Assessment and treatment of insomnia

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Plan

- Assessment of insomnia in clinical practice
- Objective vs. subjective sleep discrepancies
- Evidence-based management of insomnia disorder

Appraising insomnia in context

- Sleep complaint (nature/patterning)
- Impact of sleep disturbance
- Mental health (relationship?)
- Physical health (relationship?)
- Behaviour (napping, caffeine, alcohol)
- Medication / influences

- Partner reports

Helpful sleep psychometrics

Epworth Sleepiness Scale (Johns, 1990)

- 8 item measure assessing likelihood of falling asleep in a range of situations
- Score >10 sensitive for identification of sleep apnoea, narcolepsy, idiopathic hypersomnia

Pittsburgh Sleep Quality Index (Buysse et al. 1989)

- 19-items grouped into 7 equally-weighted component scores
- Total score range: 0-21 (score of >5 sensitivity to those with sleep disorder)

Sleep Condition Indicator (Espie et al., 2014)

- 8 item scale, appraises sleep against DSM-5 criteria for insomnia disorder
- Score <=16 indicative of probable insomnia disorder

Insomnia Severity Index (Morin, 1993)

- 7 item measures of insomnia severity
- Score of >=11 indicative of clinically significant insomnia disorder

****PSG only indicated to rule out co-morbid sleep pathology****

DYSFUNCTIONAL BELIEFS AND ATTITUDES ABOUT SLEEP

Several statements reflecting people's beliefs and attitudes about sleep are listed below. Please indicate to what extent you personally agree or disagree with each statement. There is no right or wrong answer. For each statement, circle the number that corresponds to your own **personal belief**. Please respond to all items even though some may not apply directly to your own situation.

Example: If I sleep too much, I don't perform as well the next day.

0 1 2 3 4 5 6 (7) 8 9 10

STRONGLY DISAGREE — STRONGLY AGREE

1. I need 8 hours of sleep to feel refreshed and function well during the day.

0 1 2 3 4 5 6 7 8 9 10

STRONGLY DISAGREE — STRONGLY AGREE

2. When I don't get proper amount of sleep on a given night, I need to catch up the next day by napping or the next night by sleeping longer.

0 1 2 3 4 5 6 7 8 9 10

STRONGLY DISAGREE — STRONGLY AGREE

3. I am concerned that chronic insomnia may have serious consequences for my physical health.

0 1 2 3 4 5 6 7 8 9 10

STRONGLY DISAGREE — STRONGLY AGREE

4. I am worried that I may lose control over my ability to sleep.

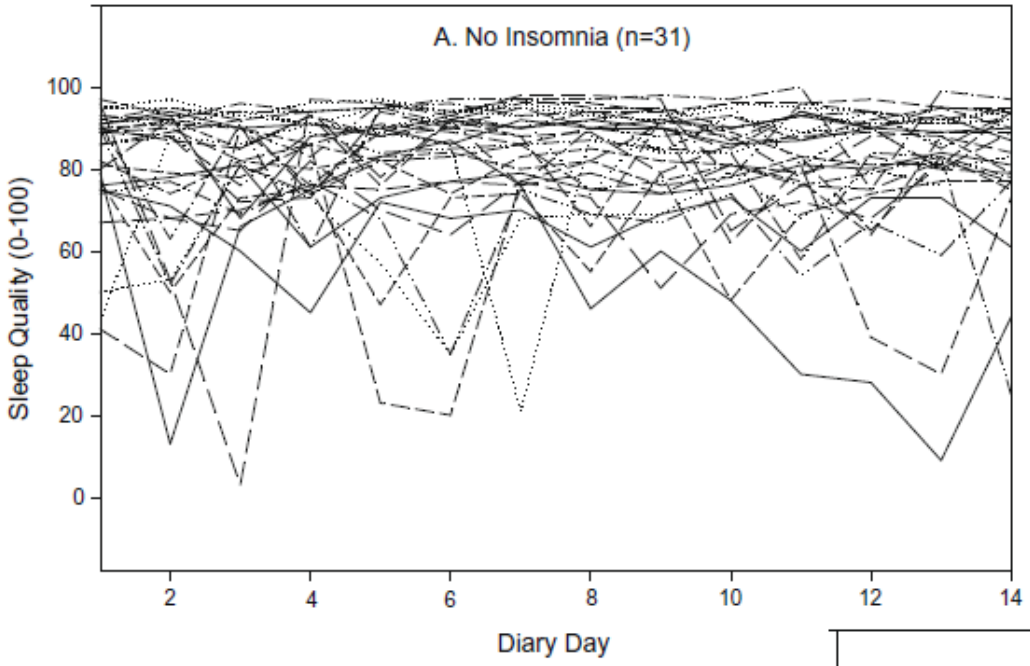
0 1 2 3 4 5 6 7 8 9 10

STRONGLY DISAGREE — STRONGLY AGREE

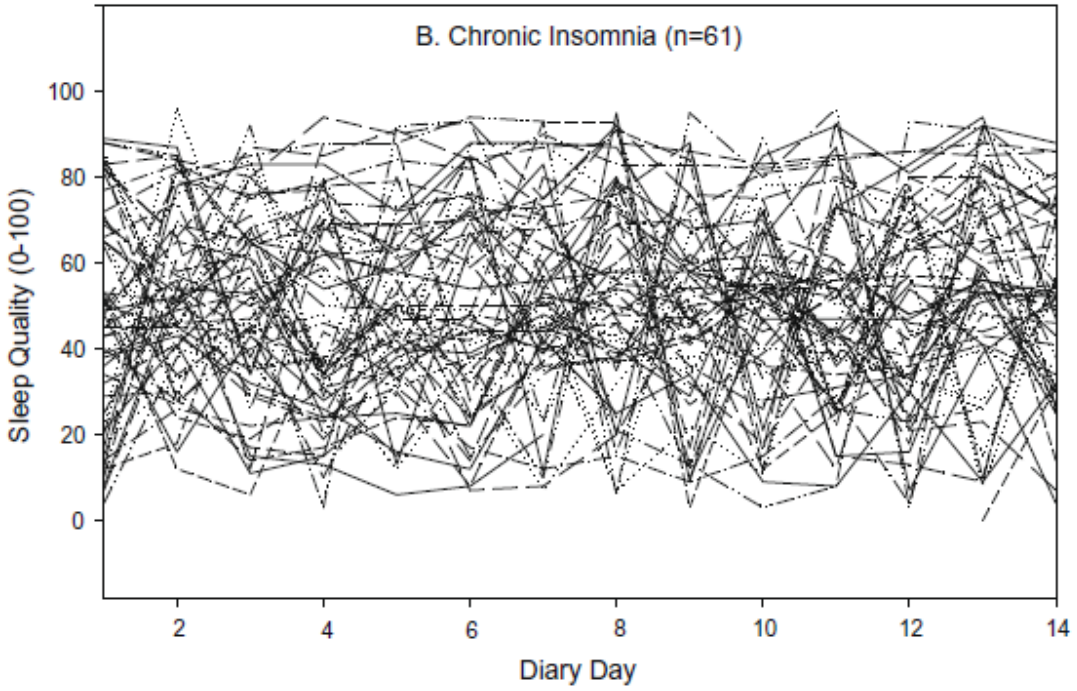
Sleep Diary

Today's date	4/5/11		
1. What time did you get into bed?	10:15 p.m		
2. What time did you try to go to sleep?	11:30 p.m		
3. How long did it take you to fall asleep?	55 min.		
4. How many times did you wake up, not counting your final awakening?	3 times		
5. In total, how long did these awakenings last?	1 hour 10 min.		
6. What time was your final awakening?	6:35 a.m.		
7. What time did you get out of bed for the day?	7:20 a.m		
8. 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

Carney et al. (2012). *SLEEP.*

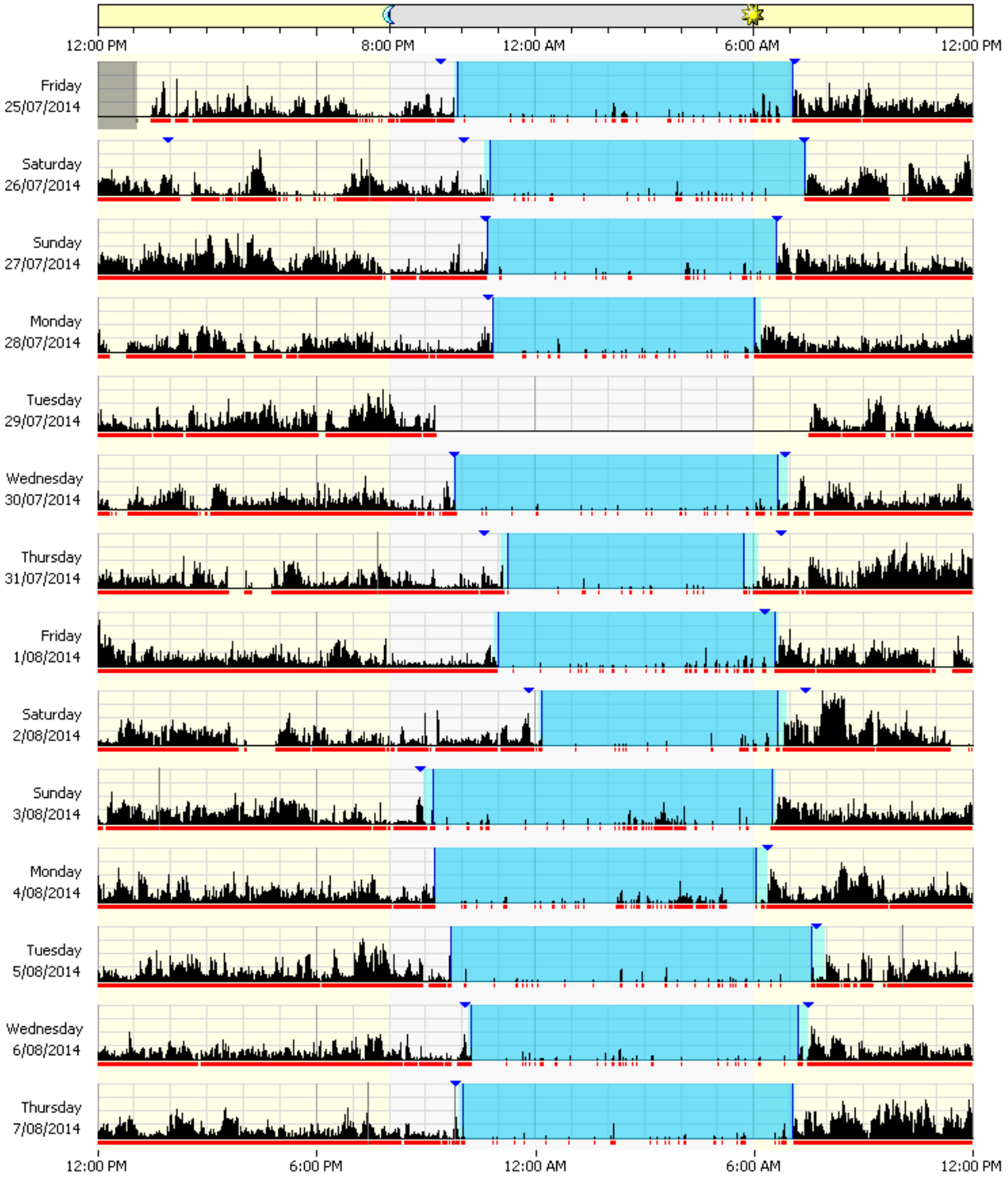


Night-to-night variability in sleep may be important

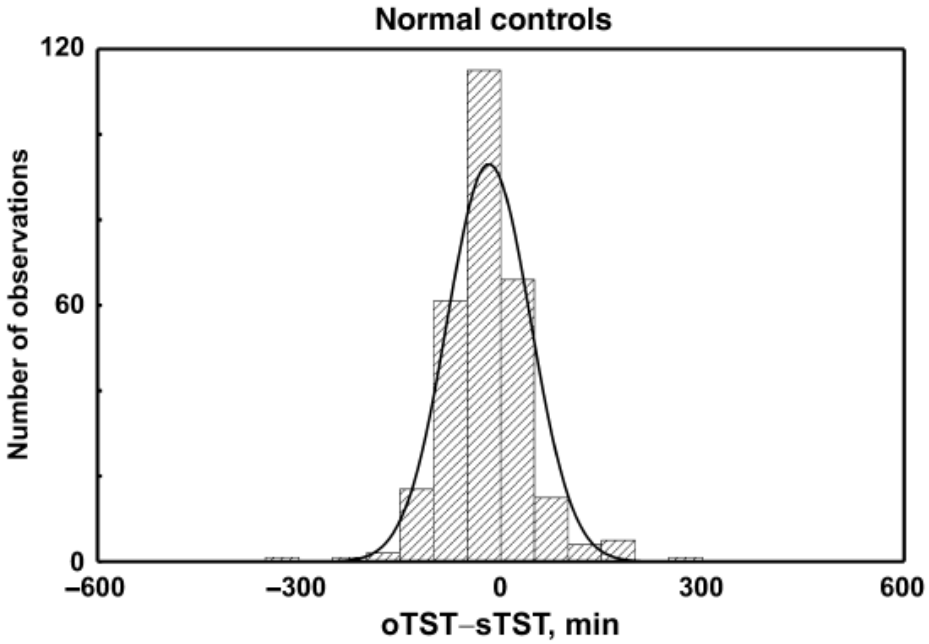


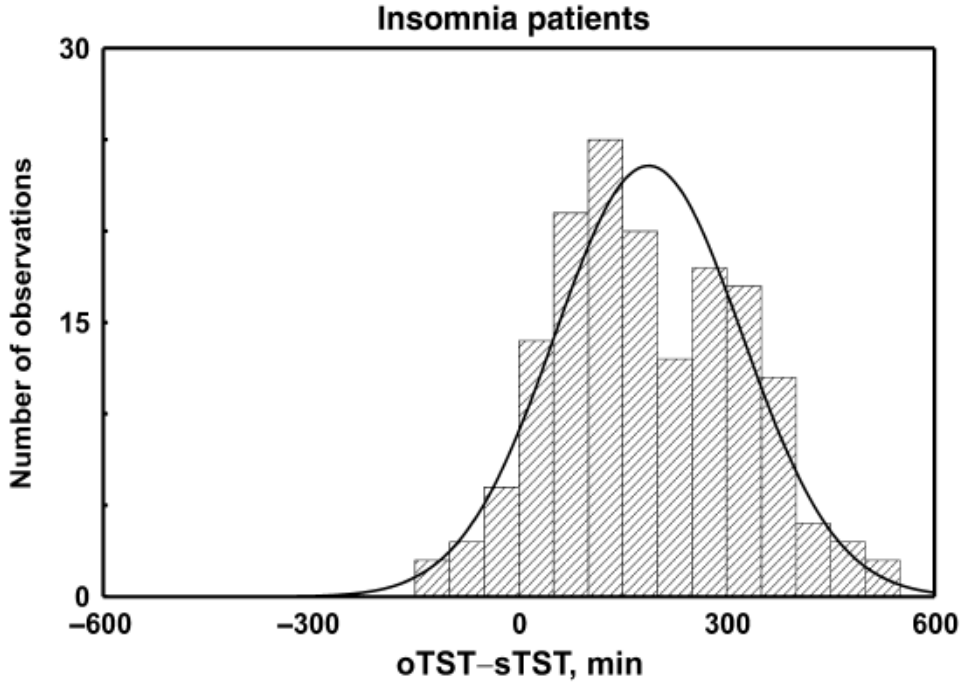
Actigraphy

- useful for circadian patterning of rest-activity
- checking objective-subjective discrepancies
- Treatment adherence



Kyle, Miller and Henry in press





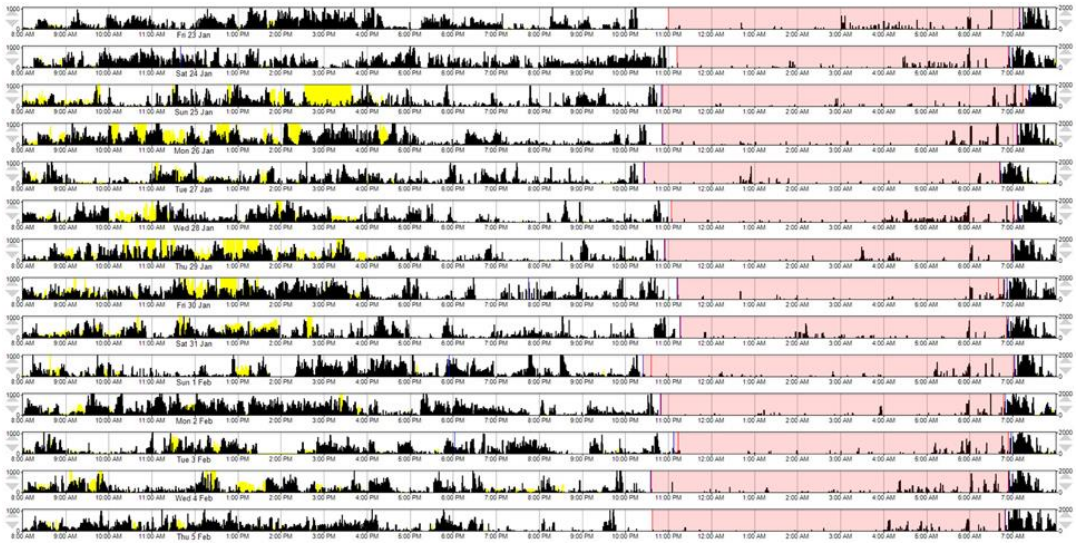
Manconi et al. (2010).

J Sleep Research

Sleep perception as dimensional

Predictors of greater misperception:

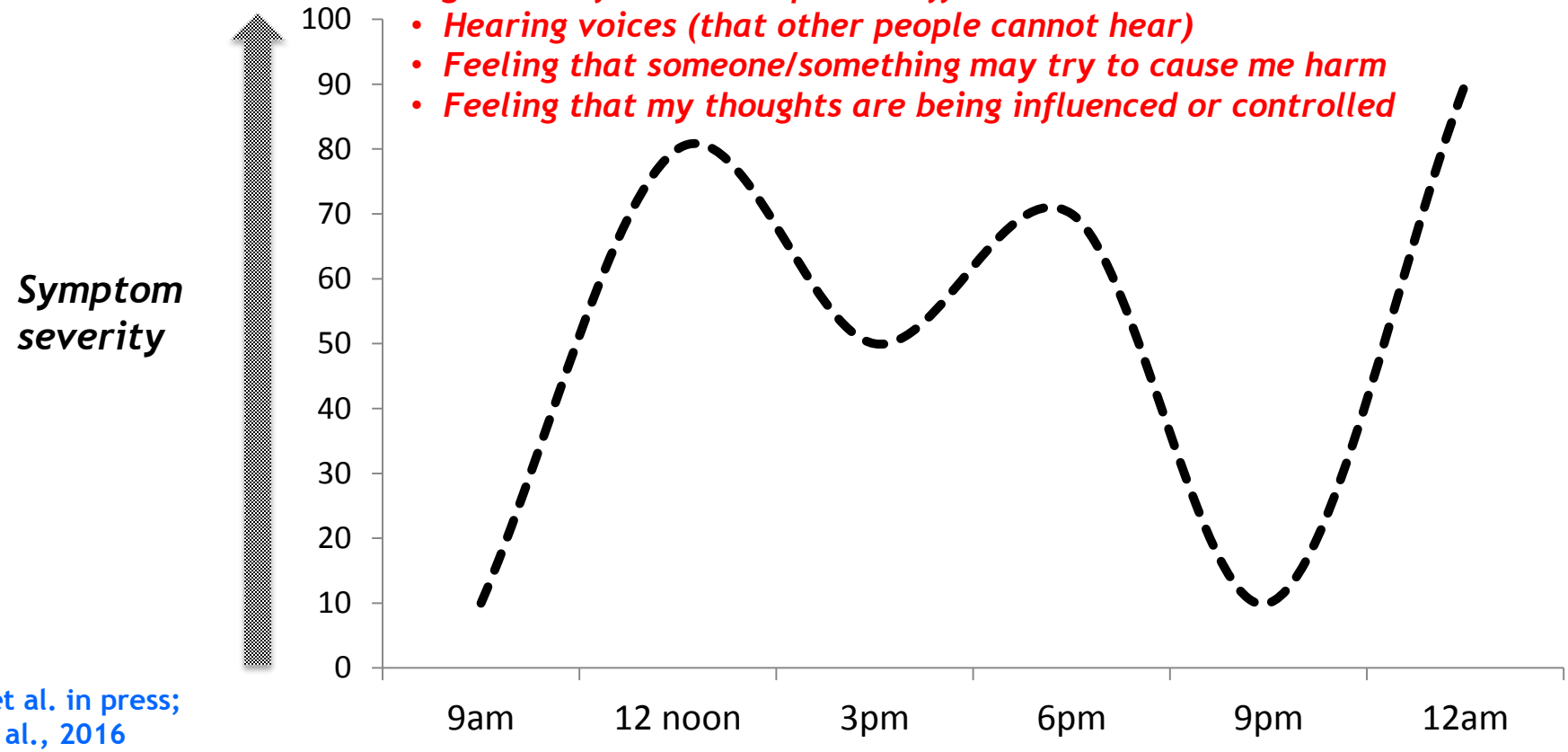
- *Fast EEG activity*
- *worry/cognitive arousal*
- *Brief awakenings/restlessness*



Experience sampling methodology

e.g. Just before the beep went off I was….

- *Hearing voices (that other people cannot hear)*
- *Feeling that someone/something may try to cause me harm*
- *Feeling that my thoughts are being influenced or controlled*



Mulligan et al. in press;
Russell et al., 2016

Short-term insomnia (< 4 weeks)

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How should I manage someone with short-term insomnia (< 4 weeks)?

- **Manage any identifiable causes of insomnia where possible.**
- **Advise the person not to drive if they feel sleepy (although it is not necessary to inform the Driver and Vehicle Licensing Agency [DVLA] unless a primary sleep disorder is confirmed).**
  - For more detailed guidance, see the DVLA 'At a glance' guide.
- **Advise good sleep hygiene.**
- **Consider a short course of a hypnotic drug *only* if daytime impairment is severe.**
  - The hypnotics recommended for the treatment of insomnia are:
    - Short-acting benzodiazepines — temazepam, loprazolam, lormetazepam.
    - Non-benzodiazepines (the 'z-drugs') — zopiclone, zolpidem, and zaleplon (all are short acting).
  - Diazepam is not generally recommended, but it can be useful if insomnia is associated with daytime anxiety
- **If a hypnotic is prescribed:**
  - Use the lowest effective dose for the shortest period possible. The exact duration will depend on the underlying cause, but treatment should not continue for longer than 2 weeks.
  - Inform the person that further prescriptions for hypnotics will not usually be given, ensure that the reasons for this are understood, and document this in the person's notes.
  - Do not issue further prescriptions without seeing the person again.
  - If there has been no response to the first hypnotic, do not prescribe another.
  - If the person experiences adverse effects considered to be directly related to an hypnotic, consider switching to another hypnotic.
- **Review after 2 weeks and consider referral for cognitive behavioural therapy if symptoms persist,** see managing long-term insomnia (> 4 weeks).

Long-term insomnia (> 4 weeks)

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How should I manage someone with long-term insomnia (> 4 weeks)?

- **Manage any underlying cause of insomnia where possible.**
- **Advise the person not to drive if they feel sleepy (although it is not necessary to inform the Driver and Vehicle Licensing Agency [DVLA] unless a primary sleep disorder is confirmed).**
  - For more detailed guidance, see the DVLA 'At a glance' guide.
- **Refer to psychological services IAPT (Improving Access to Psychological Therapies) for a cognitive or behavioural intervention.**
- **Advise good sleep hygiene and regular exercise** in addition to cognitive and behavioural interventions.
- **Pharmacological therapy is generally not recommended** for the long-term management of insomnia, however:
  - **For people with severe symptoms or an acute exacerbation of persistent insomnia** a short course of a hypnotic drug may be considered for immediate relief of symptoms. If a hypnotic is prescribed:
    - Use the lowest effective dose for the shortest period possible. The exact duration will depend on the underlying cause but should not continue for longer than 2 weeks. Up to 4 weeks' use may occasionally be required, but continued use should always be re-assessed after 2 weeks.
    - Inform the person that further prescriptions for hypnotics will not usually be given, ensure that the reasons for this are understood, and document this in the person's notes.
    - Do not issue further prescriptions without seeing the person again.
    - Use caution when prescribing hypnotics for older people.
  - **For people over 55 years of age with persistent insomnia, consider treatment with a modified-release melatonin.**
    - The recommended initial duration of treatment is 3 weeks. If there is a response to treatment, it can be continued for a further 10 weeks.
- **Refer to a sleep clinic or a specialist with expertise in sleep medicine** if insomnia persists despite primary care

BMJ

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

- Published and unpublished trials
- *Submitted to FDA before approval*
- Z drugs (eszopiclone, zaleplon, zolpidem)
- 13 studies (n=4378 participants)
- Sleep latency: Compared to placebo – reduced by 22 minutes (obj); and 7 minutes (subj) [ES=.3-.4]

Huedo-Medina et al. 2012 BMJ

Adverse effects?

Sedative hypnotics in older people with insomnia: meta-analysis of risks and benefits

Jennifer Glass, Krista L Lanctôt, Nathan Herrmann, Beth A Sproule, Usoa E Busto

Hypnotics' association with mortality or cancer: a matched cohort study

Daniel F Kripke,[1] Robert D Langer,[2] Lawrence E Kline[1]

Current Drug Safety, 2006, *1*, 63-71

Hypnotics and Driving Safety: Meta-Analyses of Randomized Controlled Trials Applying the on-the-Road Driving Test

Joris C. Verster[*,1], Dieuwke S. Veldhuijzen[1], Alain Patat[2], Berend Olivier[1] and Edmund R. Volkerts[1]

Safety and efficacy of suvorexant during 1-year treatment of insomnia with subsequent abrupt treatment discontinuation: a phase 3 randomised, double-blind, placebo-controlled trial

David Michelson, Ellen Snyder, Erin Paradis, Mary Chengan-Liu, Duane B Snavely, Jill Hutzelmann, James K Walsh, Andrew D Krystal, Ruth M Benca, Martin Cohn, Christopher Lines, Thomas Roth, W Joseph Herring

Summary

Background Suvorexant (MK-4305) is an orexin receptor antagonist shown to be efficacious for insomnia over 3 months. We aimed to assess its clinical profile during and after 1 year of treatment.

Methods We did a randomised, placebo-controlled, parallel-group trial at 106 investigational centres in the Americas, Australia, Europe, and South Africa from December, 2009, to August, 2011. Patients aged 18 years or older with primary insomnia by DSM-IV-TR criteria were assigned using a computer-generated randomised allocation schedule to receive nightly suvorexant (40 mg for patients younger than 65 years, 30 mg for patients aged 65 years or older) or placebo at a 2:1 ratio for 1 year with a subsequent 2-month randomised discontinuation phase in which patients on suvorexant either continued suvorexant or were abruptly switched to placebo while patients on placebo remained on placebo. Treatment assignment was masked from patients and investigators. The primary objective was to assess the safety and tolerability of suvorexant for up to 1 year. Secondary objectives were to assess the efficacy of suvorexant for improving patient-reported subjective total sleep time (sTST) and time to sleep onset (sTSO) over the first month of treatment. Efficacy endpoints over the first month were assessed with a mixed model with terms for baseline value of the response variable, age, sex, region, treatment, time, and treatment by time interaction. This trial is registered with ClinicalTrials.gov, number NCT01021813.

Findings 322 (62%) of 522 patients randomly assigned to receive suvorexant and 162 (63%) of 259 assigned to receive placebo completed the 1-year phase. Over 1 year, 362 (69%) of 521 patients treated with suvorexant experienced any adverse events compared with 164 (64%) of 258 treated with placebo. Serious adverse events were recorded in 27 patients (5%) who received suvorexant and 17 (7%) who received placebo. The most common adverse event, somnolence, was reported for 69 patients (13%) who received suvorexant and seven (3%) who received placebo. At month 1, suvorexant (517 patients in the efficacy population) showed greater efficacy than placebo (254 in the efficacy population) in improving sTST (38·7 min *vs* 16·0 min; difference 22·7, 95% CI 16·4 to 29·0; p<0·0001) and sTSO (–18·0 min *vs* –8·4 min, difference –9·5, –14·6 to –4·5; p=0·0002).

Interpretation Our findings show that suvorexant was generally safe and well tolerated over 1 year of nightly treatment in patients with insomnia, with efficacy noted for subjective measures of sleep onset and maintenance.

Inter-related factors that might require targeting

- lifestyle / environmental factors (sleep hygiene)
- beliefs and attitudes about sleep
- safety behaviours
- sleep-related pre-occupation / sleep effort / performance anxiety
- cognitive, emotional and physiological (conditioned) arousal
- thought control
- reduced sleep drive
- sleep / daytime (mis)perception
- night-to-night sleep variability (circadian timing)

Cognitive-Behavioural Strategies for poor sleepers

- sleep is biologically regulated (2-processes) but can be disturbed by cognitive (thoughts) and behavioural factors
- over time sleep disturbance becomes “learned”

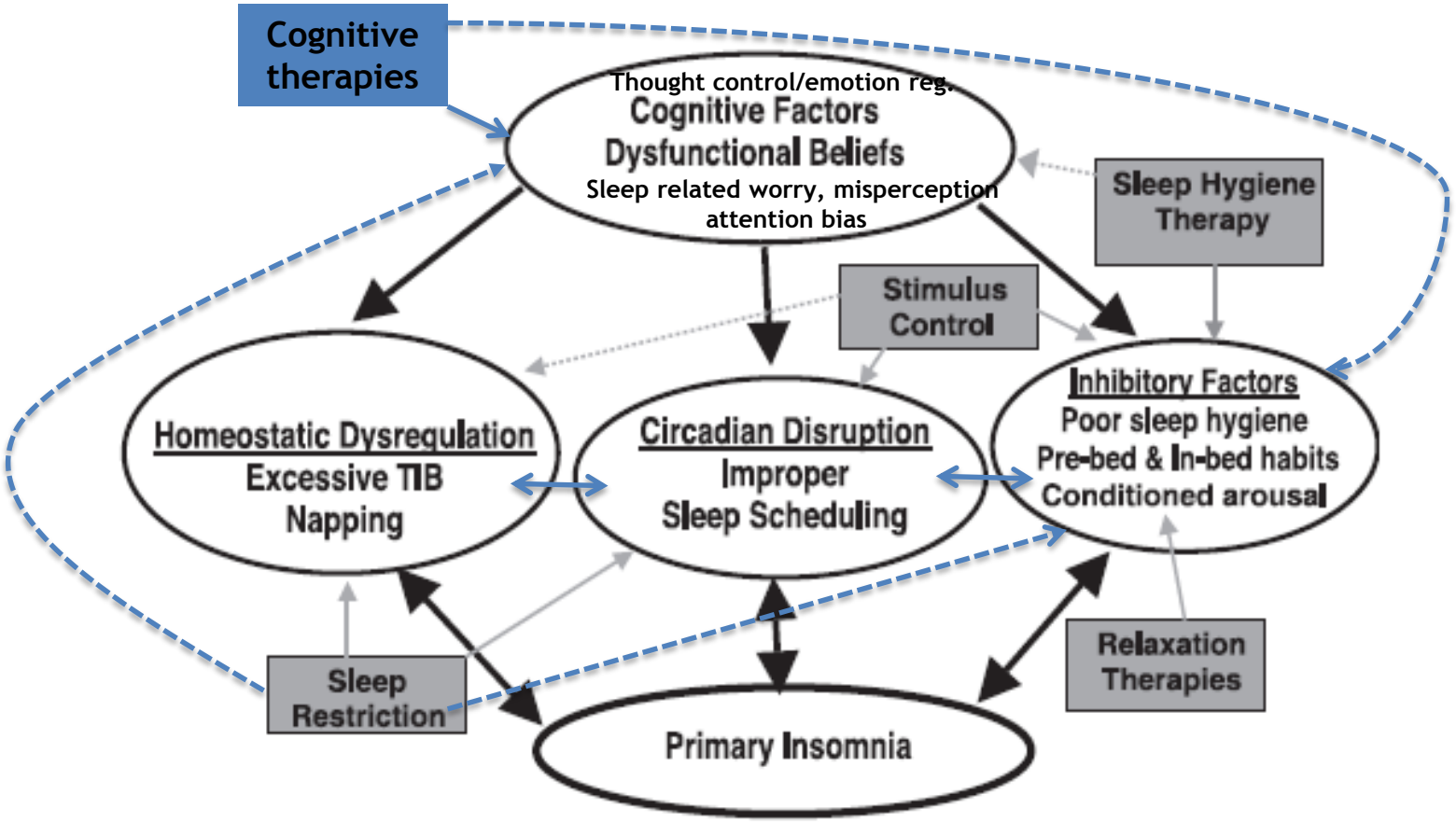
Cognitive-Behavioural Therapy

- *Psychobiological (multi-component) treatment*
- re-structures sleep-wake functioning
- re-conditions sleep-bedroom relationship
- addresses racing mind and dysfunctional beliefs that drive sleep behaviour

CBT- I:

Component	Features
Sleep Hygiene	Health and environmental factors that might promote/interfere with sleep
Relaxation	Progressive muscle relaxation (somatic tension), autogenic training (intrusive thoughts)
Stimulus control	Re-conditioning of bedroom with sleepiness/sleep
Sleep Restriction	Priming sleep homeostat, stabilising circadian control of sleep-wake functioning
Cognitive approaches	Techniques to reduce pre-sleep cognitive arousal, address dysfunctional beliefs and attitudes

Espie et al. (2006). SLEEP
Espie et al. (2008). J Clin Oncol;
Kyle et al. (2011). Sleep Med
Espie et al. (2012) SLEEP;
Kyle et al. (in press) SLEEP



Pathways to insomnia management…

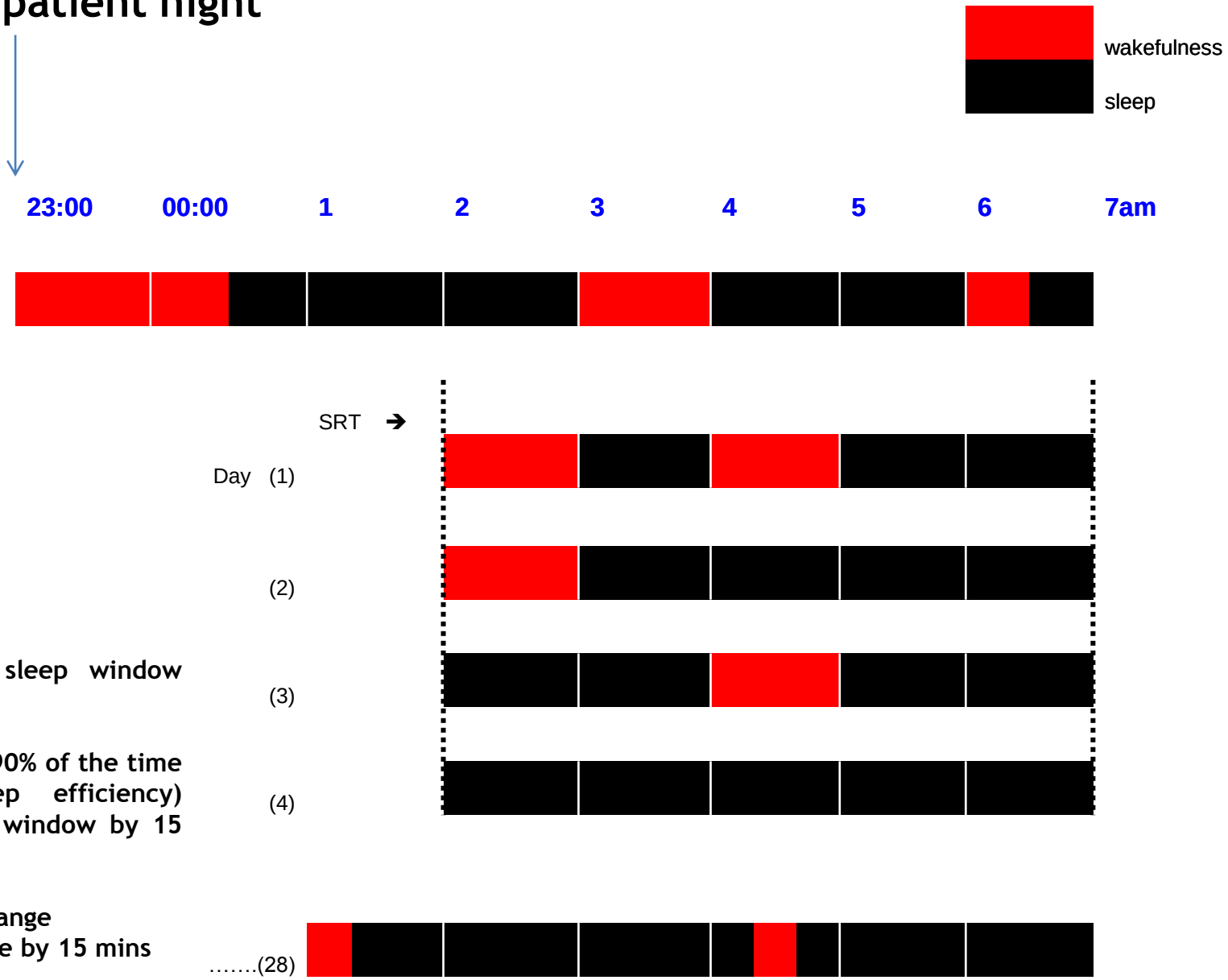
Kyle et al. 2011 Sleep Med; Edinger & Means (2005)

Cognitive Behavioural Therapy

- over 150 controlled trials and >15 systematic reviews/meta-analyses
- treatment of first choice for sleep disturbance (American Academy of Sleep Medicine)
- as effective as pharmacotherapy (PCT) in the short-term, but in contrast to PCT, CBT-I is durable up to 2 yrs post-treatment
- CBT-I efficacy is not moderated by major demographic, severity, or co-morbid factors
- Some evidence of improvements in functioning and health-related quality of life

Morin & Benca. (2012). *The Lancet*
Kyle et al. (2010) *Sleep Medicine Reviews*

Typical patient night

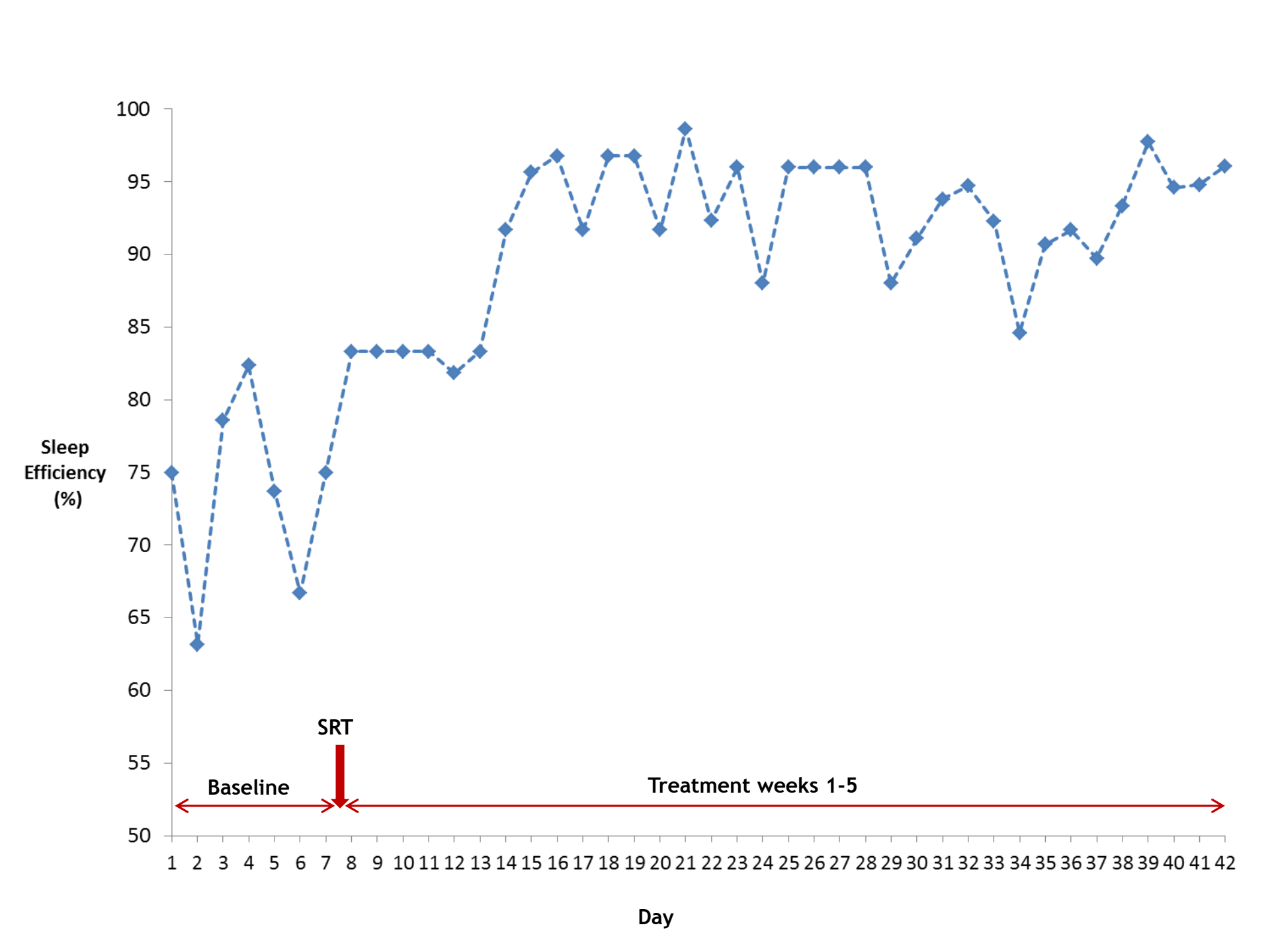


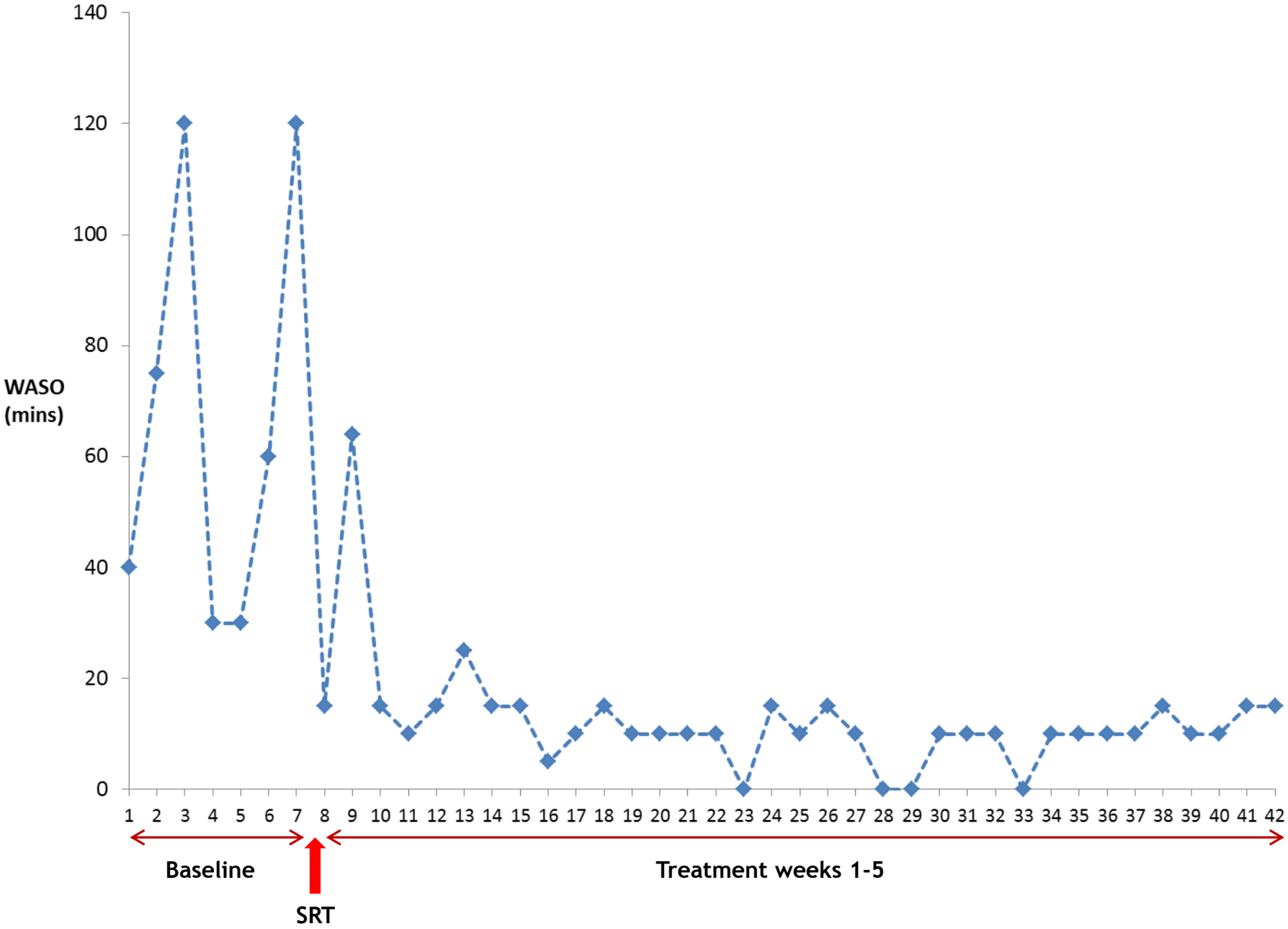
The Rules:

Modify/review sleep window weekly

Patient sleeps 90% of the time in bed (Sleep efficiency) increase sleep window by 15 mins.

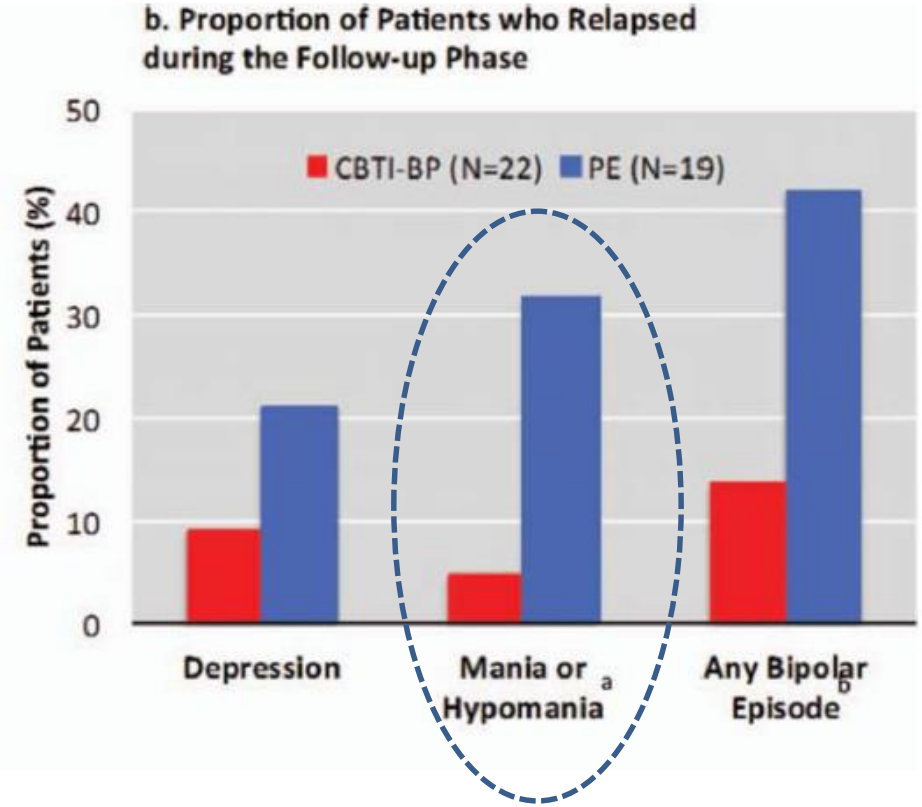
85-90% = no change
<85% = decrease by 15 mins

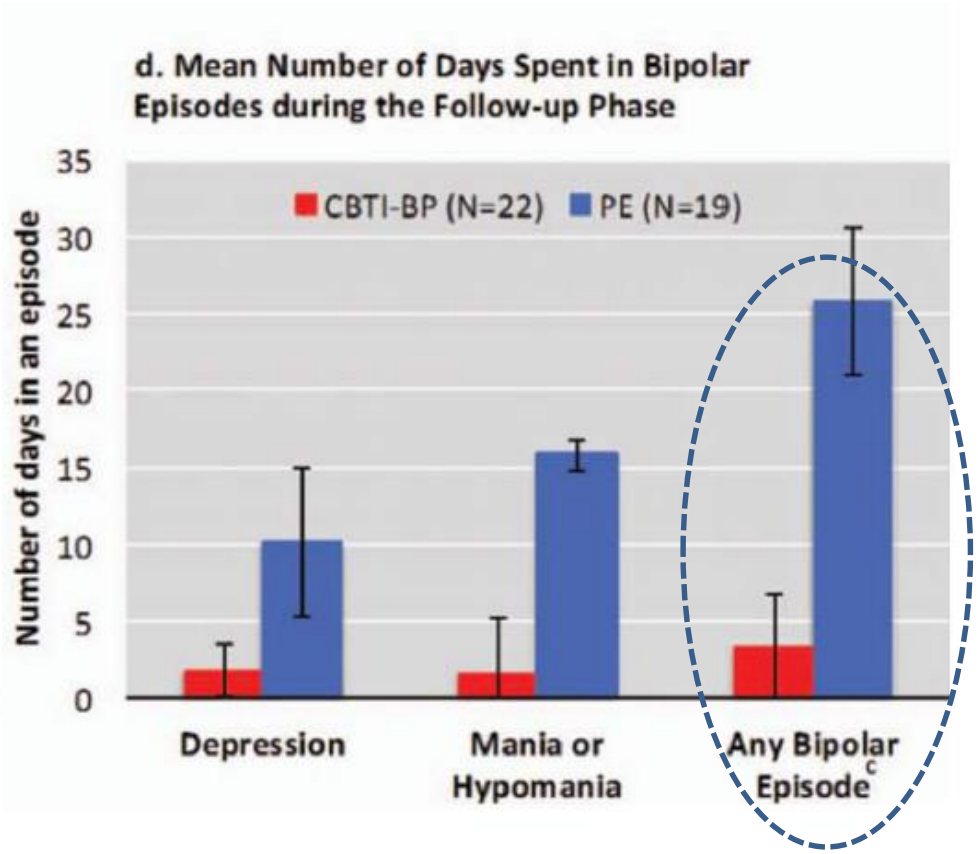

Sleep Efficiency (%)
100
95
90
85
80
75
70
65
60
55
50
SRT
Baseline
Treatment weeks 1-5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42
Day


140
120
100
80
60
40
20
0
WASO (mins)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42
Baseline
SRT
Treatment weeks 1-5

Treating Insomnia Improves Mood State, Sleep, and Functioning in Bipolar Disorder: A Pilot Randomized Controlled Trial

Allison G. Harvey,
Department of Psychology, University of California, Berkeley





Harvey et al. 2015 *Journal of Consulting and Clinical Psychology*

developments

- Mindfulness meditation/
- Acceptance and commitment therapy
- Chronotherapies
- Intensive sleep retraining
- refinement of CBT components
- Delivery channels for CBT

Further reading/resources

Overview of insomnia and treatment:

- Morin, C. & Benca, R. (2012). Chronic Insomnia. *The Lancet*, 379, 1129-41.
- Morin, Drake, Harvey, Krystal, Manber, Riemann & Spiegelhalder. Nature Reviews Disease Primer, 2015
- Espie, C.A., & Kyle, S.D. Cognitive and behavioural psychological therapies for chronic insomnia. In: Barkoukis, T.J., Matheson, J.K., Ferber, R., Dohramji, K. (Eds.) *Therapy in Sleep Medicine* (2011).

Learn about sleep disorders through Oxford's Online Programme in Sleep Medicine

www.ndcn.ox.ac.uk/oxford-online-programme-sleep-medicine

- Leads to an MSc/PGDip
- For working healthcare professionals
- Hosted by world-leading Sleep & Circadian Neuroscience Institute
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- Teaching delivered online and via a summer school in Oxford
- Standalone modules can also be completed as part of CPD