	0:05	0:07	0:05	0:05	0:07	0:05
Wake aft Sleep Onset:	0:14	0:12	0:04	0:11	0:07	0:10	0:08
Total Sleep Time:	7:14	7:15	7:16	7:09	7:26	7:27	7:11
Time in Bed:	7:38	7:36	7:30	7:32	7:40	7:47	7:27
Sleep Efficiency	95%	95%	97%	95%	97%	96%	96%

IN SUMMARY

- CBT-I is the gold standard treatment for insomnia disorder
  - High rates of insomnia disorder among Women Veterans
  - Many women would prefer behavioral treatments anyway!
- Strong sleep drive + Correct circadian placement + Low arousal = Good sleep
- Adapt CBT-I treatment to accommodate women's unique presentations of sleep disturbance

THANK YOU

Thank you!

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