

Scottish
Cancer Network



BREAST CANCER SUPPORTIVE CARE

EDUCATIONAL SYMPOSIUM



INSOMNIA IN BREAST CANCER: AETIOLOGY, IMPACT & TREATMENT

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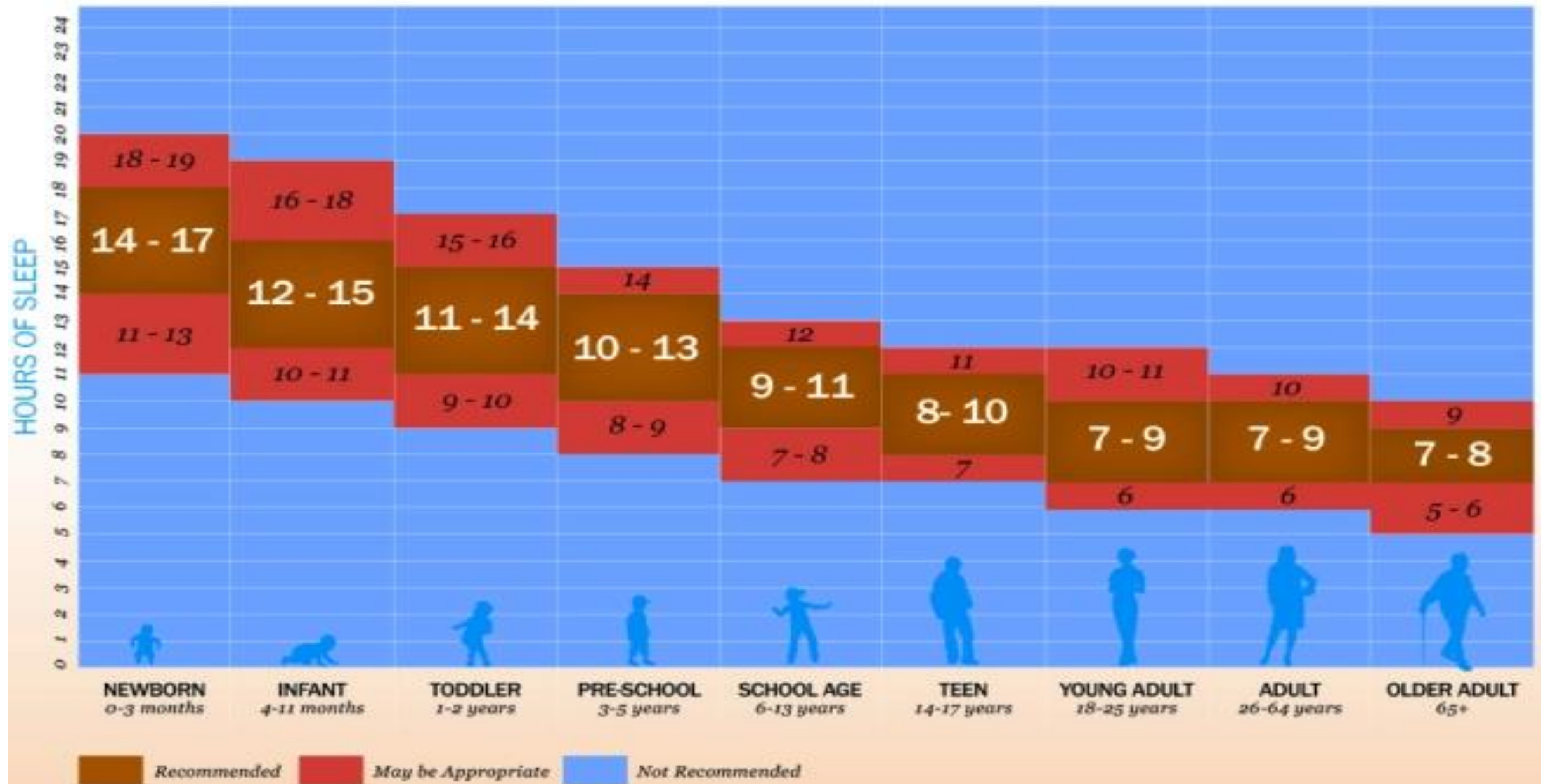
University of
Strathclyde
Glasgow

Sleep is a key pillar of health

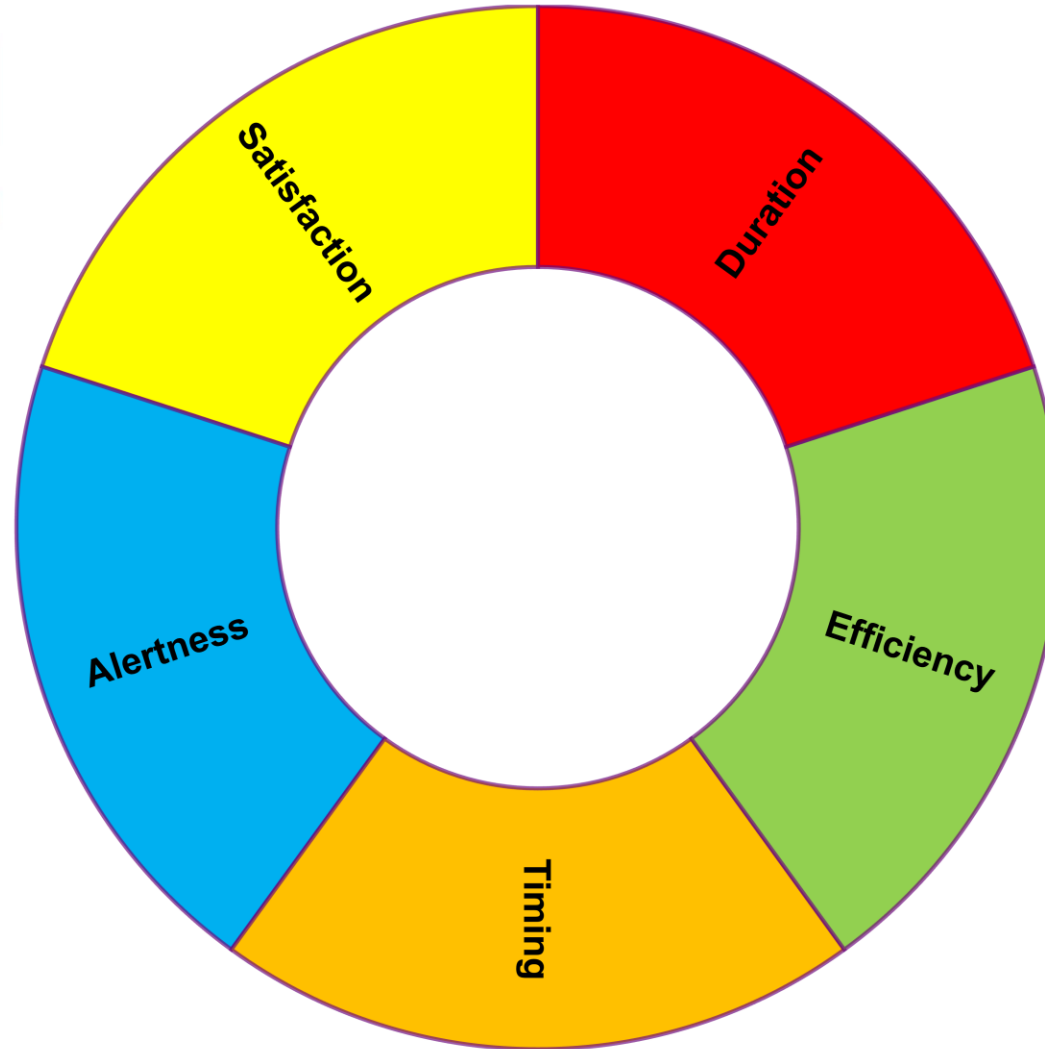
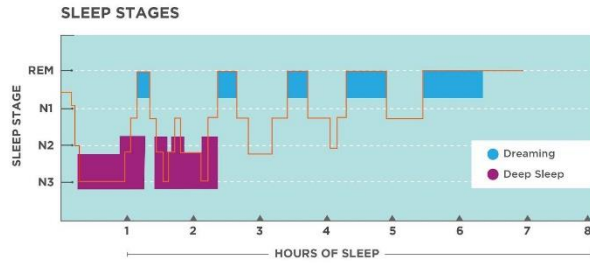
A complex and nuanced state of physiology and behaviour that promotes physical and mental wellbeing and effective daytime performance



SLEEP DURATION RECOMMENDATIONS



Dimensions of sleep health



Types of insomnia



ACUTE

- < 3 months
- caused by psychological or lifestyle factors
- often self-resolves
- z-drug may be useful



CHRONIC

- > 3 months
- caused by behavioural responses to sleep loss
- rarely self-resolves
- CBT should be offered

Insomnia disorder

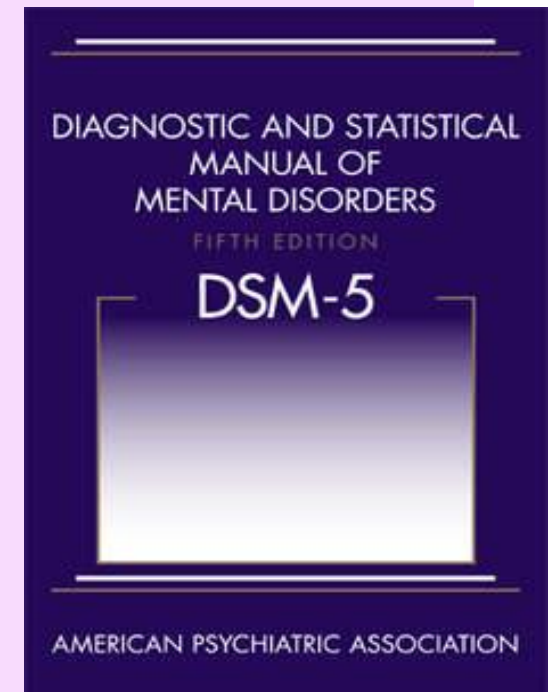
Diagnosis of insomnia requires patient dissatisfaction with sleep quality or duration along with other night-time and daytime symptoms that are present for ≥ 3 nights per week and last for >3 months.

Night-time insomnia symptoms

- Difficulty falling asleep at bedtime (sleep onset insomnia)
- Frequent or prolonged awakenings (sleep maintenance insomnia)
- Early morning awakenings (late insomnia)

Daytime insomnia symptoms

- Fatigue and reduced energy
- Impaired attention, concentration or memory
- Mood disturbances
- Difficulty functioning in academic or occupational settings



Prevalence and natural history

35% of population experience acute insomnia

10% of population meet criteria for chronic insomnia disorder

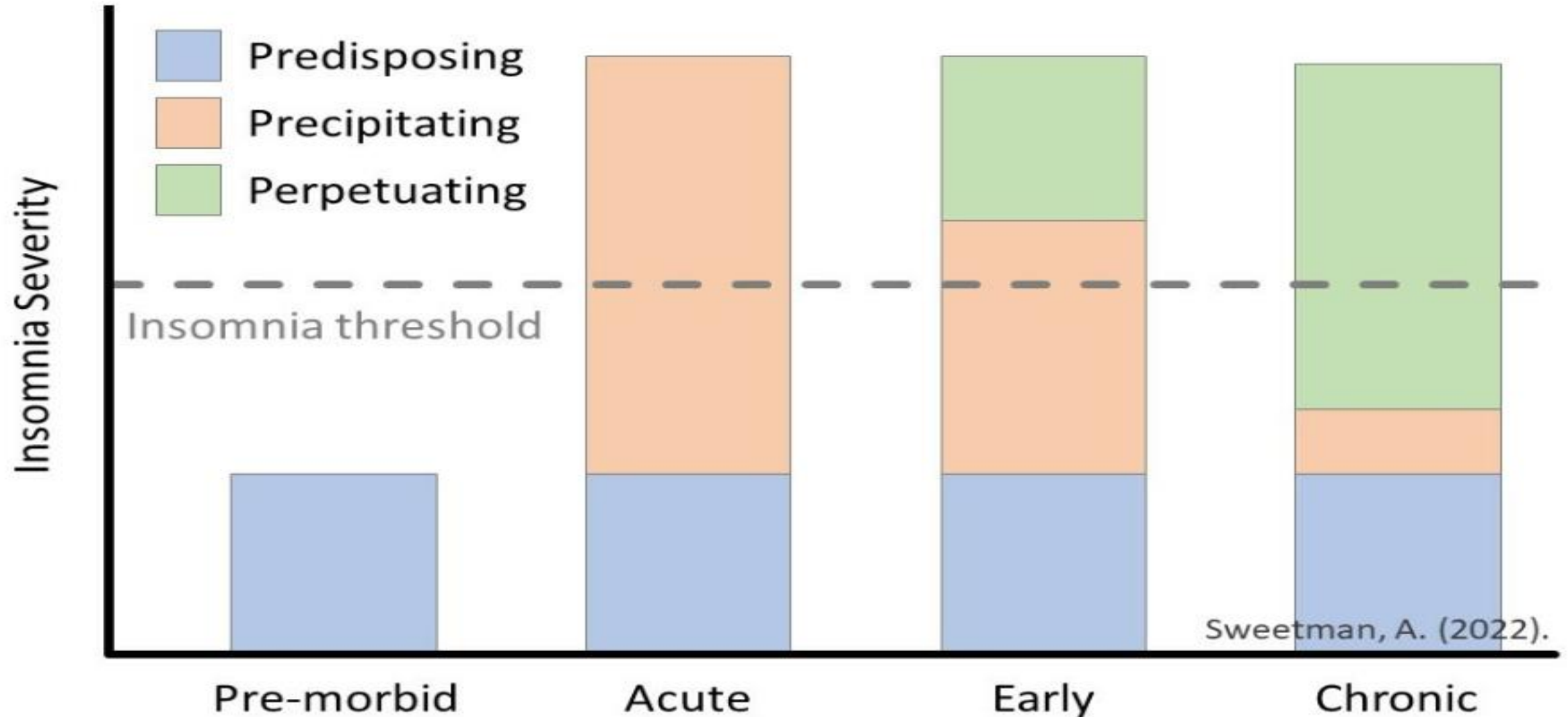
rates are higher in groups with co-morbidities (~ 50% oncology; 61% depression)

insomnia disorder is persistent

75% still meet criteria 1 year later

~60% up to 5 years later

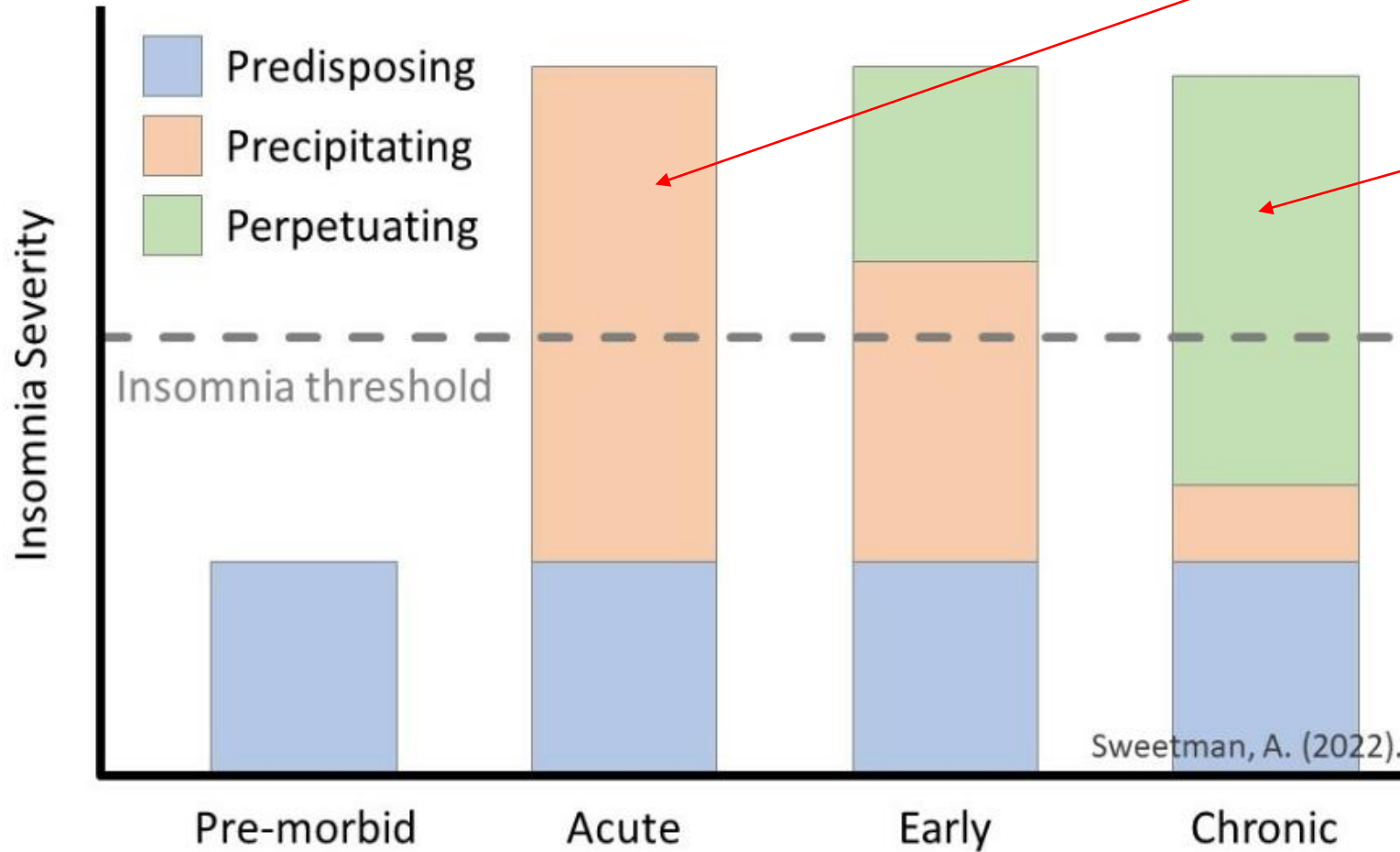
3P Model of insomnia



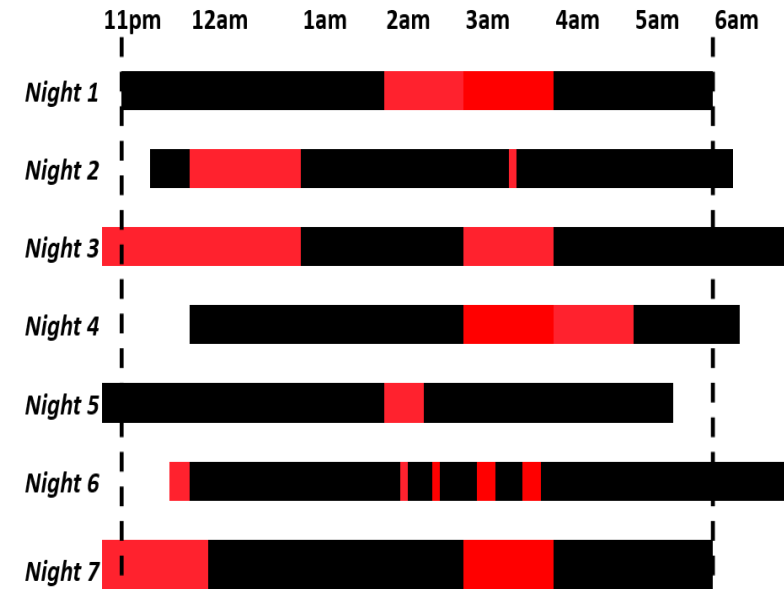
Sweetman, A. (2022).

3P Model of insomnia

Cancer diagnosis



Night to night variability to compensate for sleep loss

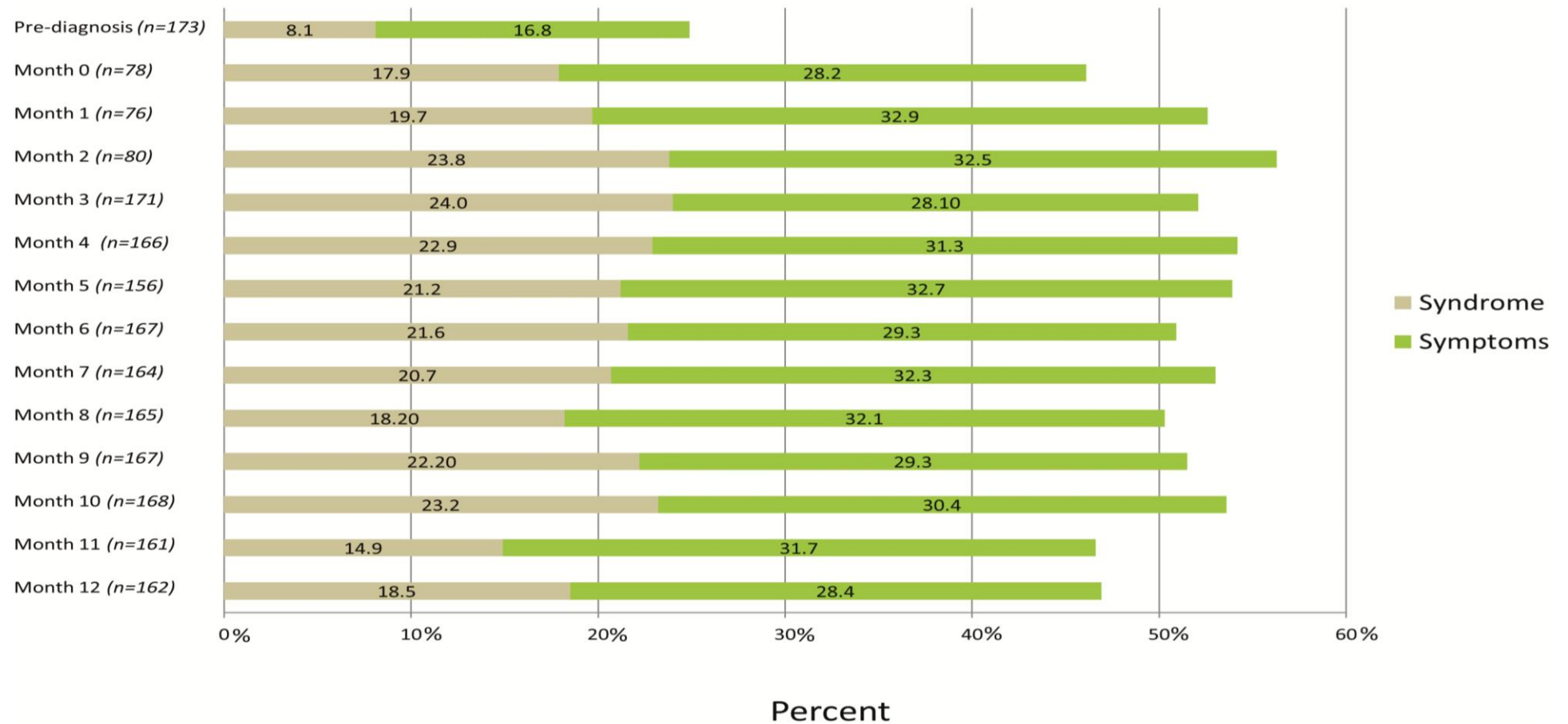


sleep = wake =

Sweetman, A. (2022).

Insomnia in breast cancer: a prospective observational study

Leanne Fleming^{1,*}, Kate Randell², Elaine Stewart³, Colin A. Espie⁴,
David S. Morrison⁵, Claire Lawless⁶ and James Paul⁶



Can we predict who is at risk of insomnia disorder at breast cancer diagnosis?

worse pre-diagnosis sleep (odds ratio = 1.13/unit increase in pre-diagnosis sleep score, 95% CI 1.05–1.21, $p = .001$)

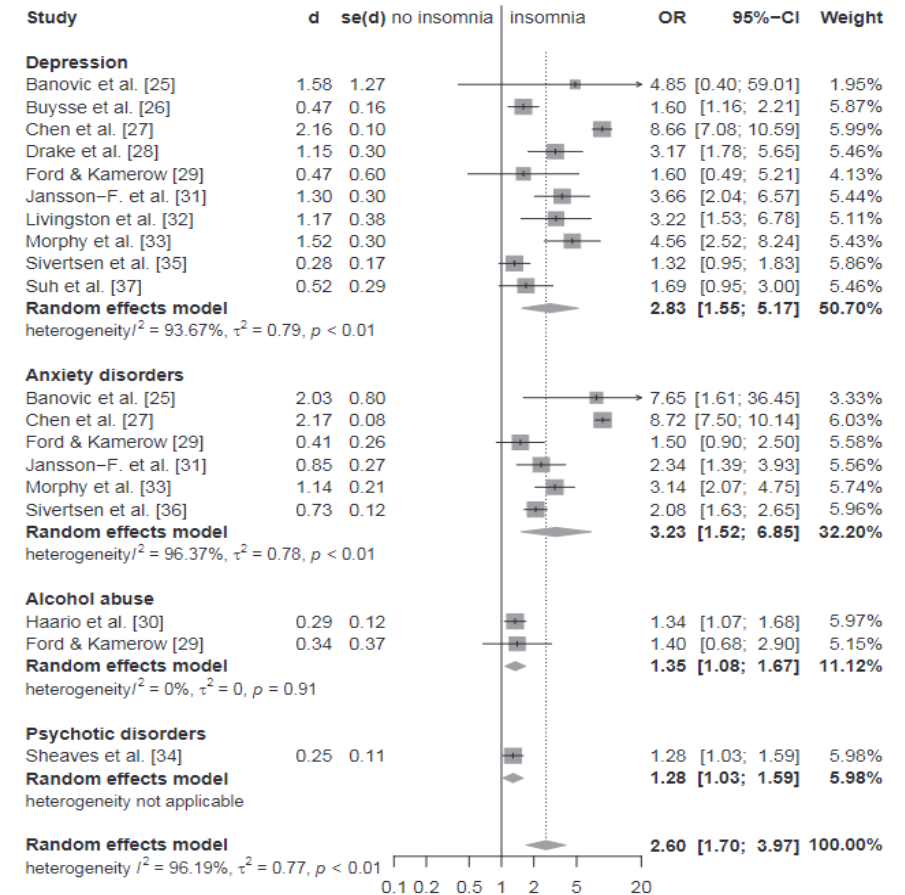
chemotherapy (odds ratio = 0.08, 95% CI 0.02–0.29, $p < .001$)

systemic side-effects (odds ratio = 1.04/unit increase in worst systemic side effect score, 95% CI 1.01–1.07, $p = .010$)

arm symptoms (odds ratio = 1.05/unit increase in worst arm symptom score, 95% CI 1.02–1.08, $p < .001$)

Insomnia and mental health

- predicts development of future psychopathology
- inhibits response to treatment for mental illness
- remains after successful treatment for mental illness
- predicts relapse after initial treatment response
- increases risk of suicide in those with depression



Baglioni et al, (2011); Wang & Cheng (2019); Hertenstein et al, (2019); Franzen & Buysse (2022)

Physical	Mental	Behavioural	Performance
Risk of...	Risk of...	Risk of...	
Cancer	Depression	Sleepiness	Impaired attention and concentration
Cardiovascular disease and stroke	Psychiatric relapse	Road traffic accidents	Decreased memory
Disorders of the Hypothalamic-Pituitary-Adrenal (HPA)	Mood fluctuation	Falls and fractures	Reduced multi-tasking
Metabolic abnormalities	Delirium	Repeat prescribing	Impaired decision-making
Weight gain & obesity	Impulsivity	Alcohol and drug dependency	Reduced creativity
Reduced immunity	Anger and frustration	Increased sedative and stimulant use	Reduced communication
Bodily sensations of pain	Higher risk of suicide	Less likely to attend appointments	Reduced socialisation
Thermoregulatory problems	Anxiety and hyperarousal	Longer stay in hospital	Less likely to be employed
Vulnerable seizure threshold	Chronic fatigue	Earlier admission to long-term care	More likely to be on benefits

<https://www.rsph.org.uk/resourceLibrary/waking-up-to-the-health-benefits-of-sleep.html>

Daytime Effects of Insomnia

SLEEPY



Lacking energy & motivation

DOPEY



Work performance & cognitive ability

GRUMPY



Impaired emotion regulation, poor social / interpersonal functioning

SNEEZY



Poor health & wellbeing

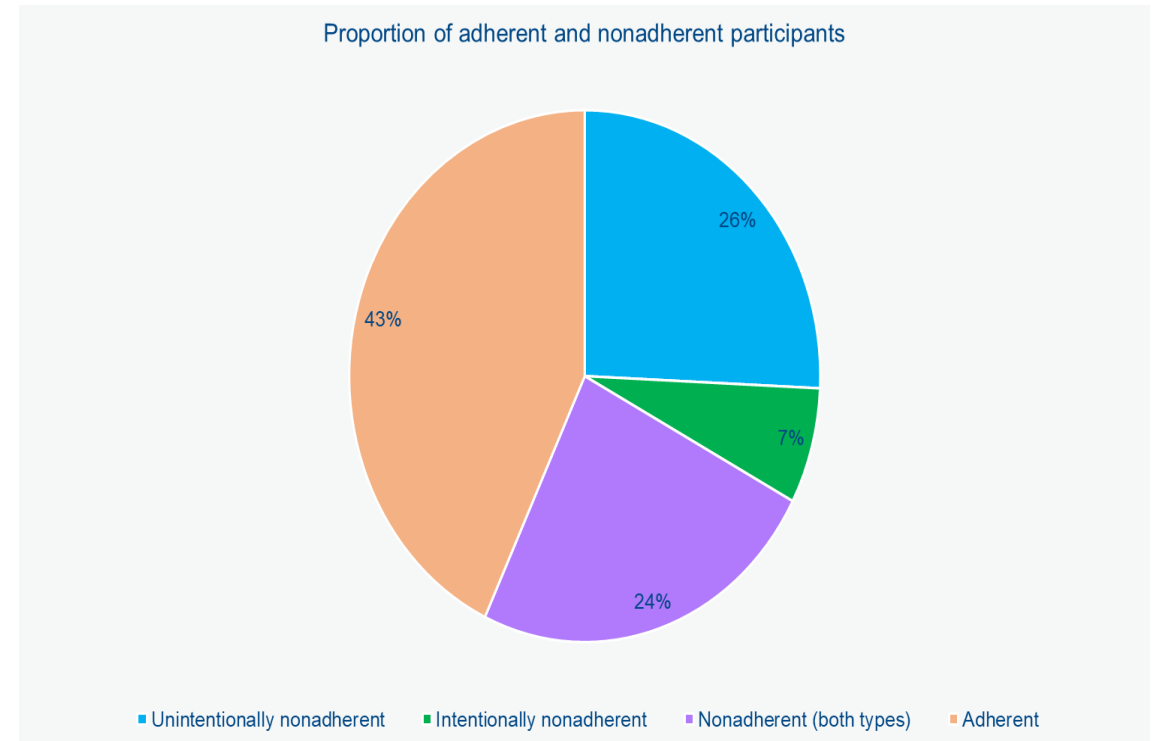
Influence of endocrine therapy side effects on patient adherence

1299 people with breast cancer prescribed ET

Cross-sectional survey - insomnia, fatigue, anxiety, depression, menopausal symptoms & adherence

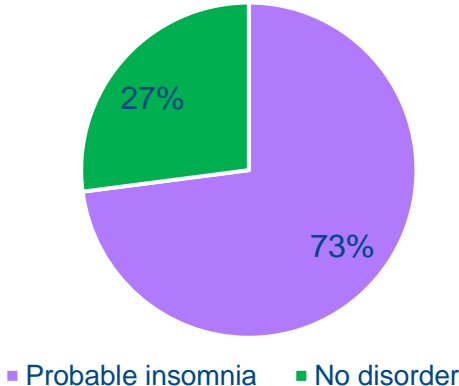
Aims –

- reliably estimate rate of ET nonadherence
- measure and quantify scale of ET side effect burden

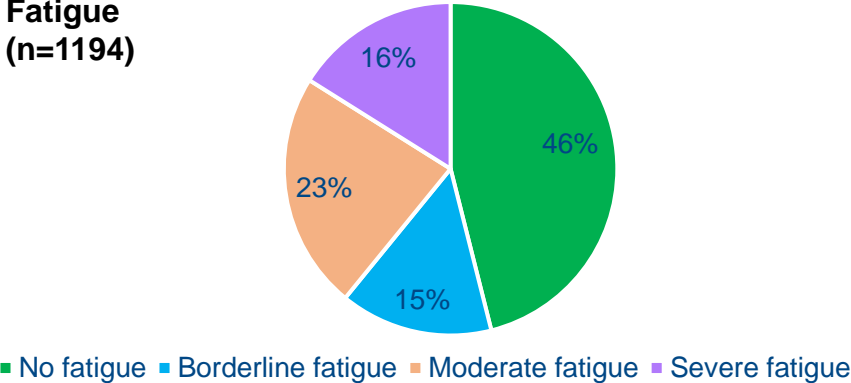


Endocrine therapy side effect burden

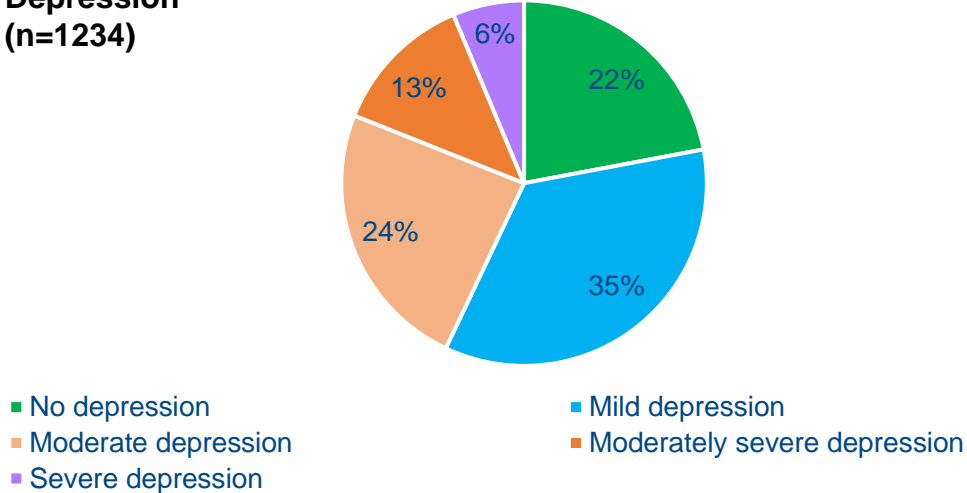
**Insomnia
(n=1257)**



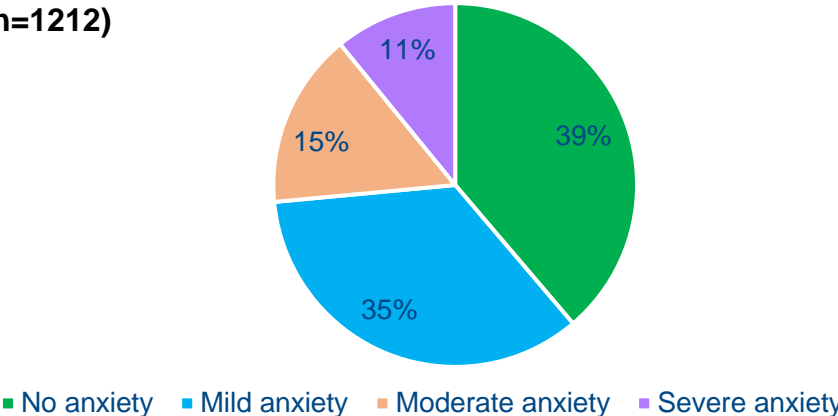
**Fatigue
(n=1194)**



**Depression
(n=1234)**



**Anxiety
(n=1212)**



Insomnia disorder is associated with risk for

- depression, anxiety disorders
- poor adherence to cancer treatment(s)
- cardiovascular disease
- type 2 diabetes
- hypertension
- cognitive decline, Alzheimer's disease

Kyle & Henry, (2017)

Agnew, Crawford, MacPherson, Shiramizu, Fleming, (in press)

Insomnia assessment

Table 1 Sleep Condition Indicator (SCI)

Item	Score				
	4	3	2	1	0
Thinking about a typical night in the last month:					
1. How long does it take you to fall asleep?	0–15 min	16–30 min	31–45 min	46–60 min	≥ 61 min
2. If you then wake up during the night ... how long are you awake for in total? (add up all the awakenings)	0–15 min	16–30 min	31–45 min	46–60 min	≥ 61 min
3. How many nights a week do you have a problem with your sleep?	0–1	2	3	4	5–7
4. How would you rate your sleep quality?	Very good	Good	Average	Poor	Very poor
Thinking about the past month, to what extent has poor sleep:					
5. Affected your mood, energy, or relationships?	Not at all	A little	Somewhat	Much	Very much
6. Affected your concentration, productivity, or ability to stay awake	Not at all	A little	Somewhat	Much	Very much
7. Troubled you in general	Not at all	A little	Somewhat	Much	Very much
Finally:					
8. How long have you had a problem with your sleep?	I don't have a problem/< 1 month	1–2 months	3–6 months	7–12 months	> 1 year

Scoring instructions: Add the item scores to obtain the SCI total (minimum 0, maximum 32); a higher score means better sleep. Scores can be converted to 0–10 format (minimum 0, maximum 10) by dividing total by 3.2 to facilitate interpretation.; Item scores in grey area represent threshold criteria for DSM-5 Insomnia Disorder.

Insomnia assessment

Table 1 Sleep Condition Indicator (SCI)

Item	Score				
	4	3	2	1	0
Thinking about a typical night in the last month:					
1. How long does it take you to fall asleep?	0–15 min	16–30 min	31–45 min	46–60 min	≥ 61 min
2. If you then wake up during the night ... how long are you awake for in total? (add up all the awakenings)	0–15 min	16–30 min	31–45 min	46–60 min	≥ 61 min
Thinking about the past month, to what extent has poor sleep ...					
3. How many nights a week do you have a problem with your sleep?					
4. How would you rate your sleep problem?					
Thinking about the past month, to what extent has poor sleep ...					
5. Affected your mood, energy, concentration, or relationships?					
6. Affected your concentration, productivity, or ability to stay awake?					
7. Troubled you in general?					
Finally:					
8. How long have you had a problem with your sleep?					

Scoring instructions: Add the item scores and convert to 0–10 format (minimum threshold criteria for DSM-5 Insomnia).

Table 1. Two-item version of the Sleep Condition Indicator (SCI-02)

Item ^a	Score				
	4	3	2	1	0
<i>Thinking about the past month, to what extent has poor sleep ...</i>					
1. ... troubled you in general	Not at all	A little	Somewhat	Much	Very much
<i>Thinking about a typical night in the last month ...</i>					
2. ... how many nights a week do you have a problem with your sleep?	0–1	2	3	4	5–7

^aScoring instructions: Add the item scores to obtain the SCI total (minimum 0, maximum 8). A higher score means better sleep.

Sample

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?	<input type="checkbox"/> Very poor <input checked="" type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Good <input type="checkbox"/> Very good	<input type="checkbox"/> Very poor <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Good <input type="checkbox"/> Very good	<input type="checkbox"/> Very poor <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Good <input type="checkbox"/> Very good	<input type="checkbox"/> Very poor <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Good <input type="checkbox"/> Very good	<input type="checkbox"/> Very poor <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Good <input type="checkbox"/> Very good	<input type="checkbox"/> Very poor <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Good <input type="checkbox"/> Very good	<input type="checkbox"/> Very poor <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Good <input type="checkbox"/> Very good	<input type="checkbox"/> Very poor <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Good <input type="checkbox"/> Very good
9. Comments (if applicable)	I have a cold							

When you experience the following situations, how likely is it for you to have difficulty sleeping?
Circle an answer even if you have not experience these situations recently.

Before an important meeting the next day

Not likely Somewhat likely Moderately likely Very likely

After a stressful experience during the day

Not likely Somewhat likely Moderately likely Very likely

After a stressful experience in the evening

Not likely Somewhat likely Moderately likely Very likely

After getting bad news during the day

Not likely Somewhat likely Moderately likely Very likely

After watching a frightening movie or TV show

Not likely Somewhat likely Moderately likely Very likely

After having a bad day at work

Not likely Somewhat likely Moderately likely Very likely

After an argument

Not likely Somewhat likely Moderately likely Very likely

Before having to speak in public

Not likely Somewhat likely Moderately likely Very likely

Before going on vacation the next day

Not likely Somewhat likely Moderately likely Very likely

European guideline for the diagnosis and treatment of insomnia

Duration < 3 months

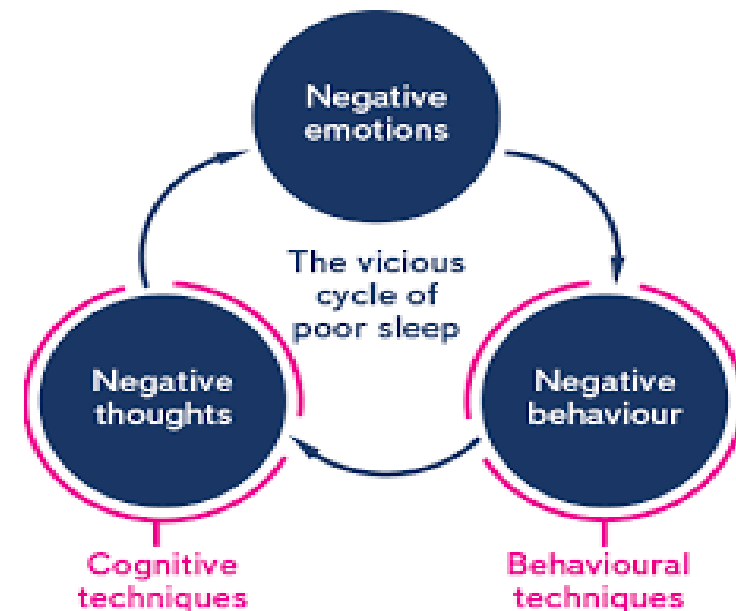
- Offer advice on sleep hygiene
- If sleep hygiene measures fail, offer CBT-I
- Consider a short course (3-7 days) of a non-benzodiazepine hypnotic medication (z-drug)
- If hypnotic is prescribed, do not continue treatment for longer than 2 weeks (preferably less than one week)

Duration > 3 months










- Offer CBT-I as the first-line treatment for chronic insomnia in adults of any age. It can be provided face-to-face or digitally
- Pharmacological therapy should be avoided in the long-term management of insomnia

CBT is recommended as **first-line treatment** for chronic insomnia in **adults of any age** (strong recommendation, high-quality evidence)

Riemann et al, (2017)

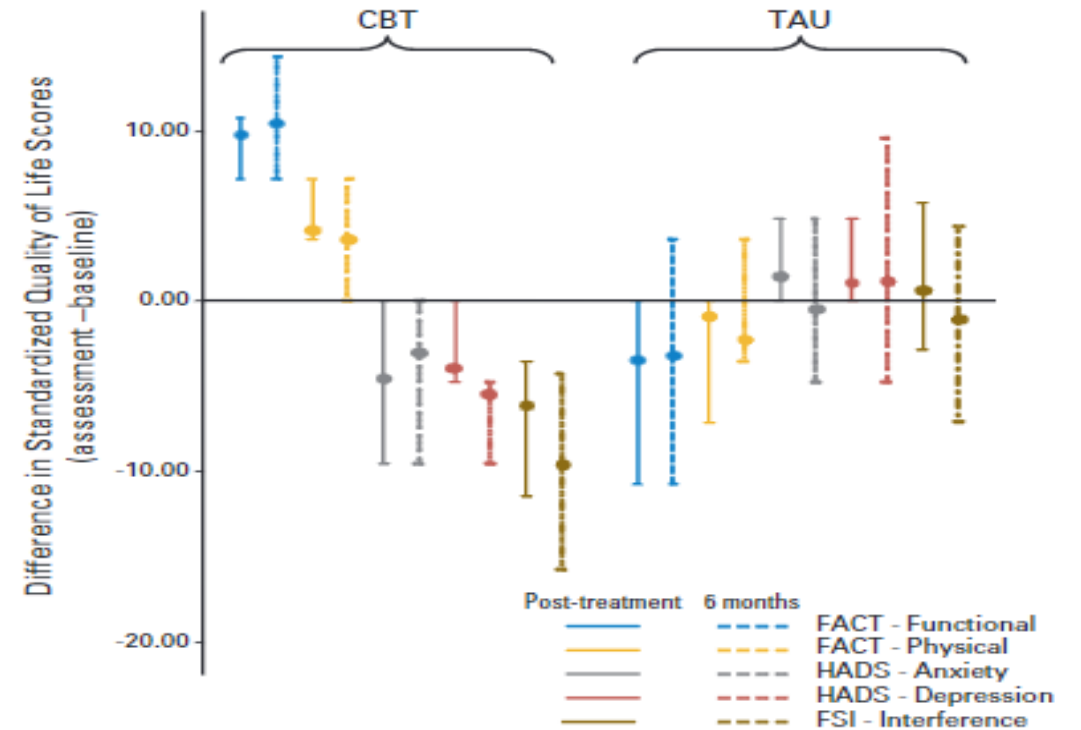
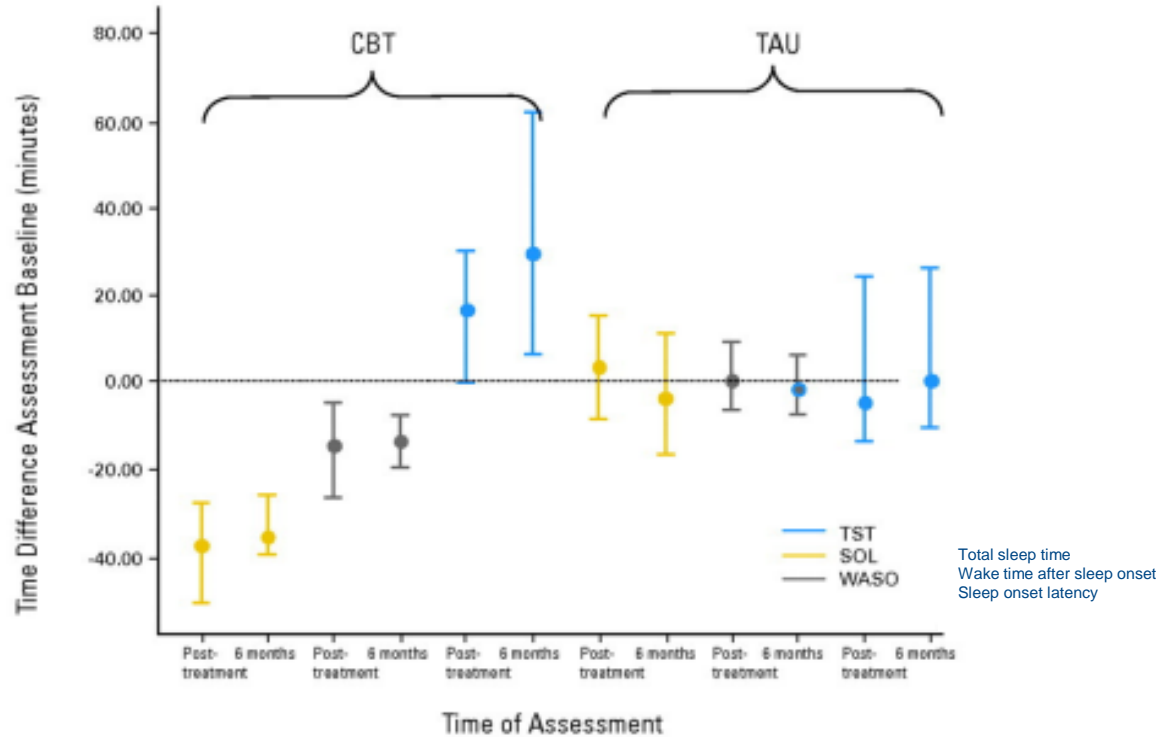


Cognitive Behavioural Therapy for Insomnia (CBT-I)

Sleep Hygiene	Stimulus Control	Sleep Restriction	Relaxation	Cognitive	Wrap-Up
 <p>appropriate bedroom environment</p>  <p>avoiding screen-based devices before bedtime</p>  <p>avoiding coffee or alcohol consumption</p>	 <p>using bedroom only to sleep</p>  <p>leaving bedroom when cannot fall asleep</p>	 <p>restricting sleep times</p>  <p>increasing in-bed sleep times</p>	 <p>taking short and long relaxations during the day</p>	 <p>restructuring undesired thinking patterns</p>	going over each component to prevent the relapse of insomnia



CBT-I in cancer survivors



N=150 cancer survivors referred for insomnia treatment

5-week group CBT-I protocol, delivered by cancer nurses

Espie, Fleming et al, (2008)

How Sleepio works

You tell us about your sleep.

Our sleep questionnaire takes just 10mins but gives us everything we need to tailor the programme to you.



You visit The Prof, your virtual sleep expert.

The Prof is your guide through the Sleepio programme, there when you need him day or night.

The Prof teaches you proven sleep improvement techniques.

You learn personalised Cognitive Behavioural Therapy (CBT) techniques to get your sleep schedule, thoughts, lifestyle and bedroom into shape.



A range of tools help you put your techniques into practice.

From the Thought Checker to your Daily Schedule, you have the tools you need to put the techniques into action.



The Sleepio website interface features a dark purple header with navigation tabs: Sleep diary, Case file, Library, Community, and Moderator. A green button labeled 'Visit the Prof' and a status indicator 'Session in progress' are also present. Below the header is a 'Community' section with a search bar and a notification: 'You have not yet completed your current session. Continue it now.' The 'Latest News' section displays four news items:

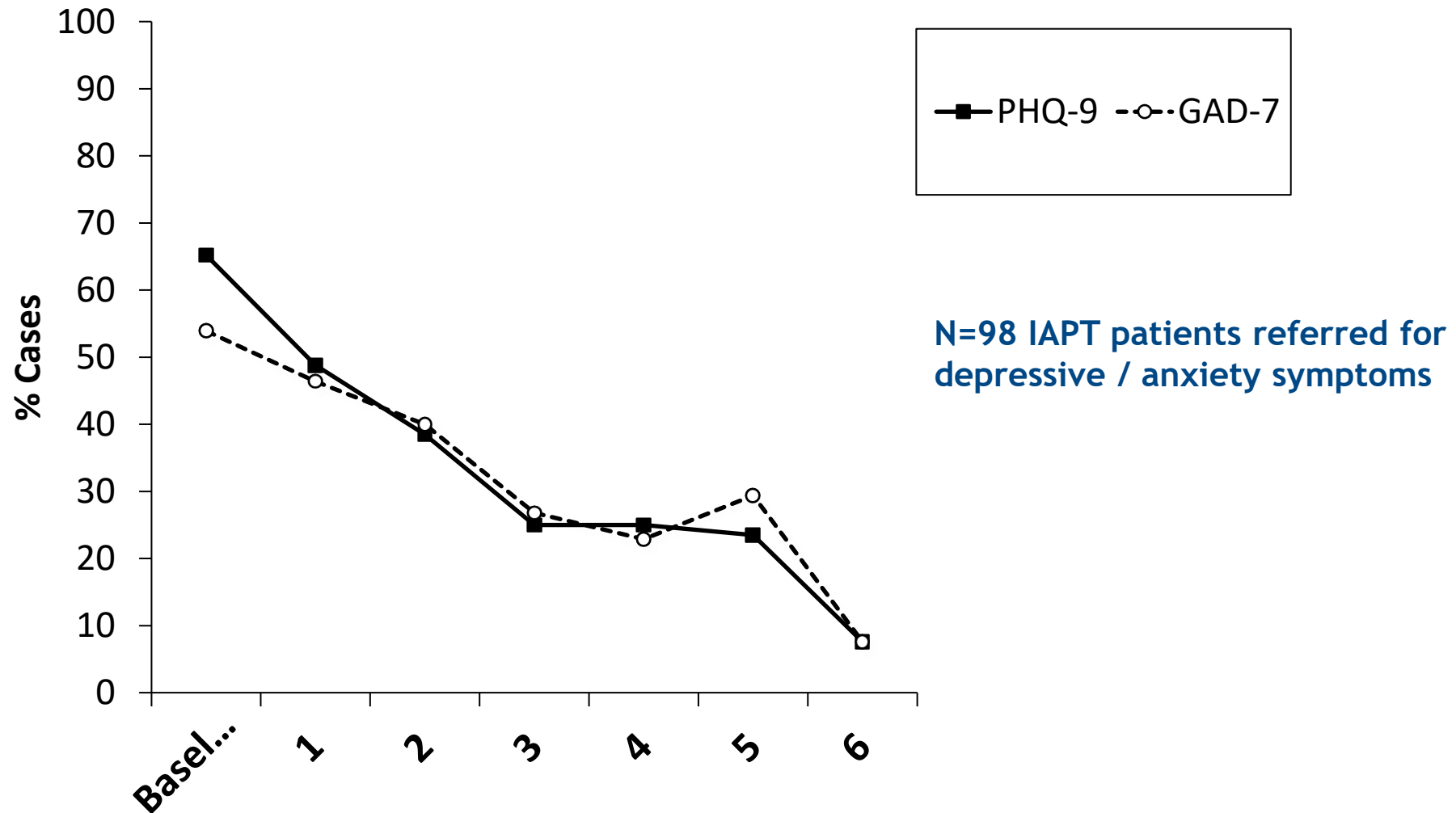
Author	Content	Action
Laetitia	"Does anyone else find it strange that the program counts all..."	on their profile
Polly Sleep	"I am home from a great ten days in Kefalonia where I..."	on their profile
Galatea	"Hi did anyone find that their sleep problem got temporarily..."	on their profile
Zoe	"Hi HarryBear, That's great news that you had some success with..."	on their profile

Below the news is a yellow banner for the 'Next expert session' with Dr Simon Kyle on Thursday 30th May at 7:00 pm, and a 'Vote on topics' button. At the bottom, there are two columns: 'Popular topics' and 'Recently updated'.

Topic	Discussions
General chat	119 discussions
Living with poor sleep	13 discussions
Graduate chat	12 discussions
The weekly quiz	5 discussions
Your lifestyle and sleep	5 discussions

Topic	Comments
Live Discussion with Dr Simon Kyle - 30th May New	7 comments
Graduate Common Room	6687 comments
Jawbone Up	11 comments
Sleep remedies & alternatives to...	66 comments
Sessions 4 & 5: General Discussion	300 comments

Digital CBT-I in patients with anxiety and depressive disorders



Final word from those with insomnia....

Insomnia is a 24 hr problems that affects all the other important aspects of my life.

Healthcare professionals never ask about sleep, I think because they don't have any suggestions for how to help so wouldn't know what to say.

I would love help to sleep better but would never ask my nurse or doctor. That's not what they are there to help with.

Healthcare professionals are often unaware of the best interventions for sleep and can only offer sleep hygiene.

Questions

Scan or click the QR code to ask a question:



TOPIC:
INSOMNIA IN
BREAST CANCER:
AETIOLOGY, IMPACT
& TREATMENT

