

# Managing Fatigue, Sleep, & Stress *for Clinicians and Healthcare Professionals*

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# Objectives

How do sleep and fatigue impact mental health and performance?

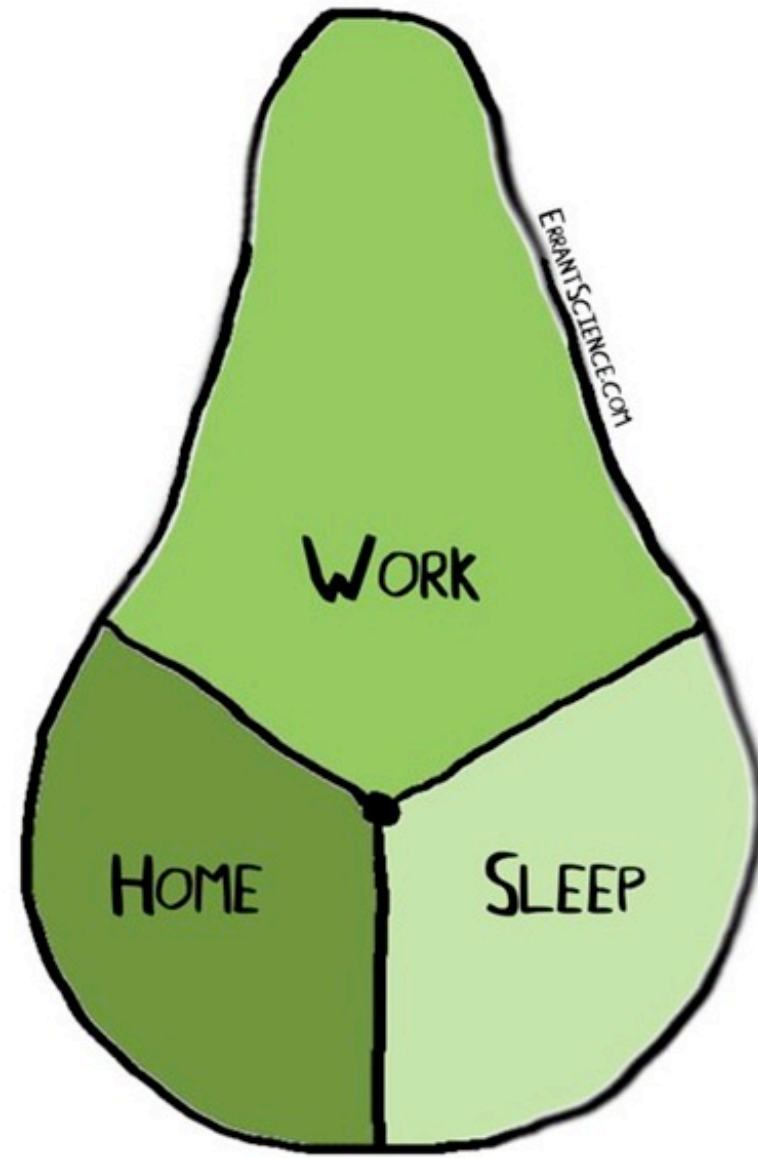
How do you recognize sleep and fatigue problems?

How do you ameliorate basic sleep and fatigue problems?

How do you get help for more serious problems?



PIE CHART

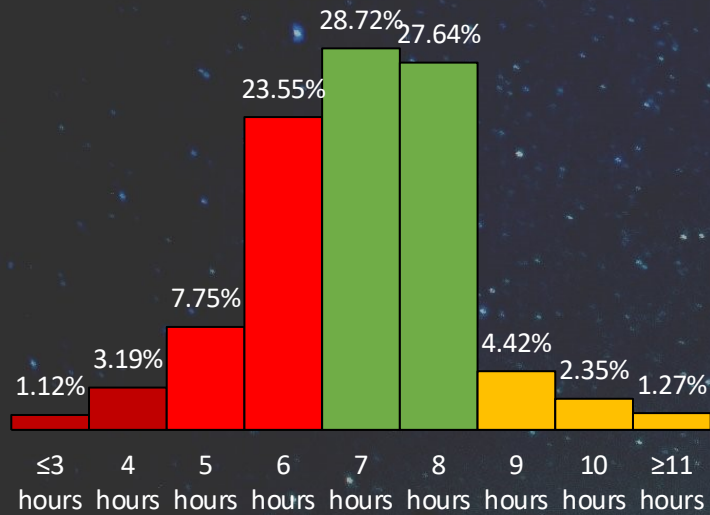


AVOCADO CHART

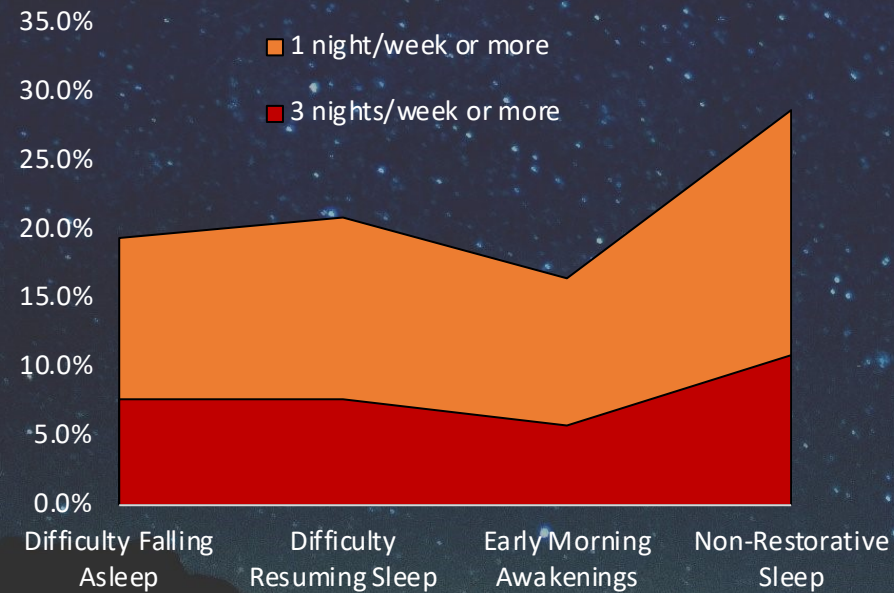


# Sleep issues are surprisingly common

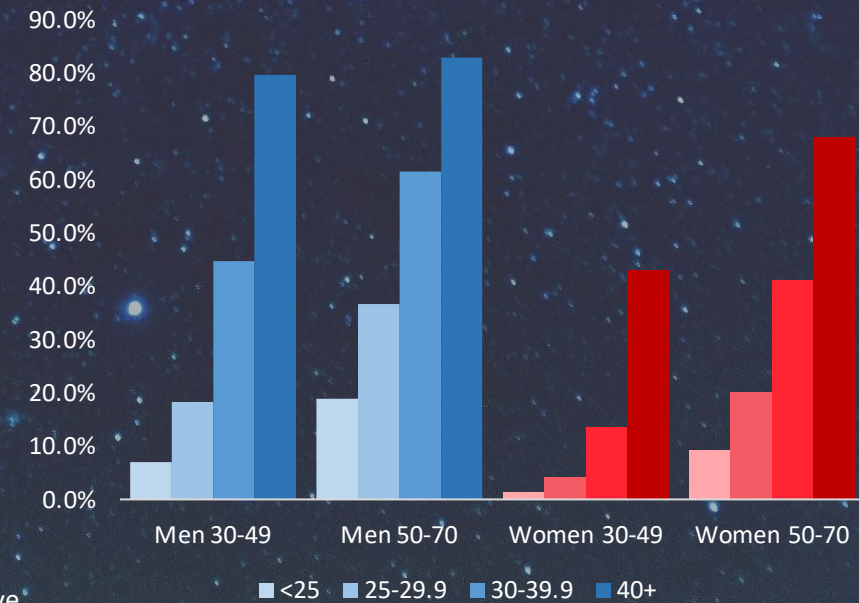
Insufficient Sleep



Insomnia

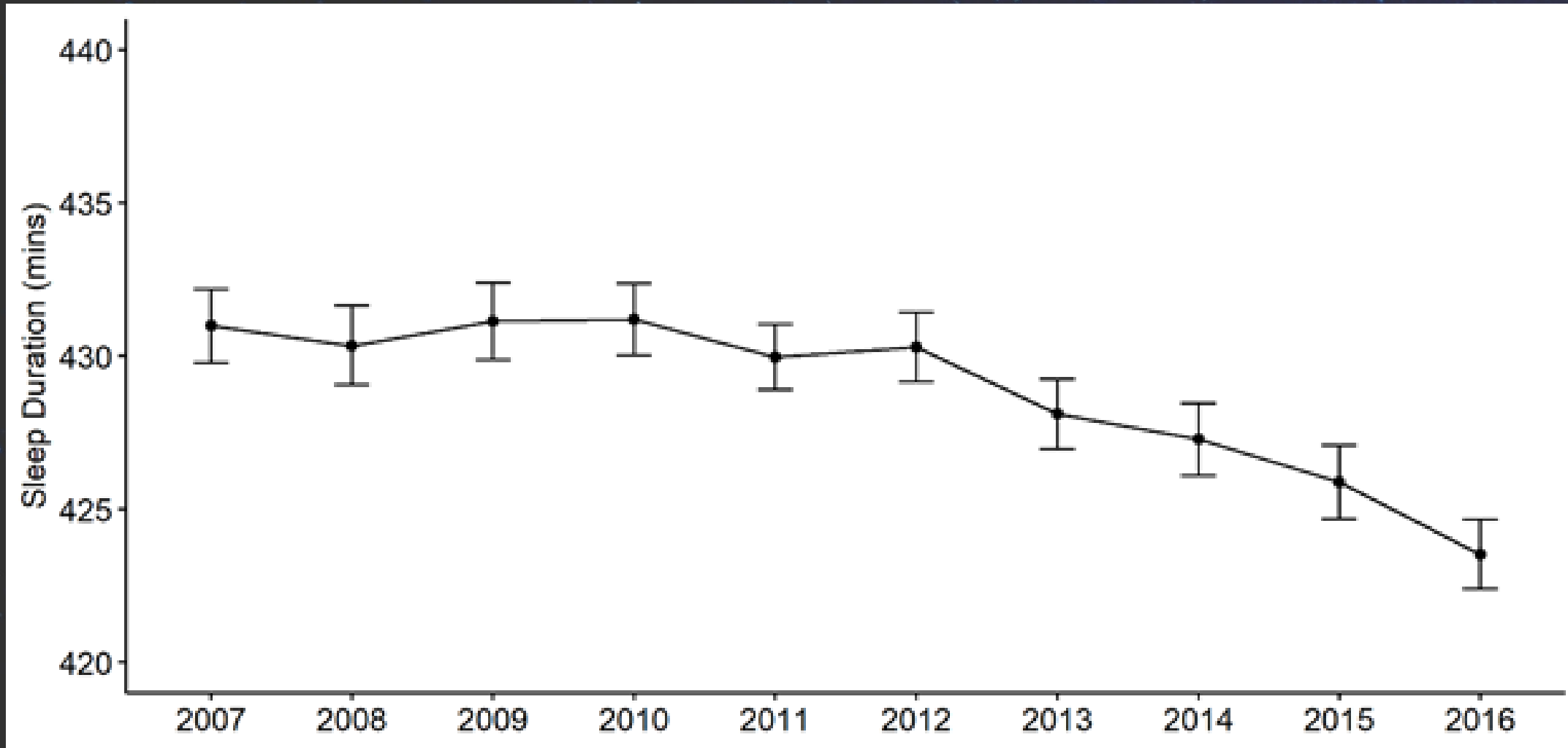


Sleep Apnea



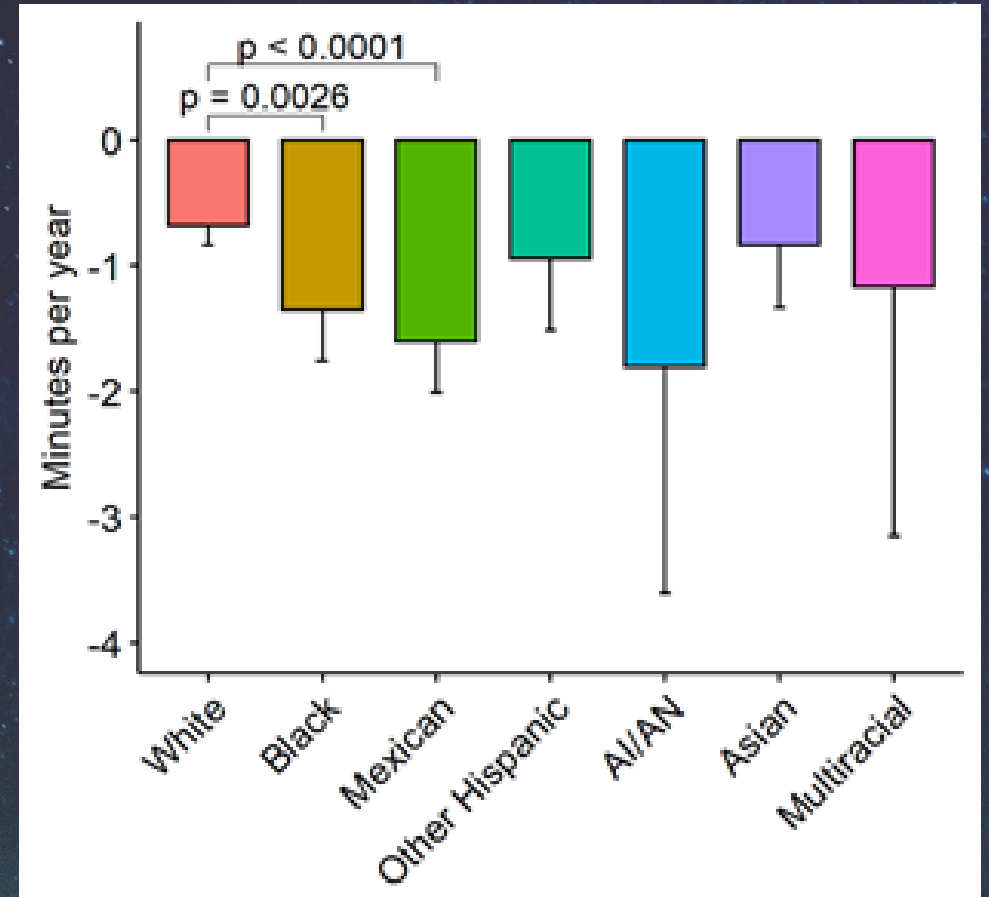
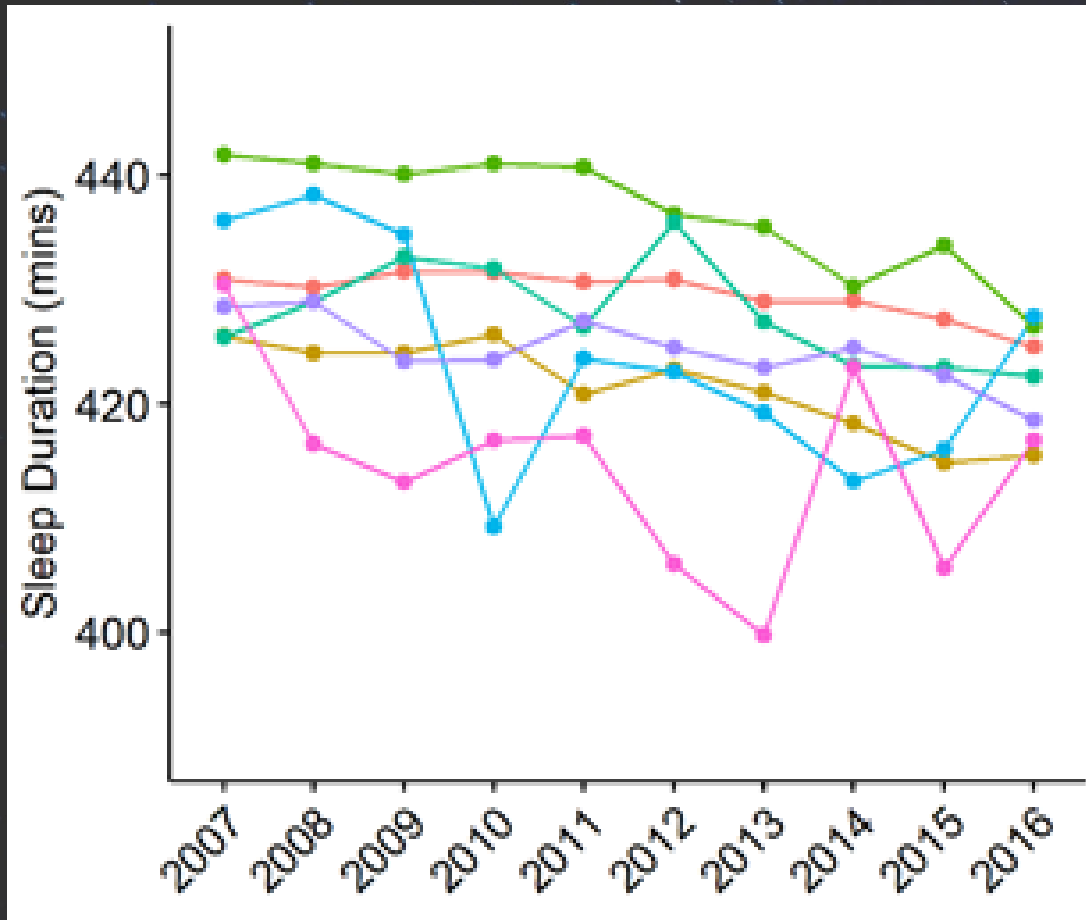


# Sleep duration trends



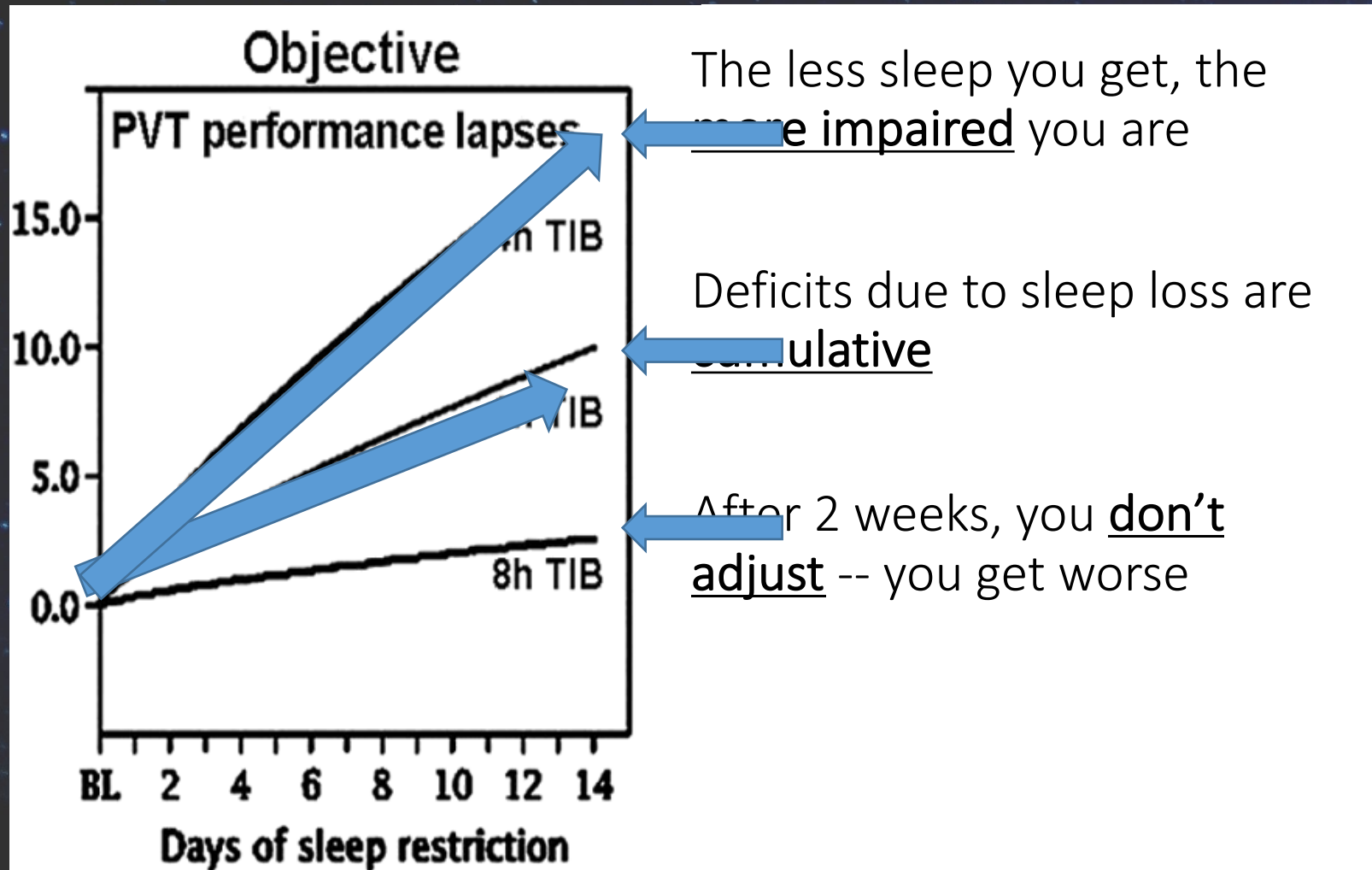


# Worsening disparities



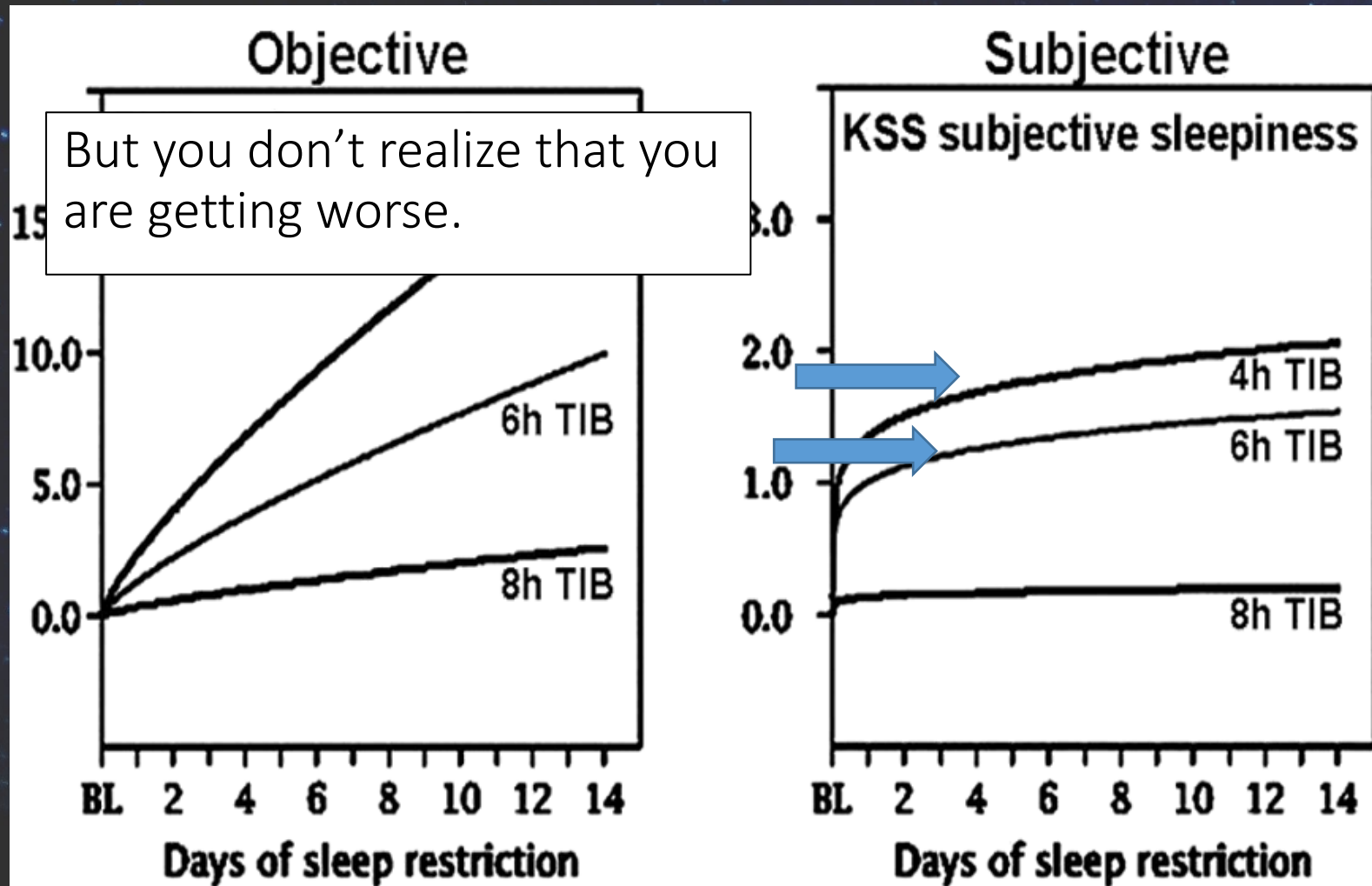


# Sleep and performance



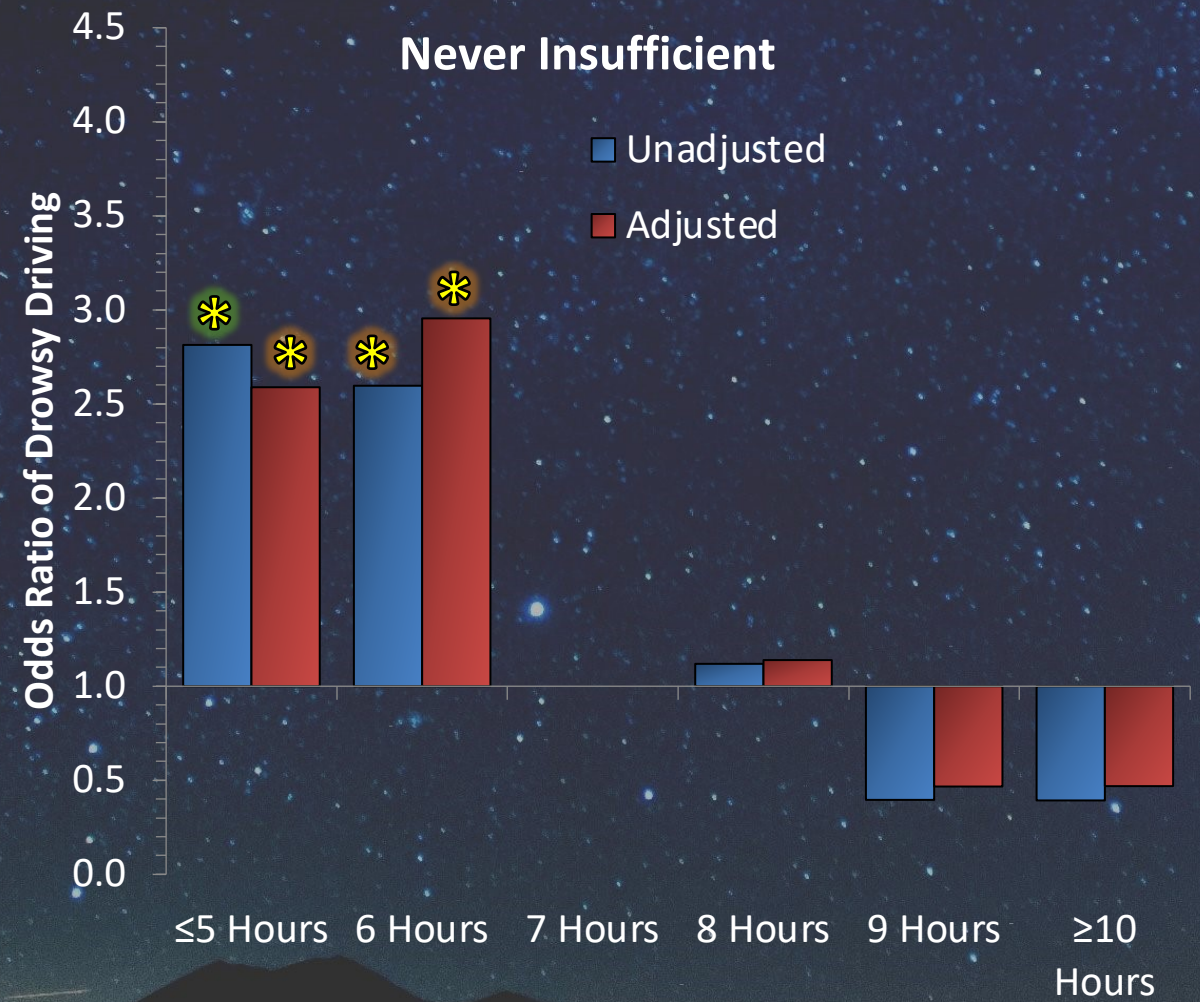
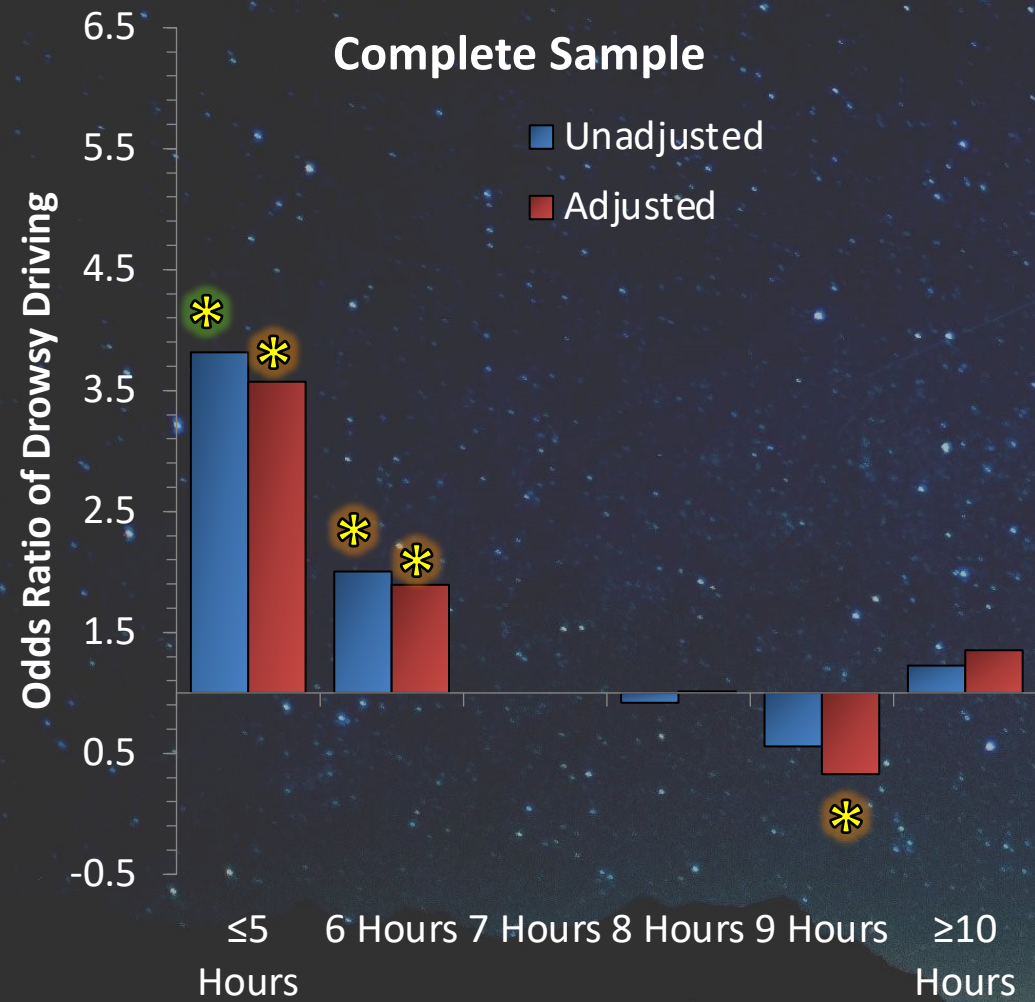


# Sleep and performance





# Drowsy driving

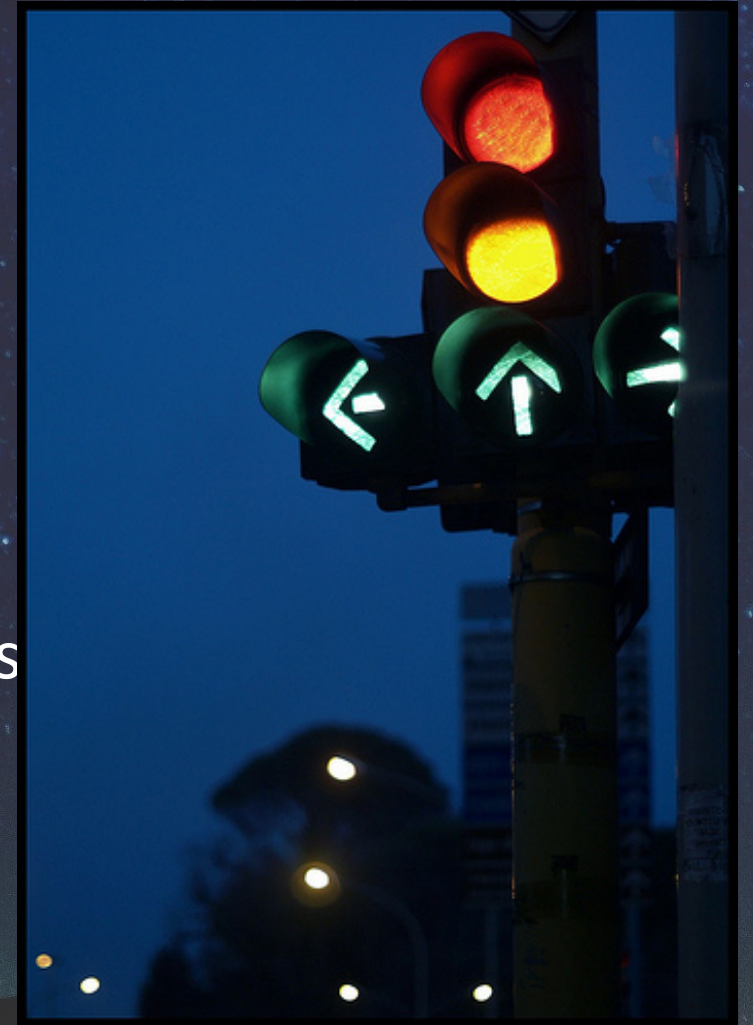




# Sleep loss and decision making

Sleep deprivation leads to poor decision making

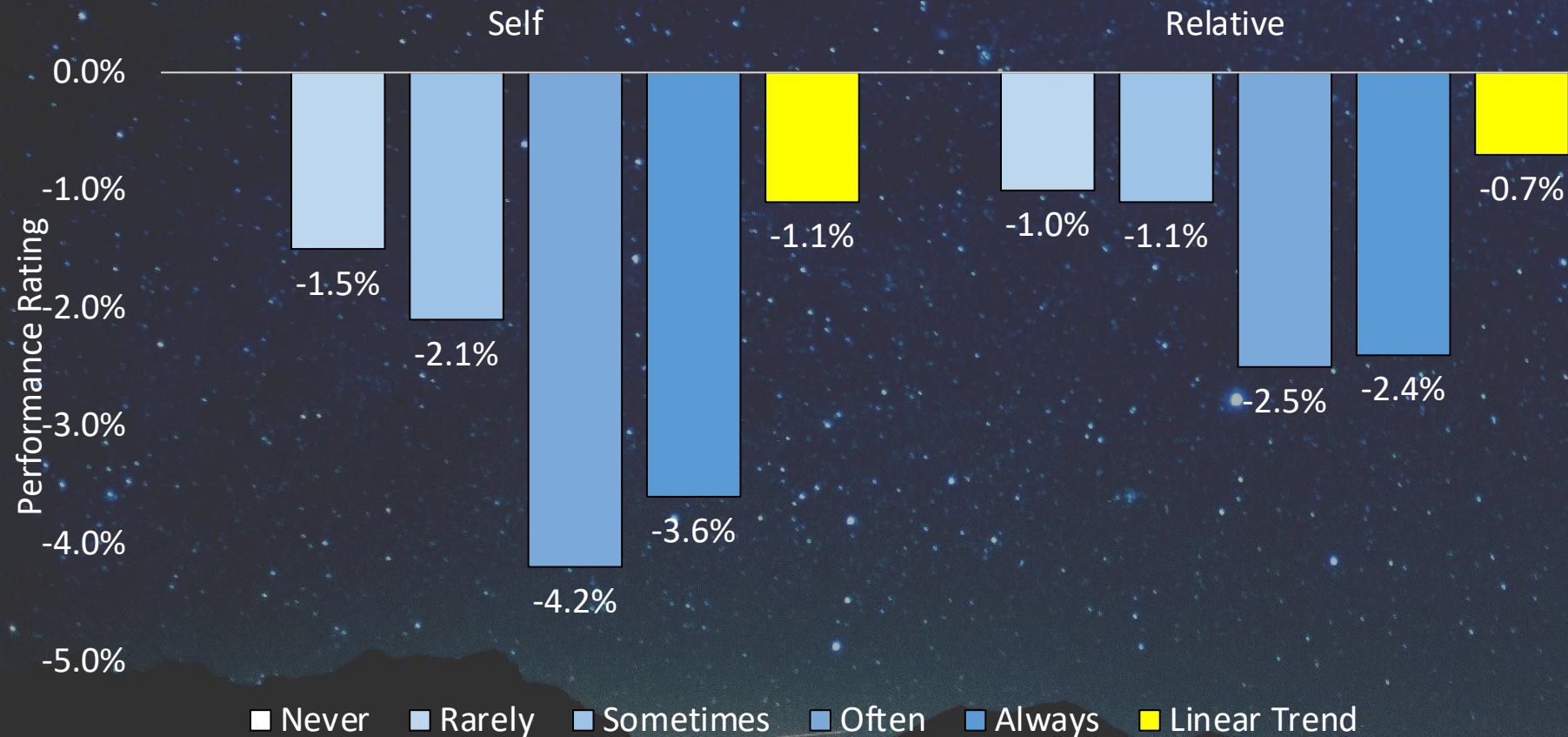
- Inability to process complex data streams
- Impaired ability to weigh risks and benefits
- Impaired ability to discern “good” info from “bad”
- Decreased ability to make long-term decisions
- Not all effects fixed with stimulants





# Worse performance

Those with poor sleep had worse performance



*Adjusted for age, sex, race/ethnicity, education, income, and overall health*



# Higher healthcare costs





# And as sleep gets worse...

After a 1-year follow up, if sleep got worse:

- More missed days
- More missed part days
- Decreased performance
- Decreased relative performance
- Additional \$189 in spending per category





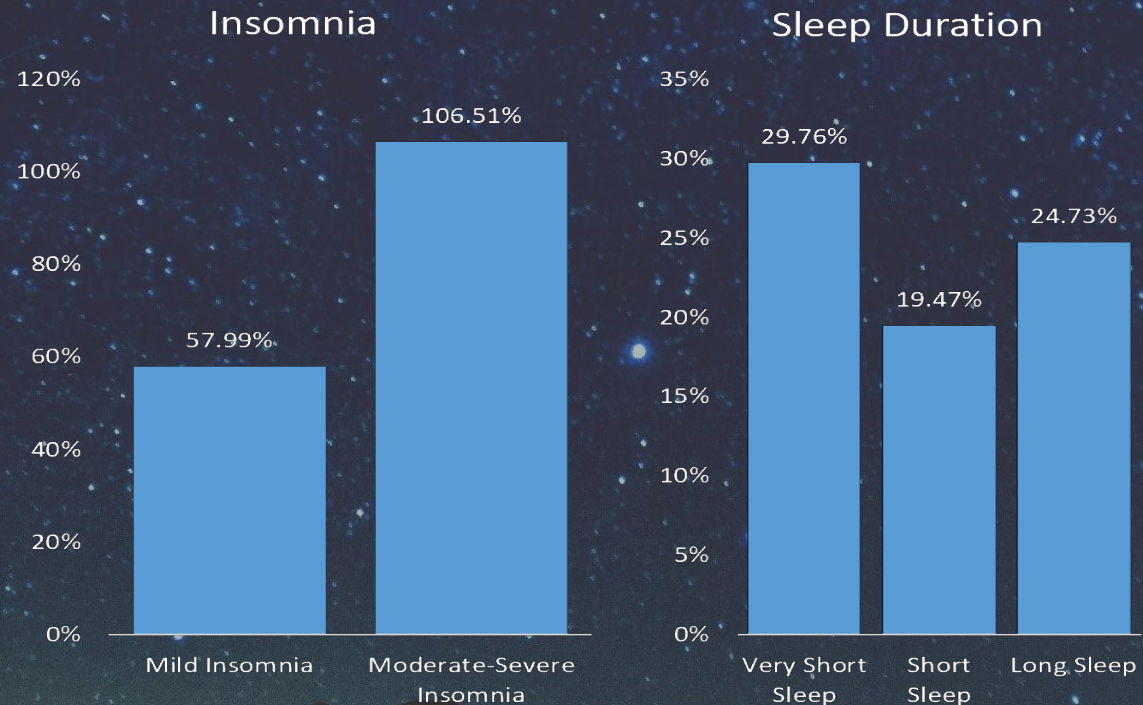
# Productivity loss

In 1,007 adults age 22-60, productivity loss associated with insufficient sleep, insomnia, daytime sleepiness, long sleep, and snoring

Across domains:

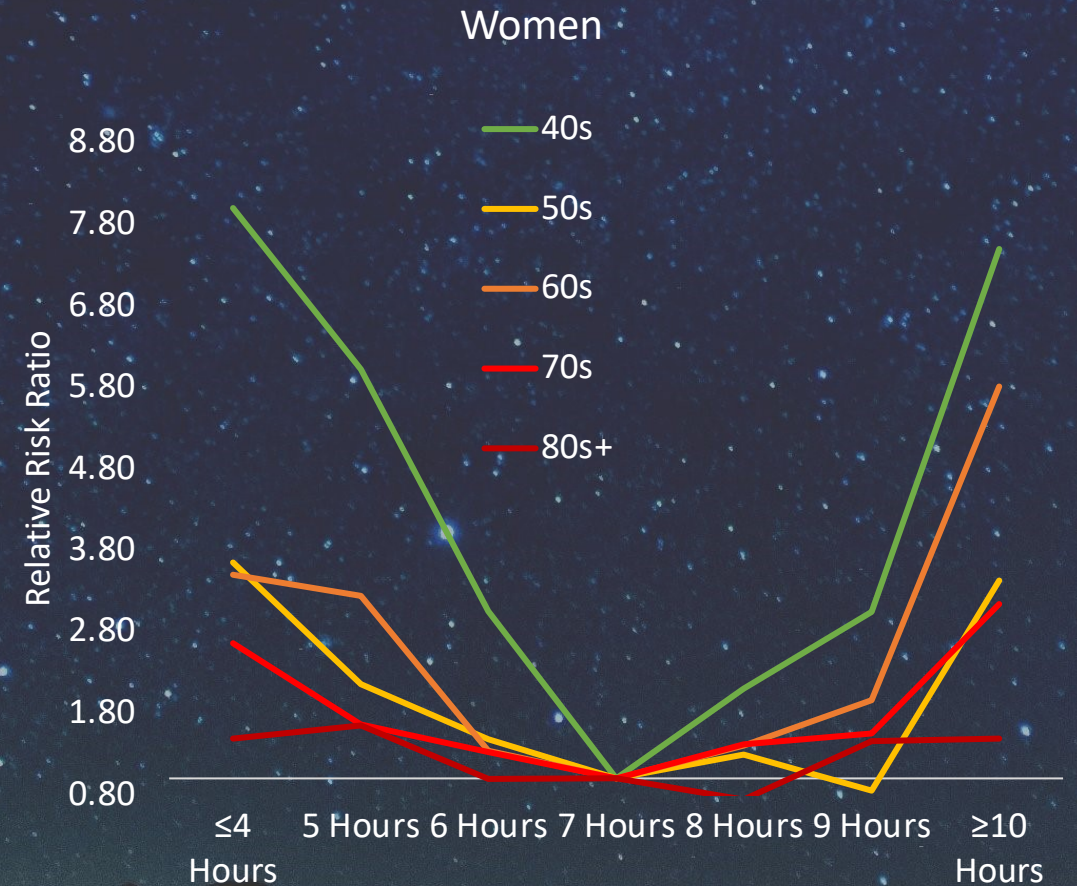
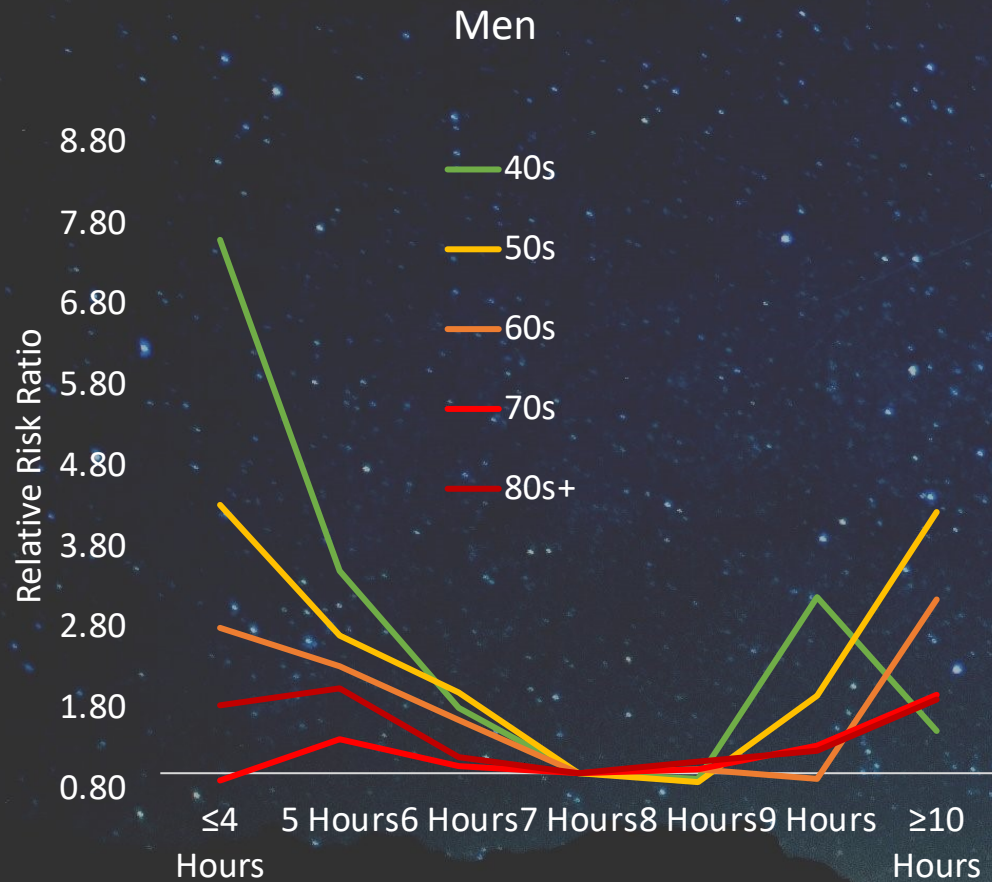
- Health or physical condition
- Caring for others
- Lack of resources
- Issues with coworker
- Too much to do/Lack of time
- Issues with supervisor
- Personal problems/Worries
- Depression/Anxiety
- Financial Stress/Concerns
- Technical Issues
- Lack of training

**Only slight moderation by caffeine**





# Perceived cognitive decline

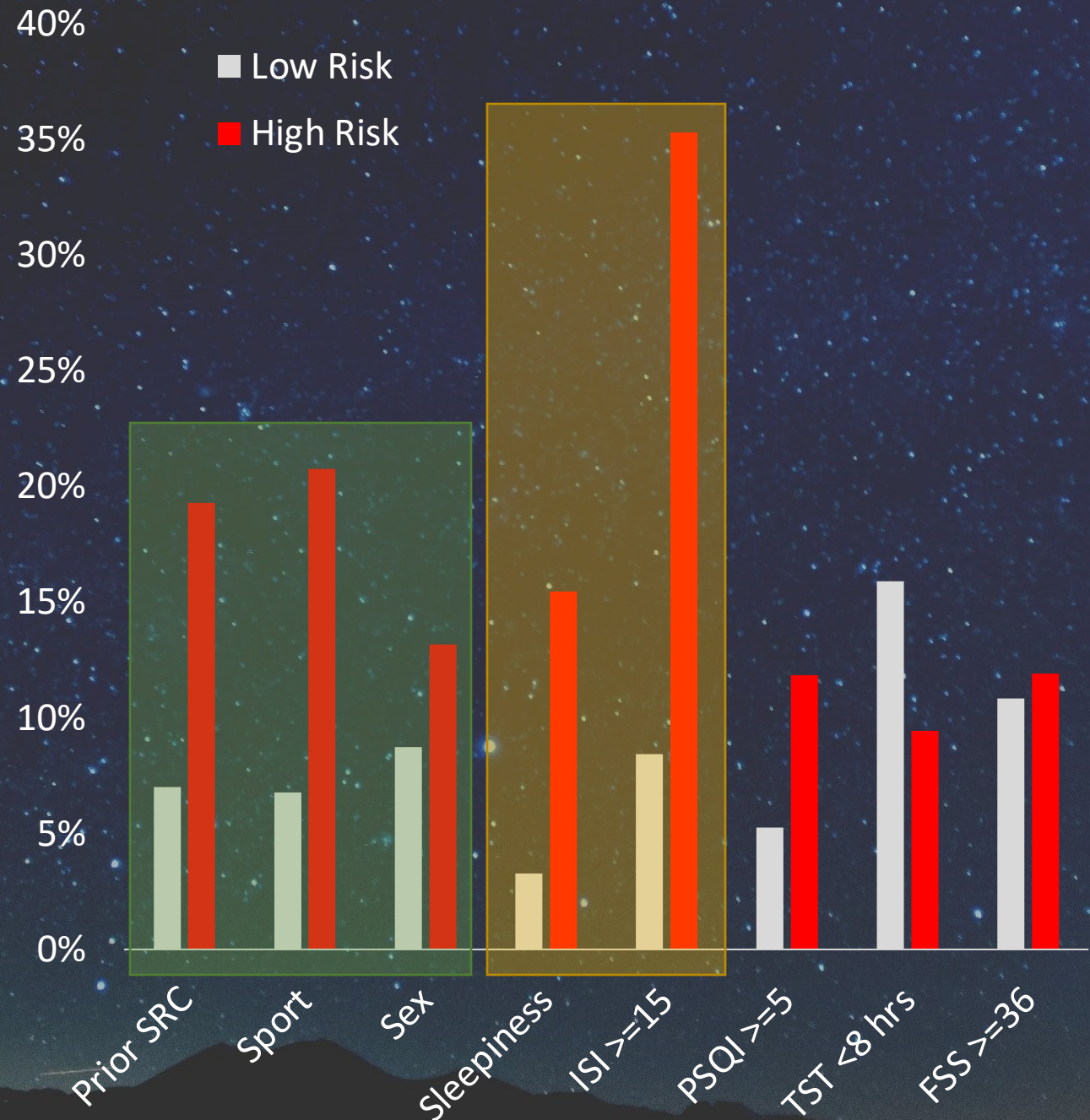




# Incident injuries

Baseline insomnia and/or daytime sleepiness were associated with incident sports-related concussion risk

- This relationship was stronger than that seen for prior concussion history and sport played
- Implications for baseline screening of sleep problems





# Sleep and mental health

The relationship between insomnia and depression is one of the most well-established findings in all sleep research

Poor sleep quality is associated with every single symptom of depression

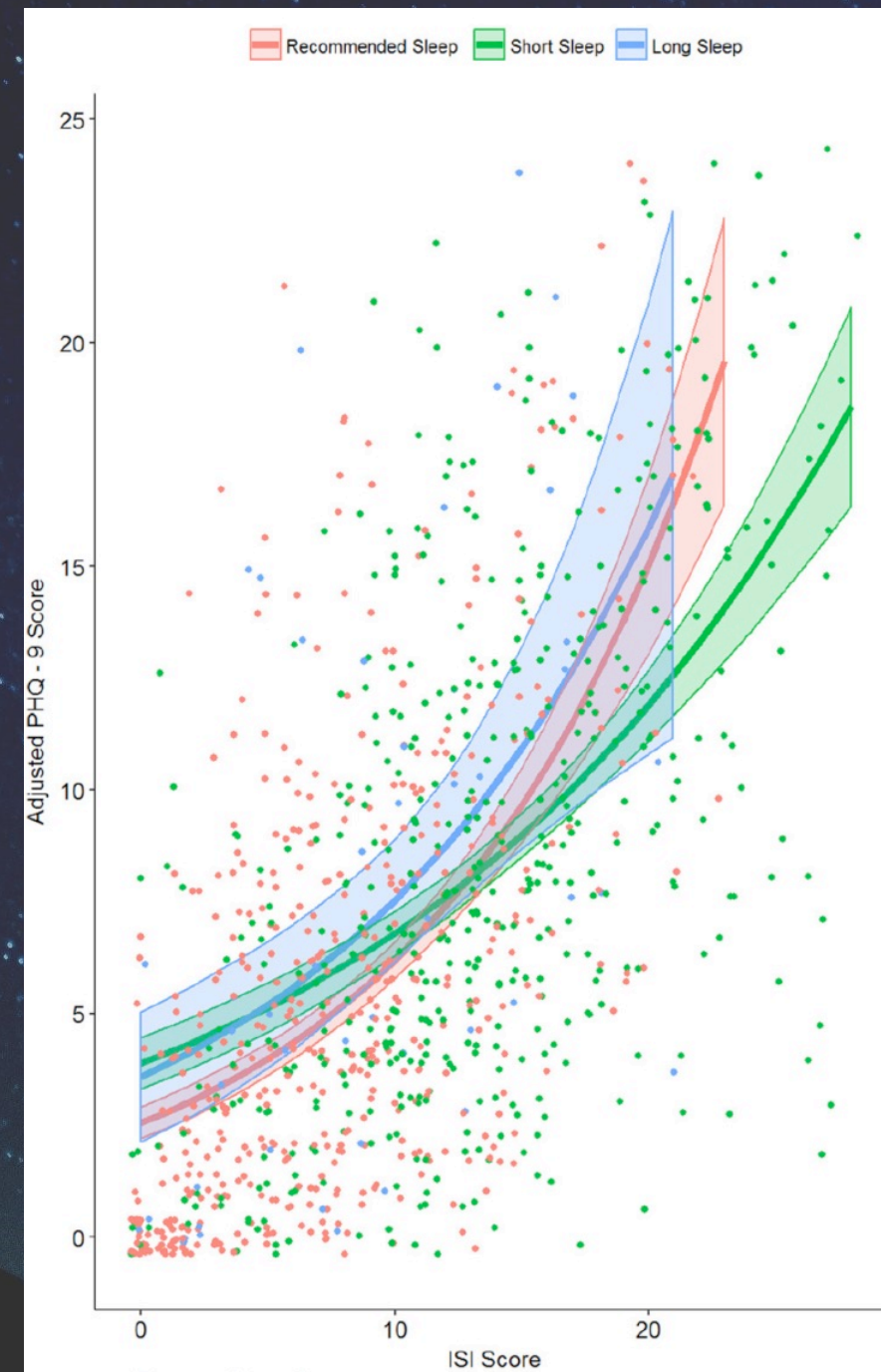
Adjusted associations between sleep, wake, and perception symptoms of insomnia and depressive symptoms

Insomnia symptoms	OR	95% CI	P
<i>Item 1: Anhedonia</i>			
Sleep symptoms	0.993	0.912–1.080	0.868
Daytime symptoms	1.362	1.214–1.528	<0.001
Perception symptoms	1.212	1.061–1.385	0.005
<i>Item 2: Depressed Mood</i>			
Sleep symptoms	1.073	0.989–1.165	0.088
Daytime symptoms	1.176	1.055–1.311	0.003
Perception symptoms	1.239	1.091–1.408	0.001
<i>Item 3: Sleep disturbances</i>			
Sleep symptoms	1.296	1.185–1.417	<0.001
Daytime symptoms	1.160	1.030–1.305	0.014
Perception symptoms	1.542	1.345–1.767	<0.001
<i>Item 4: Tiredness</i>			
Sleep symptoms	0.967	0.891–1.050	0.425
Daytime symptoms	1.474	1.319–1.647	<0.001
Perception symptoms	1.361	1.202–1.541	<0.001
<i>Item 5: Appetite symptoms</i>			
Sleep symptoms	1.124	1.039–1.216	0.004
Daytime symptoms	1.109	0.999–1.231	0.052
Perception symptoms	1.260	1.116–1.423	<0.001
<i>Item 6: Feeling of failure</i>			
Sleep symptoms	0.994	0.920–1.074	0.889
Daytime symptoms	1.159	1.045–1.285	0.005
Perception symptoms	1.294	1.147–1.460	<0.001
<i>Item 7: Trouble concentrating</i>			
Sleep symptoms	1.052	0.967–1.143	0.236
Daytime symptoms	1.299	1.159–1.457	<0.001
Perception symptoms	1.108	0.971–1.264	0.127
<i>Item 8: Psychomotor symptoms</i>			
Sleep symptoms	1.200	1.082–1.331	0.001
Daytime symptoms	1.286	1.119–1.478	<0.001
Perception symptoms	0.991	0.842–1.167	0.915
<i>Item 9: Suicidal ideation</i>			
Sleep symptoms	1.153	1.028–1.292	0.015
Daytime symptoms	1.224	1.050–1.426	0.010
Perception symptoms	1.085	0.903–1.304	0.381



# Insomnia and short sleep

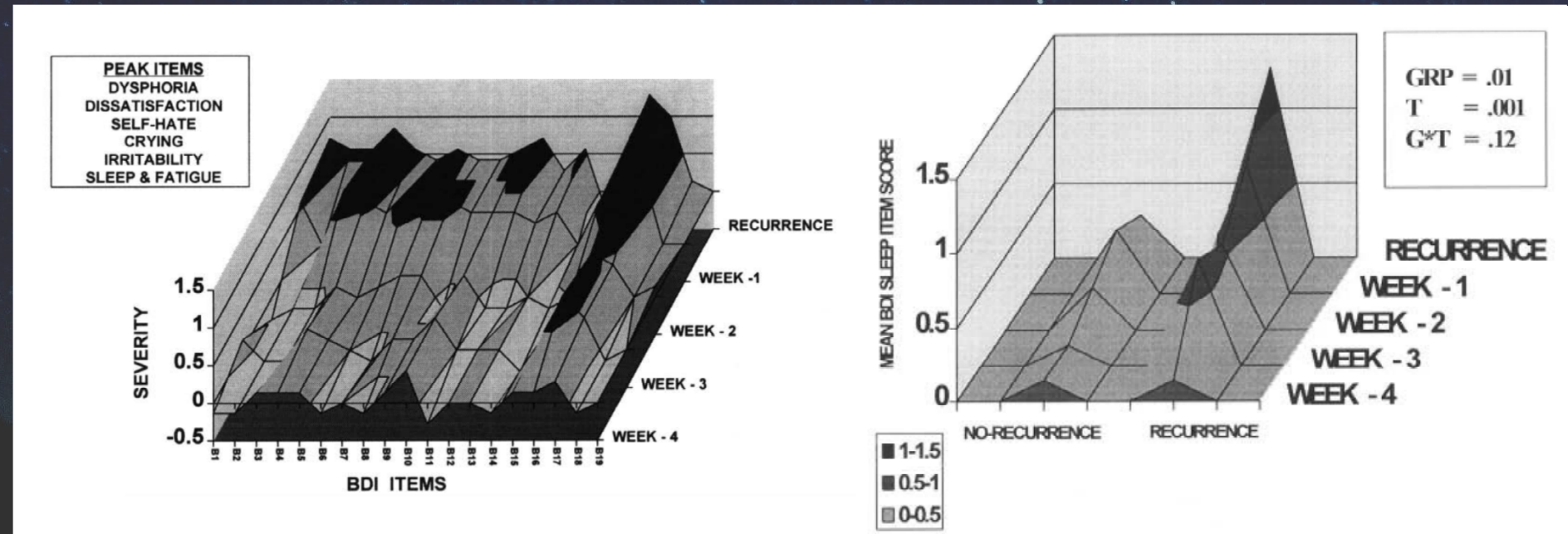
- Insomnia is positively associated with depressed mood
- Short sleep duration is also independently associated with depressed mood
- Long sleep is also associated with depressed mood
- In short sleepers, relationship between insomnia and depression is actually weaker





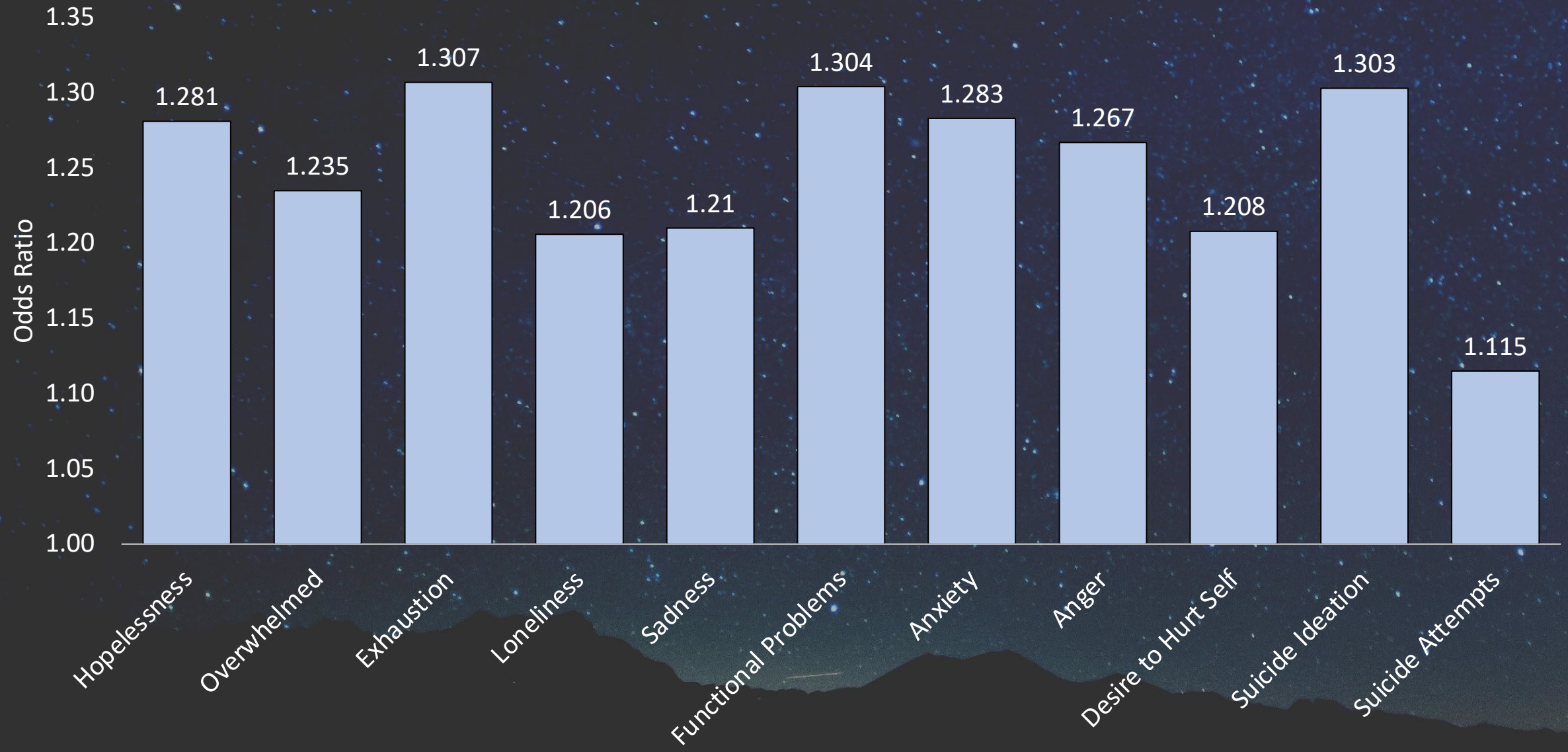
# Insomnia and onset of depressive episodes

Insomnia predicts the onset of depressive episodes





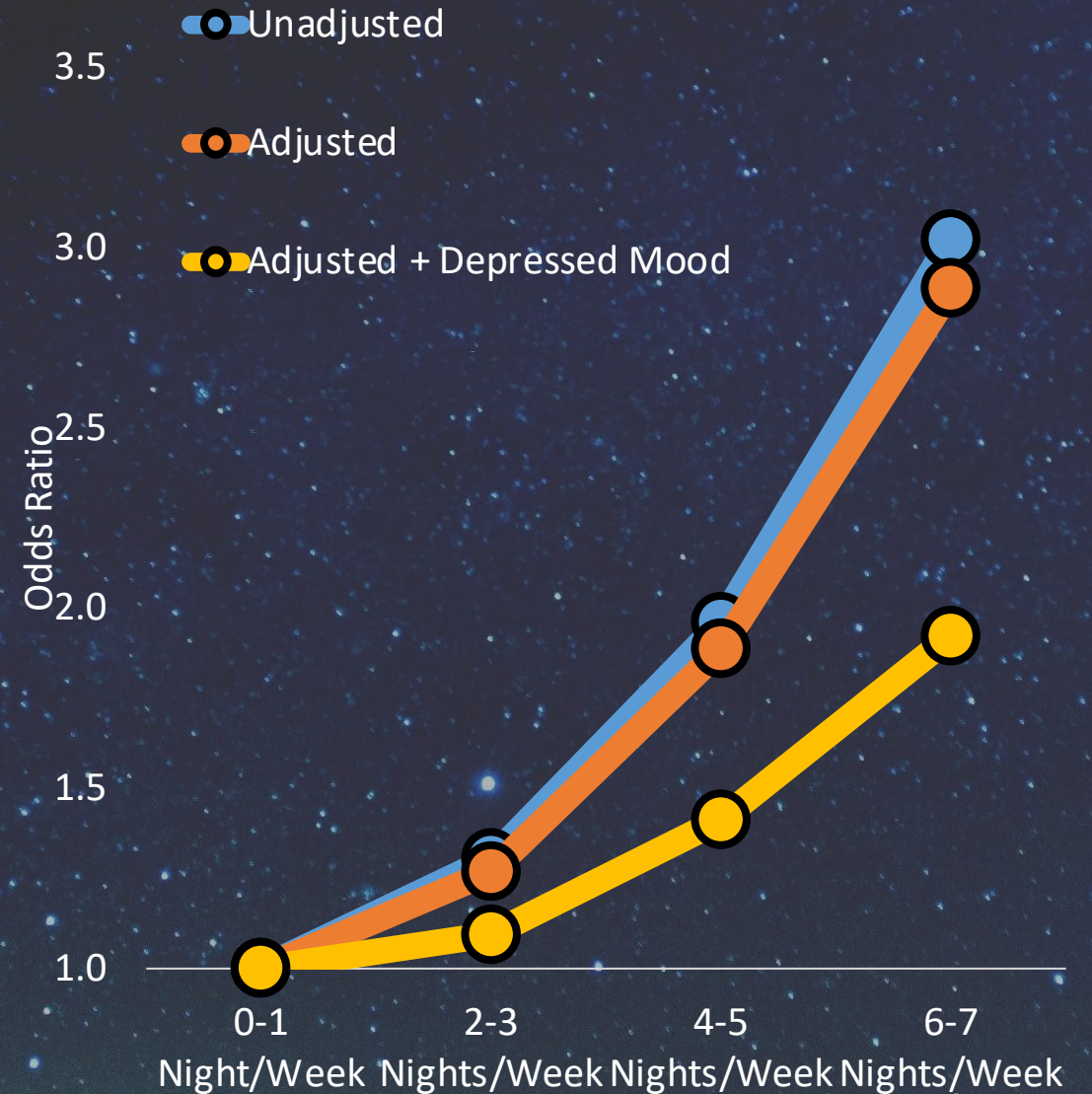
# Mental health in young adults





# Mental health

In young adults, each additional night of insufficient sleep was associated with increased risk of suicide ideation



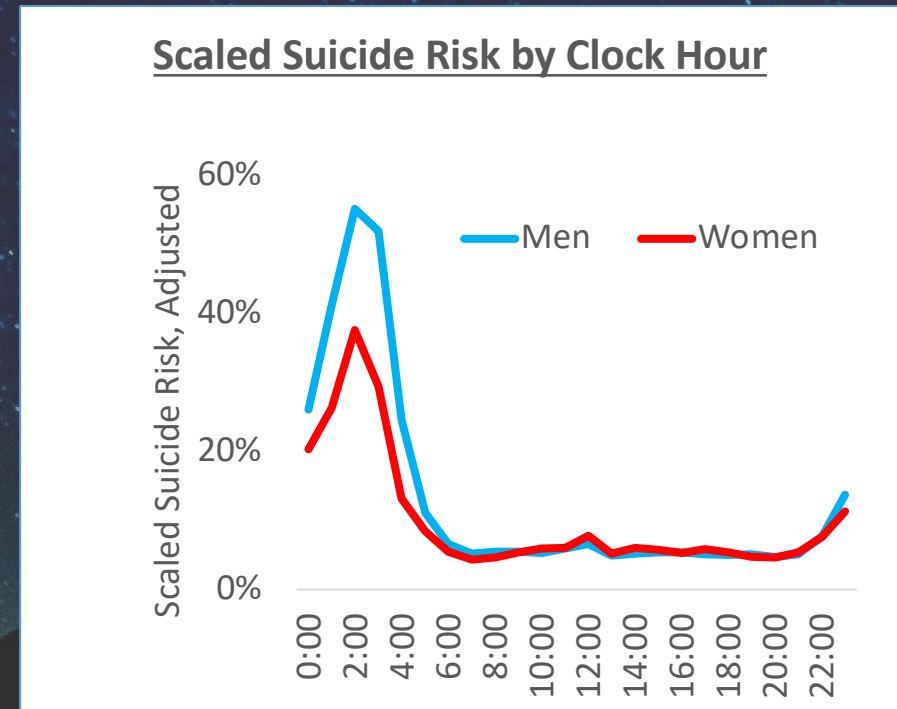


# Insomnia and suicide

Data across 39 studies shows that insomnia in particular is associated with a 2.8-fold likelihood of suicide ideation, 3.5-fold likelihood of suicide attempts, and 2.4-fold likelihood of death by suicide

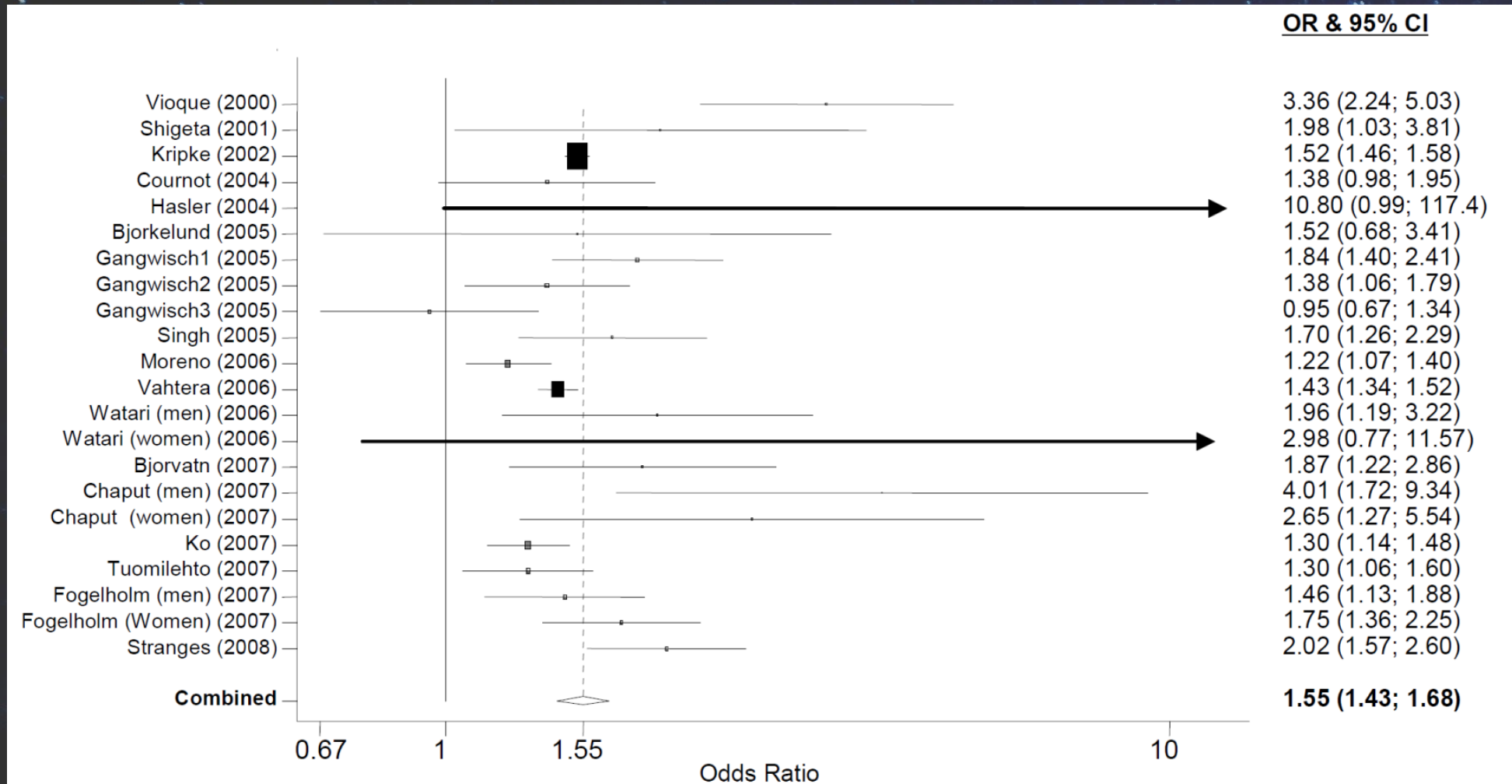
Reasons for this are not clear, but simply being awake at night may represent a unique risk factor for suicide

CDC data from 19 states:



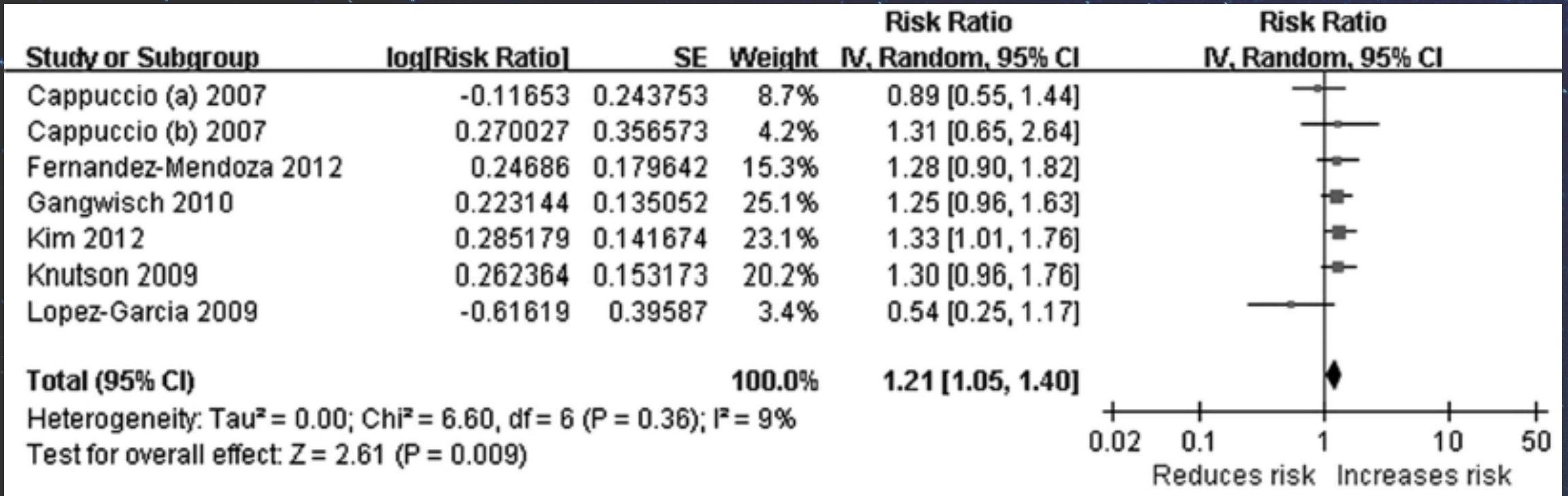


# Incident obesity



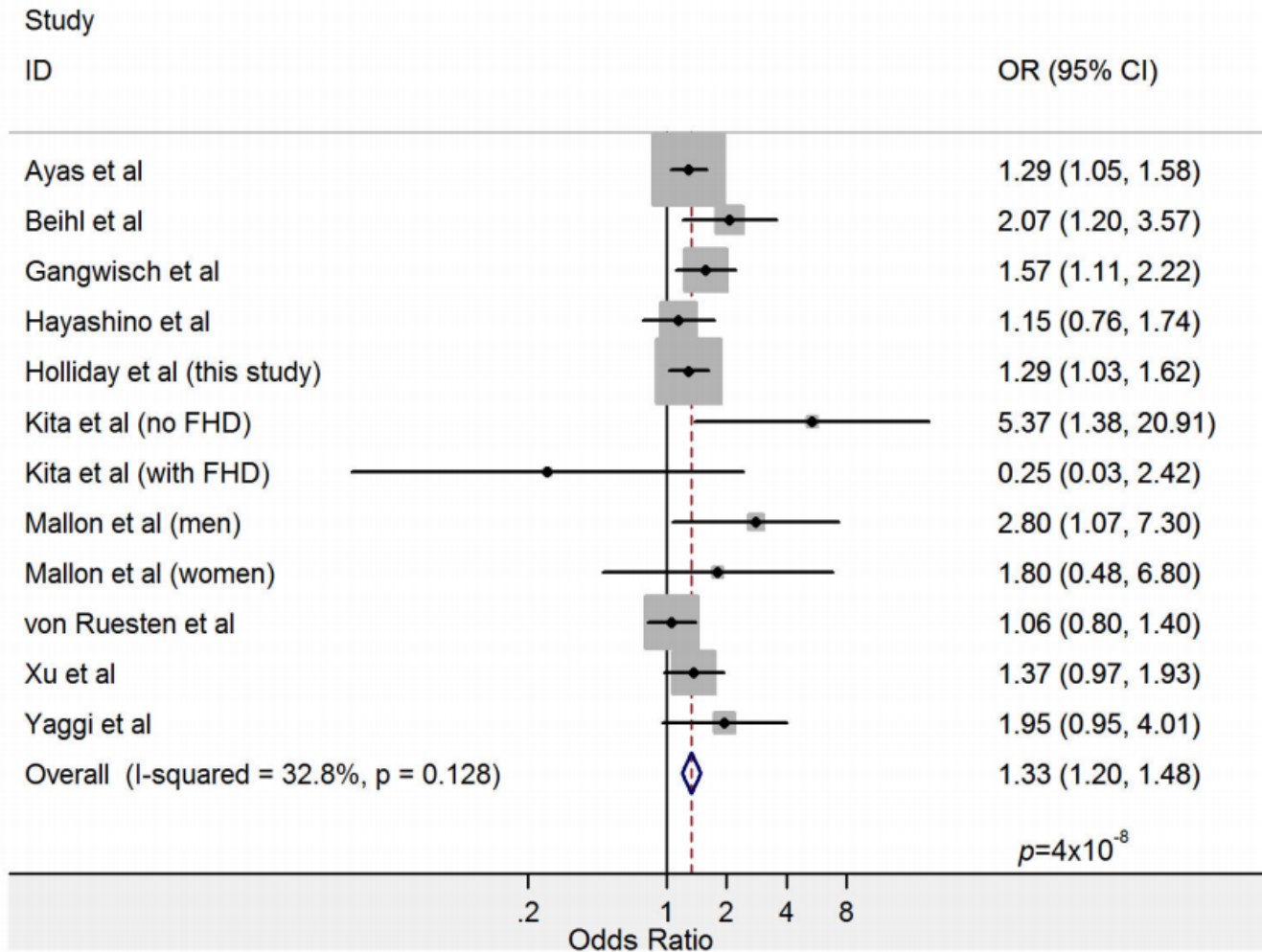


# Incident hypertension





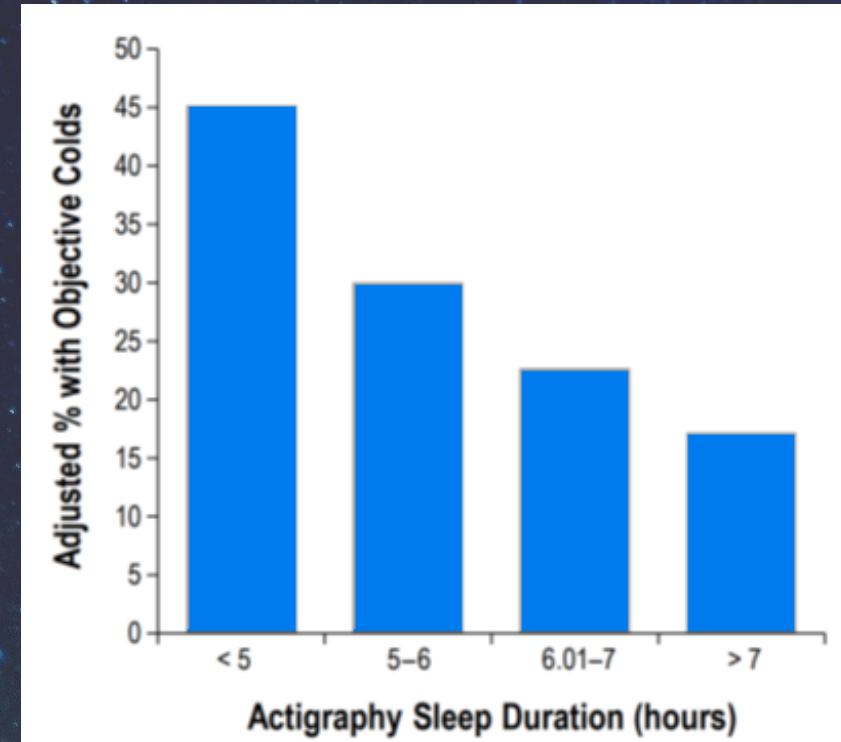
# Incident diabetes





# Sleep protects the immune system

- Sleep health is related to foundational immunologic functions
  - Sleep health impacts likelihood of contracting illness
  - Sleep health impacts recovery from illness
- Exposures during the day are processed and consolidated during sleep



Prather et al., 2015



# Sleep changes during COVID





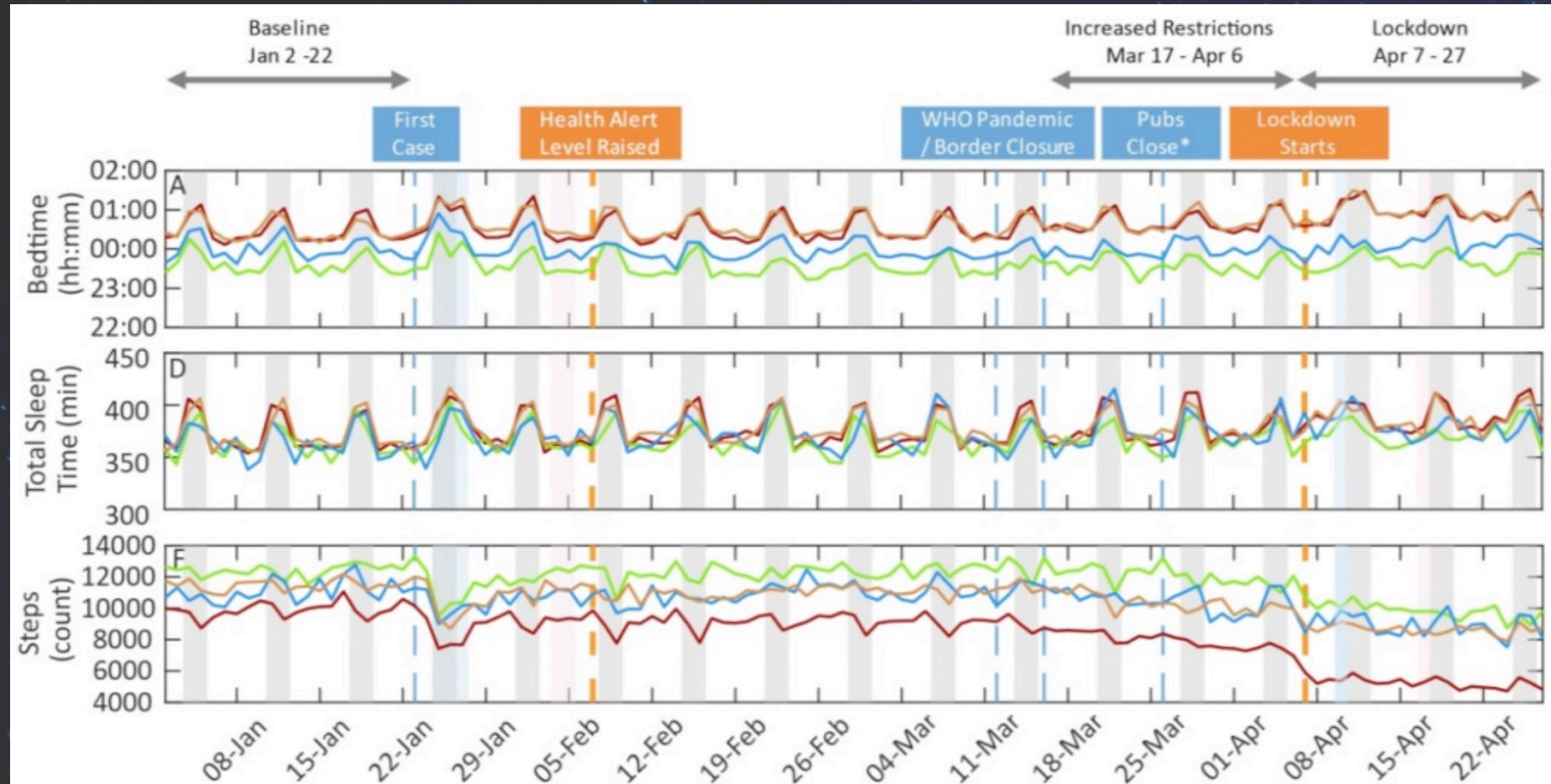
# Changes to sleep patterns

- Difficulty detaching at night
- Difficulty with awakenings at night
- Altered daily activity rhythms and light exposure
- Vivid dreams and nightmares



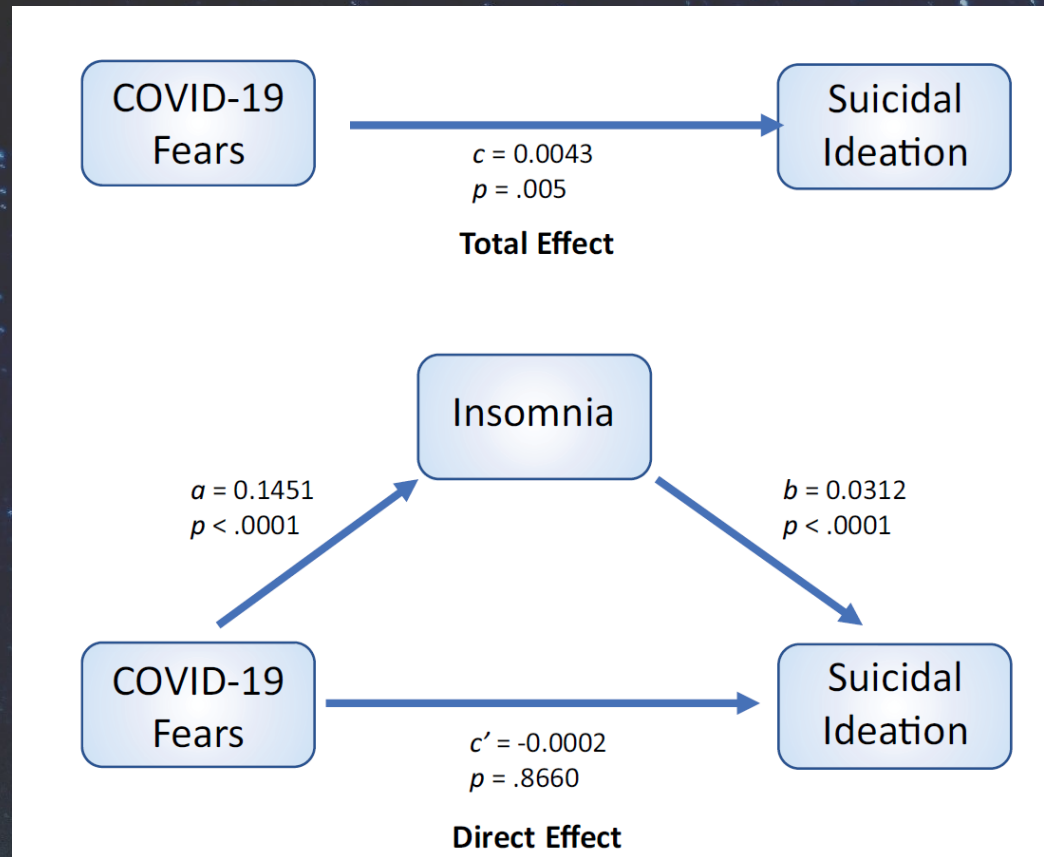


# Sleep during lockdown



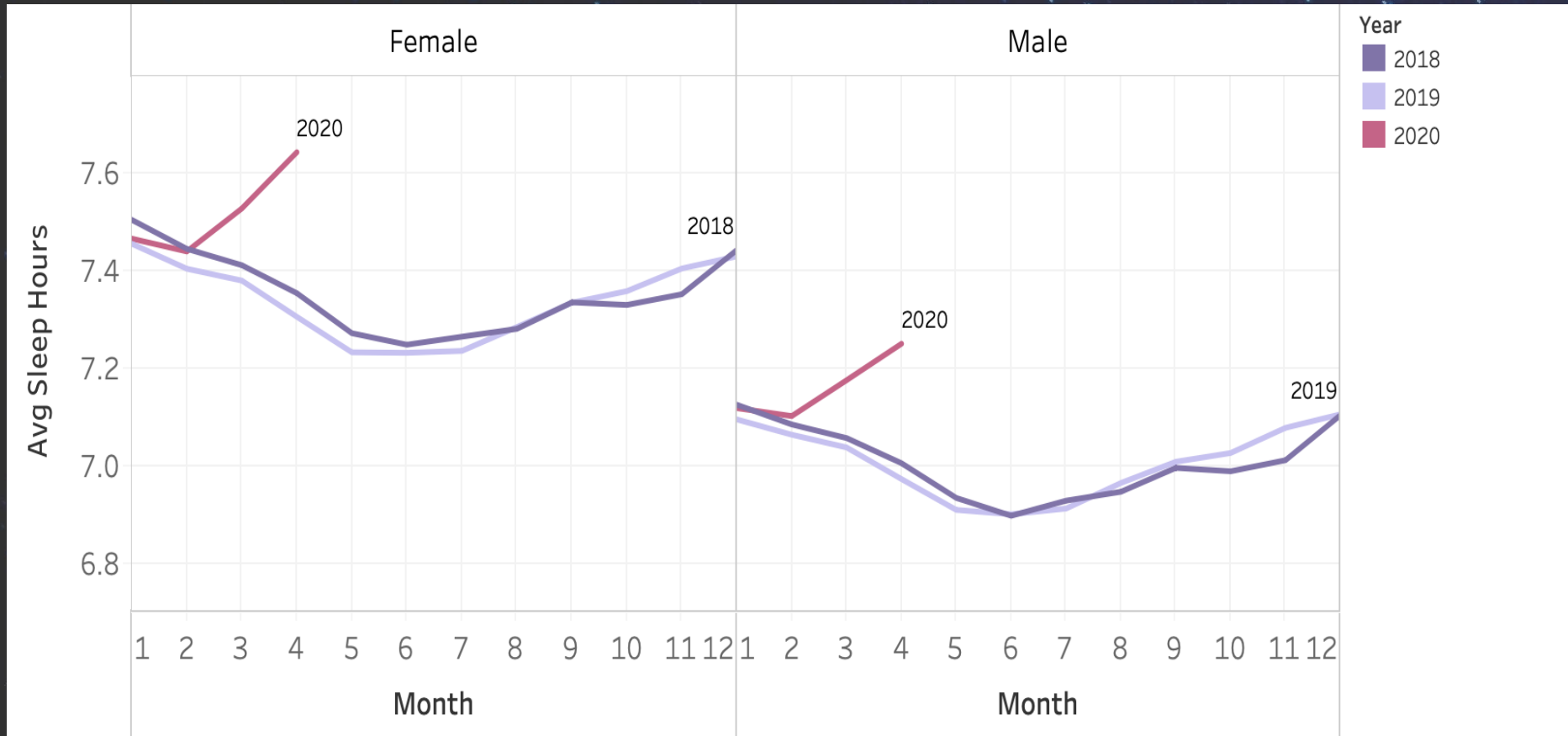


# Sleep and mental health during COVID



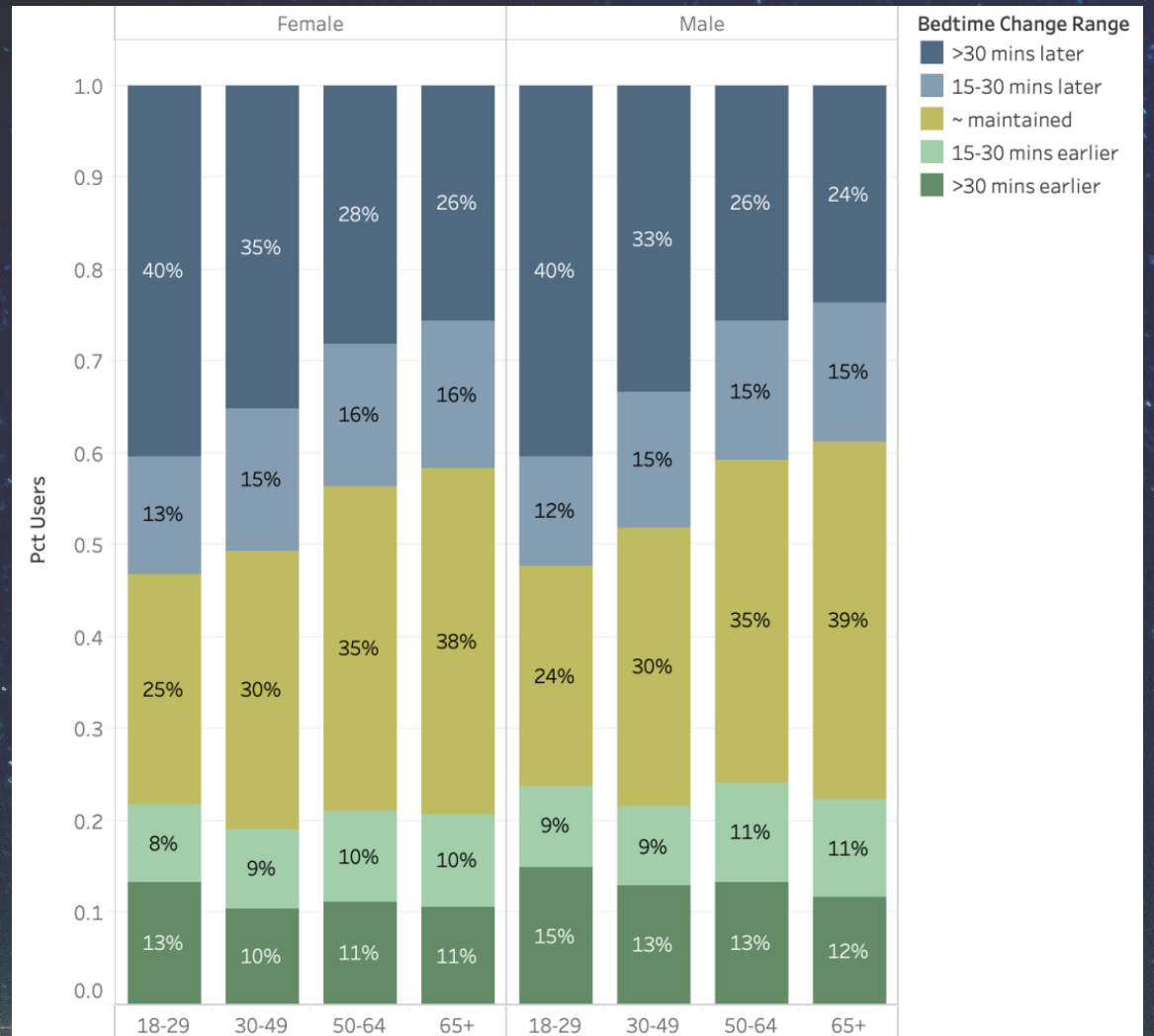
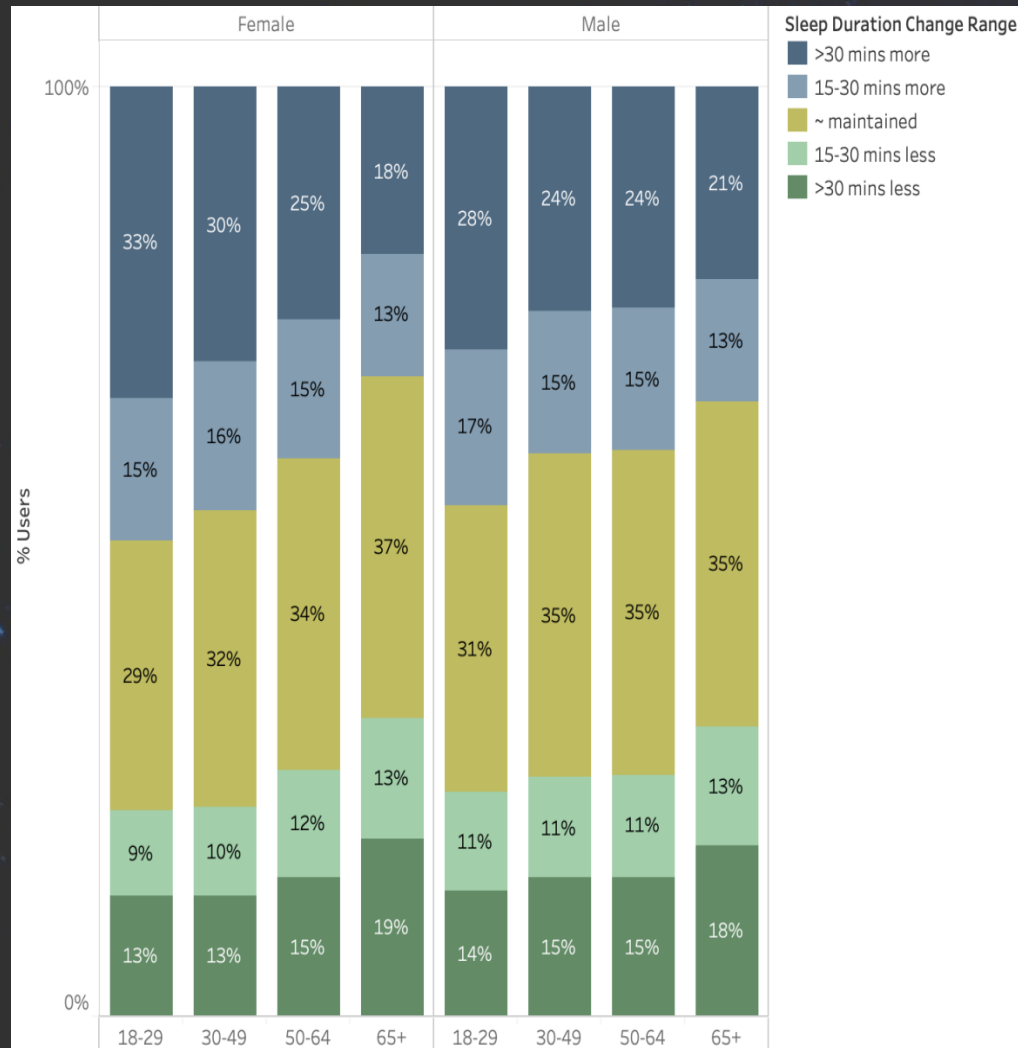


# Fitbit data: 2020 is different



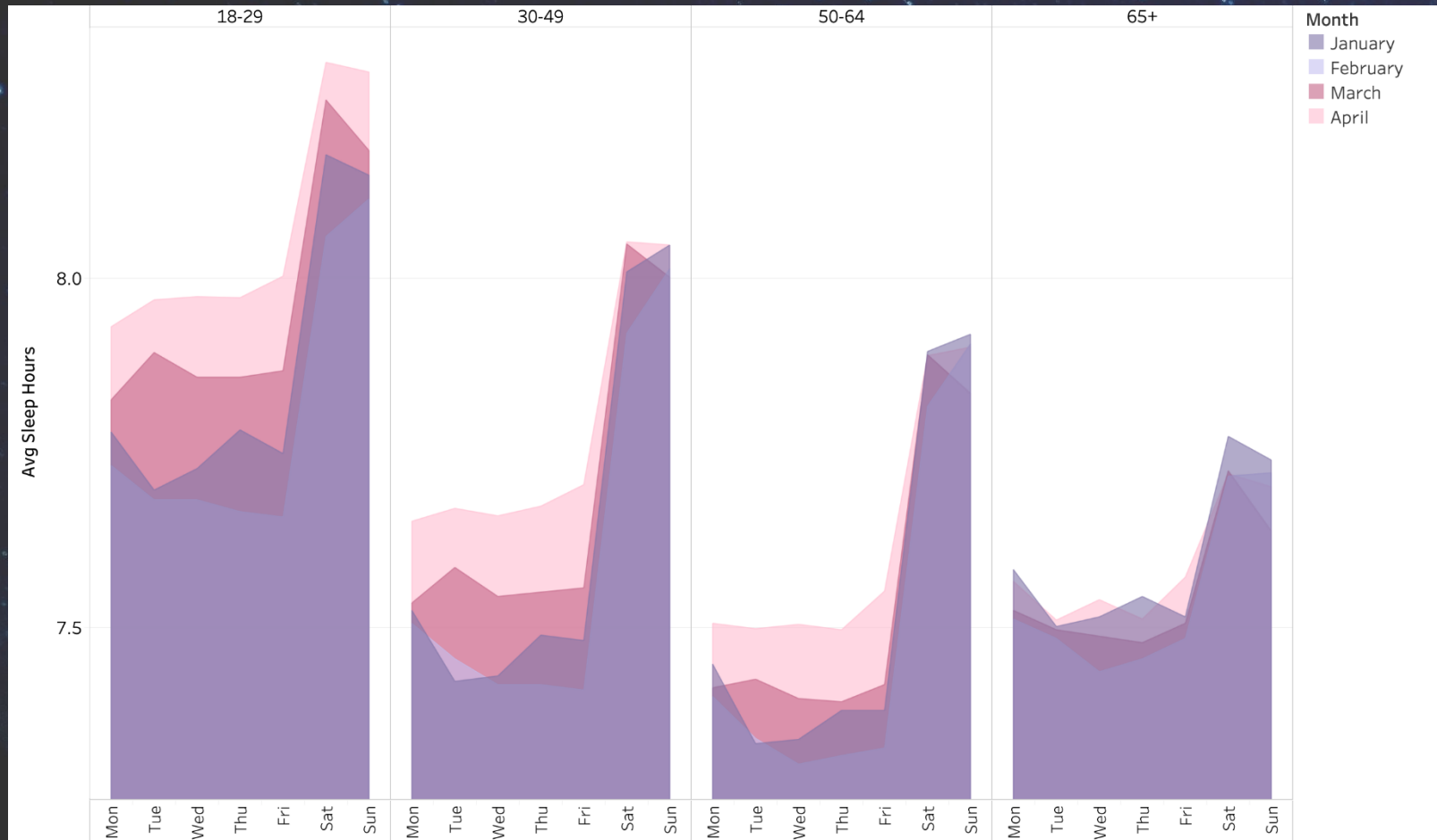


# Changes to sleep duration and bedtime

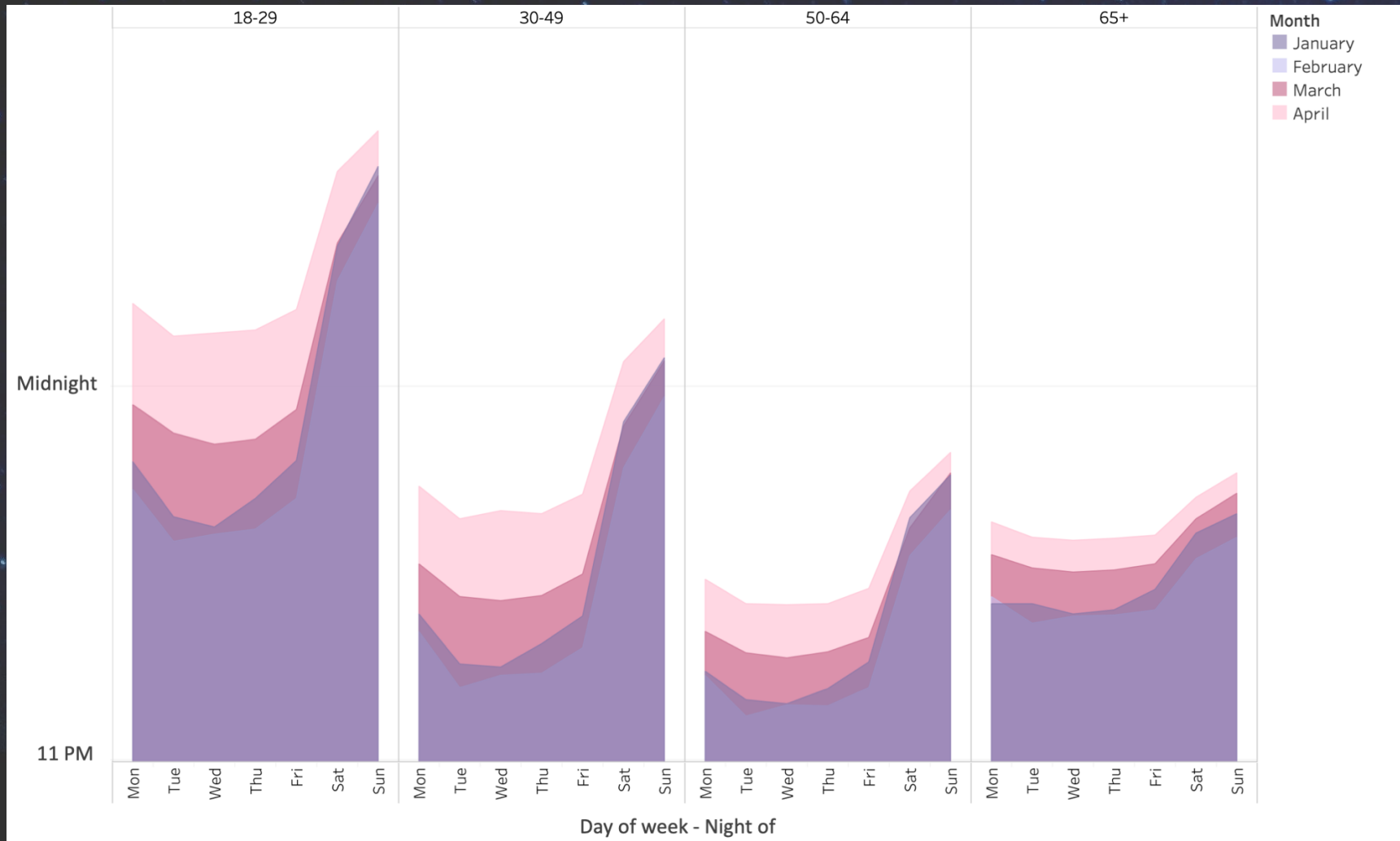




# Sleep duration increasing

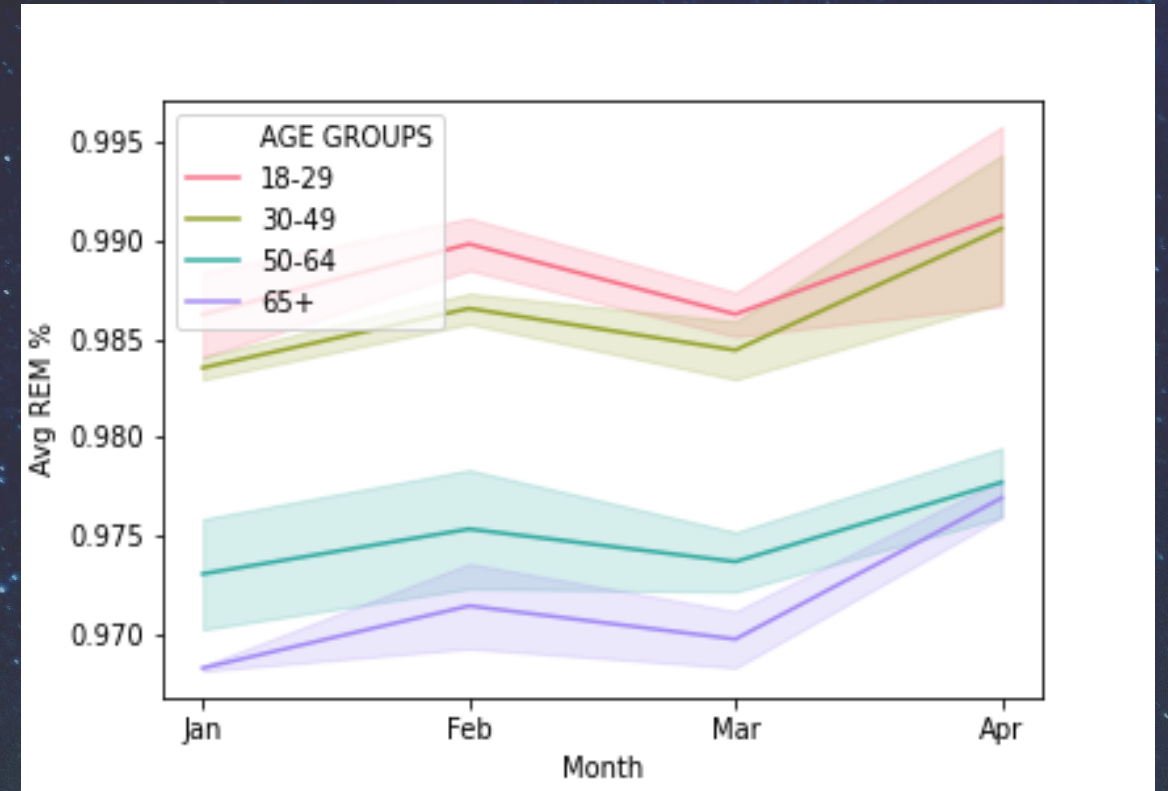
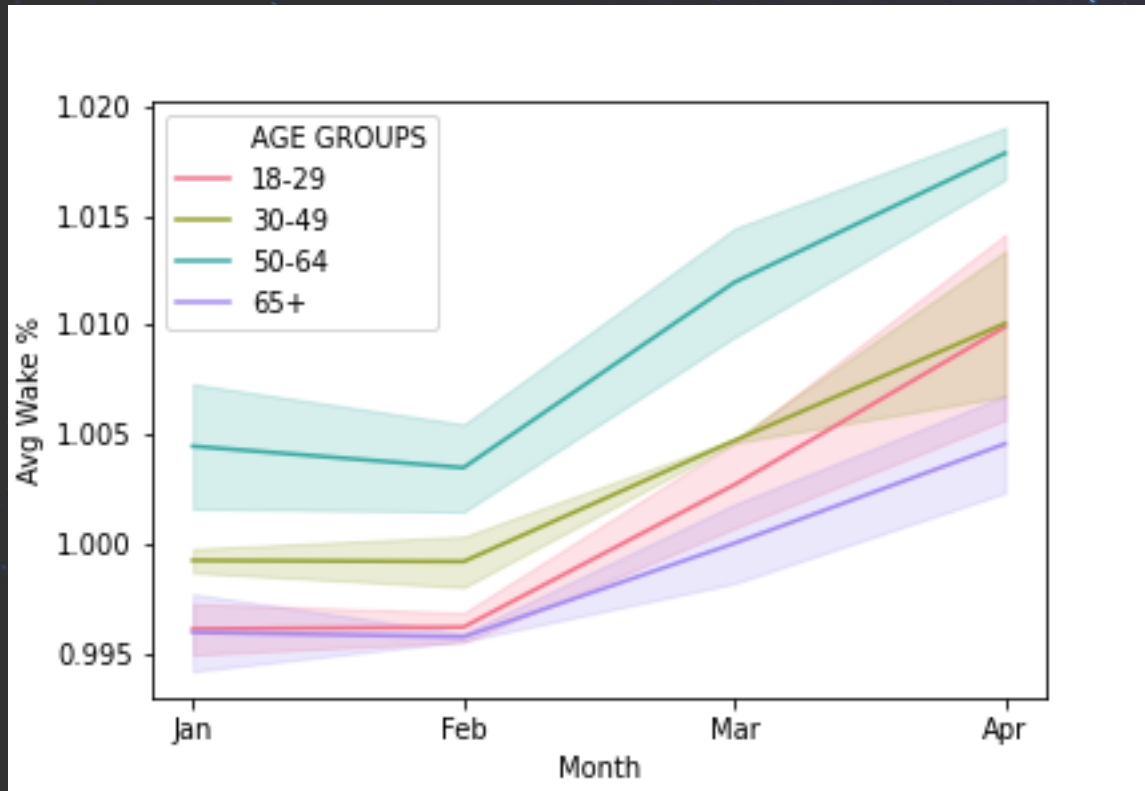


# Staying up later





# Fitbit data: Sleep is changing



# Intersecting problems

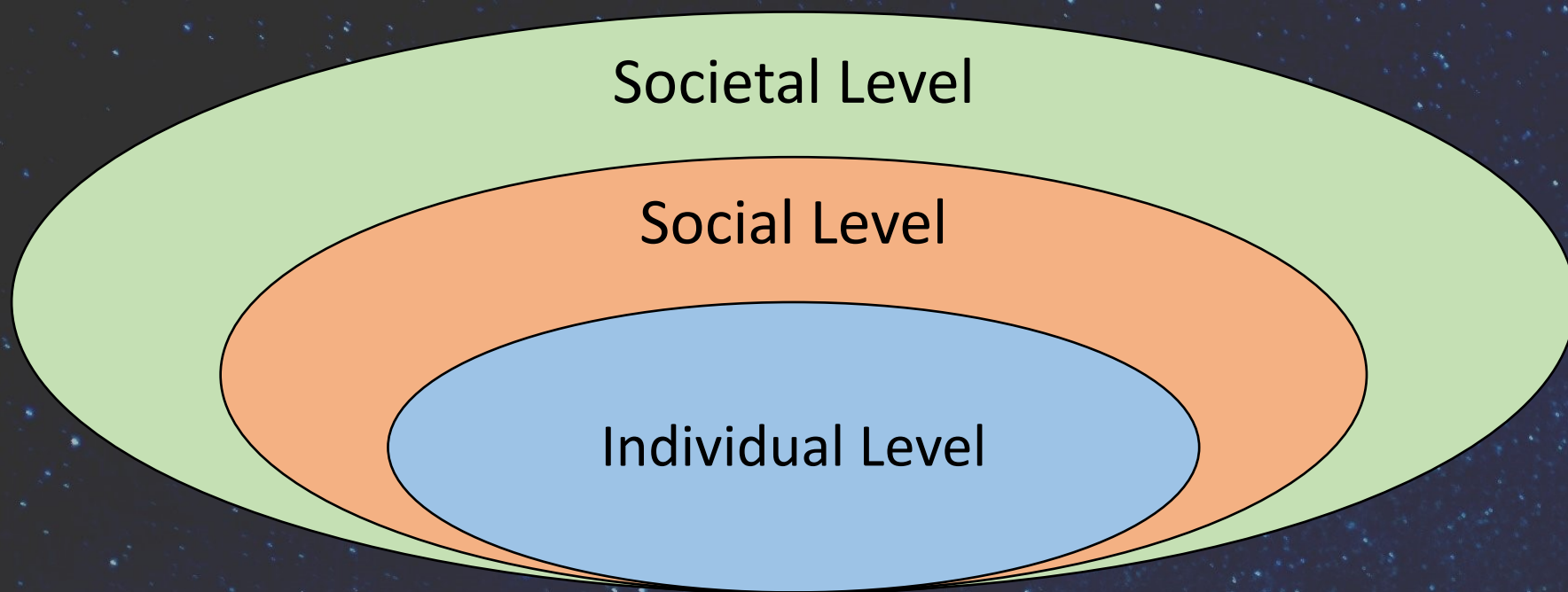
Sleep loss is related to both poor health and impaired brain function

It is possible that these effects overlap

Many health conditions are made worse by increased stress and greater difficulty making healthy decisions







**SLEEP**

Metabolic  
Health

Cardiovascular  
Health

Immunologic  
Health

Mental  
Health

Behavioral  
Health

Cognitive  
Health

# How to recognize sleep problems

Insomnia disorder

Sleep apnea

Circadian rhythm disorders

Other sleep disorders

Insufficient sleep

Daytime sleepiness





# Insomnia Disorder

- Persistent difficulty initiating and/or maintaining sleep
  - 30 / 30 / 3 rule
  - Includes daytime dysfunction
- Screen with Insomnia Severity Index and/or Sleep Diary
- Significant daytime impairments
  - Impairments in cognitive function, quality of life, physical performance, mental health, and inflammation
  - Associated with occupational injuries
- Issue of comorbid vs secondary insomnia
- Implications for treatment: CBTI, sleep hygiene, sedatives, other meds

Insomnia has taken over my life again and all you can say is "go to sleep". BITCH don't you think I've tried that?



your eCards  
someecards.com



# Sleep Apnea

- Difficulty maintaining airway patency during the night, leading to frequent respiratory events
  - Categorized based on AHI (events per hour)
- Risk factors for athletes include neck circumference, snoring, and daytime tiredness
  - Screen with STOP-BANG questionnaire but validity is limited
- Significant impairments
  - Cardiometabolic disease, inflammation, injuries/accidents, physical and performance, fatigue, depression
- Treatment with CPAP but other options exist



# Circadian rhythm disorders

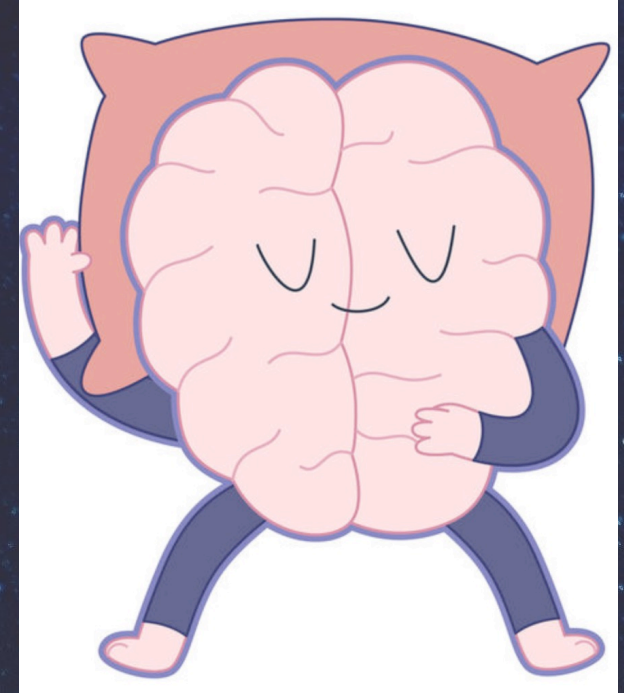
- Delayed sleep-wake phase is common, especially among young adults
  - Associated with depression, insomnia, and cardiometabolic risk
- Advanced sleep-wake phase is less common
  - Associated with anxiety and mood symptoms
- Irregular circadian rhythm and shift work sleep disorder may also exist in athletes who are constantly shifting schedules
- Important roles of regularity, light and activity rhythms, and travel
- Treatment usually with light and melatonin
- Implications for metabolism and energy balance





# Other sleep disorders

- Restless legs syndrome
- Hypersomnia disorders
  - Narcolepsy
  - Idiopathic hypersomnia
- Parasomnias
  - NREM: Sleepwalking, night terrors
  - REM: Nightmares, REM behavior disorder





# Insufficient sleep

- Amount of sleep for a typical health adult is about 7 hours
- But athletes may need more

## CONSENSUS STATEMENT

### Recommended Amount of Sleep for a Healthy Adult: A Joint Consensus Statement of the American Academy of Sleep Medicine and Sleep Research Society

**Consensus Conference Panel:** Nathaniel F. Watson, MD, MSc, Moderator<sup>1</sup>; M. Safwan Badr, MD<sup>2</sup>; Gregory Belenky, MD<sup>3</sup>; Donald L. Bliwise, PhD<sup>4</sup>; Orfeu M. Buxton, PhD<sup>5</sup>; Daniel Buysse, MD<sup>6</sup>; David F. Dinges, PhD<sup>7</sup>; James Gangwisch, PhD<sup>8</sup>; Michael A. Grandner, PhD, MSTR, CBM<sup>9</sup>; Clete Kushida, MD, PhD<sup>9</sup>; Raman K. Malhotra, MD<sup>10</sup>; Jennifer L. Martin, PhD<sup>11</sup>; Sanjay R. Patel, MD, MSc<sup>12</sup>; Stuart F. Quan, MD<sup>12</sup>; Esra Tasali, MD<sup>13</sup>

**Non-Participating Observers:** Michael Twery, PhD<sup>14,\*</sup>; Janet B. Croft, PhD<sup>15,\*</sup>; Elise Maher, RPSGT<sup>16,\*</sup>

**American Academy of Sleep Medicine Staff:** Jerome A. Barrett<sup>17</sup>; Sherene M. Thomas, PhD<sup>17</sup>; Jonathan L. Heald, MA<sup>17</sup>



Contents lists available at ScienceDirect

## Sleep Health

Journal of the National Sleep Foundation

journal homepage: <http://www.elsevier.com/locate/sleh>



### National Sleep Foundation's updated sleep duration recommendations: final report<sup>☆</sup>

Max Hirshkowitz, PhD<sup>a,b</sup>, Kaitlyn Whiton, MHS<sup>c,\*</sup>, Steven M. Albert, PhD<sup>d</sup>, Cathy Alessi, MD<sup>e,f</sup>, Oliviero Bruni, MD<sup>g</sup>, Lydia DonCarlos, PhD<sup>h</sup>, Nancy Hazen, PhD<sup>i</sup>, John Herman, PhD<sup>j</sup>, Paula J. Adams Hillard, MD<sup>k</sup>, Eliot S. Katz, MD<sup>l</sup>, Leila Kheirandish-Gozal, MD, MSc<sup>m</sup>, David N. Neubauer, MD<sup>n</sup>, Anne E. O'Donnell, MD<sup>o</sup>, Maurice Ohayon, MD, DSc, PhD<sup>p</sup>, John Peever, PhD<sup>q</sup>, Robert Rawding, PhD<sup>r</sup>, Ramesh C. Sachdeva, MD, PhD, JD<sup>s</sup>, Belinda Setters, MD<sup>t</sup>, Michael V. Vitiello, PhD<sup>u</sup>, J. Catesby Ware, PhD<sup>v</sup>



# When is sleep insufficient?

- Still difficult to tell, but often based on subjective reports of daytime symptoms (though this is likely insufficient)
  - More objective measures are still in development and have not been validated
- Insufficient sleep vs sleep deprivation
  - Importance of accumulated sleep debt





# Excessive daytime sleepiness

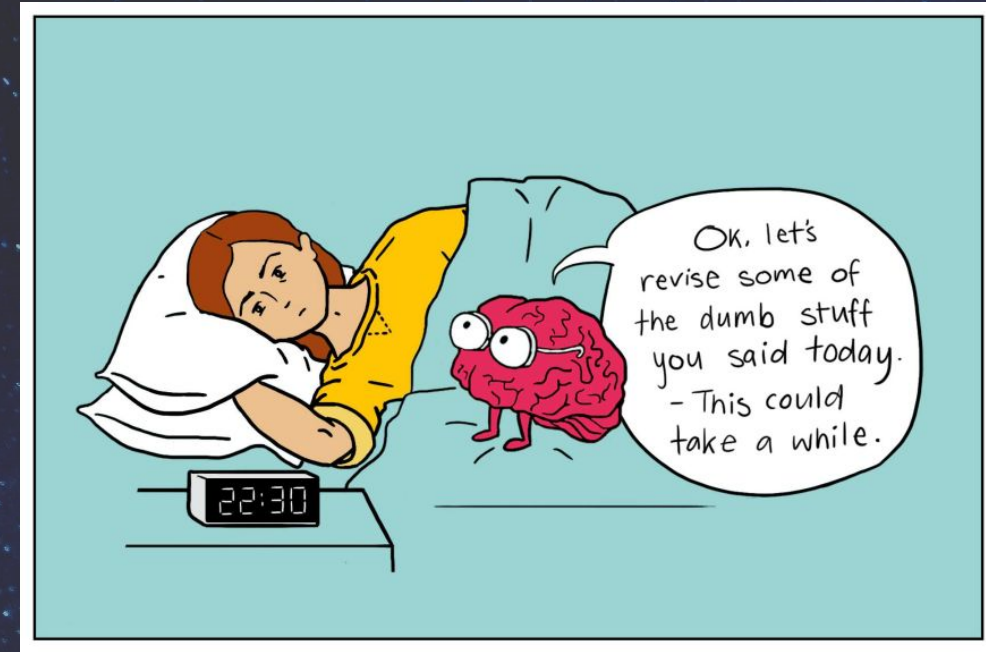
- Distinct from fatigue and tiredness
- Sleepiness reflects a propensity to fall asleep
- Does not always co-occur with tiredness or even fatigue
- Associated with depression symptoms
- Treatment usually just sleep improvement
  - Or caffeine, light, or other countermeasures
  - Sometimes becomes a disorder that requires medical treatment





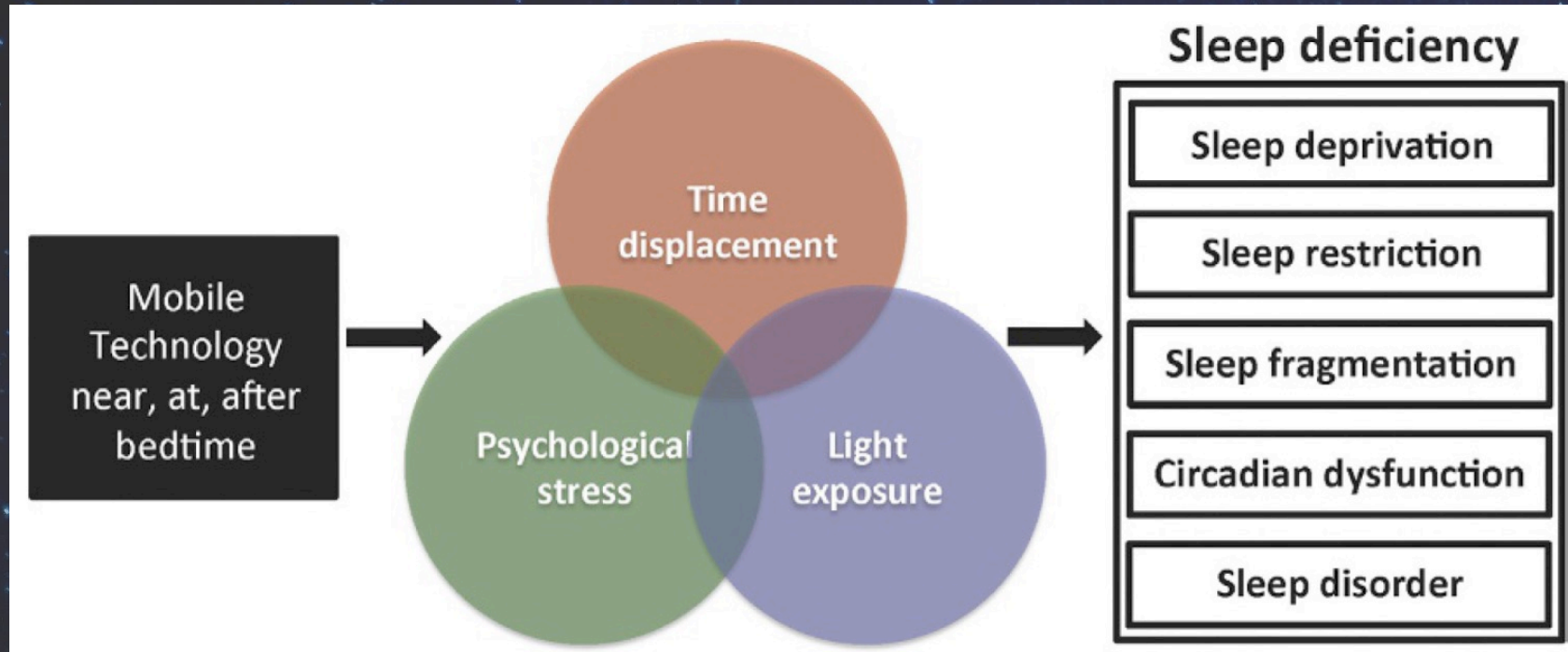
# How to turn your mind off

- Many people with insomnia have trouble “turning their mind off” and don’t know why
  - But most of the time, this is a result of accidentally programming your brain to do this in bed!
- What happens is, for one reason or another, something causes us to spend time awake in bed
  - But even when that original cause is gone, the insomnia takes on a life of its own because you “trained” your brain to be awake in bed
- You need to give yourself time to wind down
  - Plan for 30-60 minutes at least of less intense activity
  - Both mental and physical
  - Allow time for your mind to go over whatever it needs to





# Mobile technology





# Stimulus Control

Sleep

Sex

Television

Movie

Radio

Reading

Eating

Working

Arguing

Worrying

Talking

Doing bills

Smoking

Thinking

Ruminating

Planning

Clockwatching

Rehearsing

Replaying

Texting





# 10 sleep hygiene commandments

Thou shalt keep a regular schedule

Thou shalt exercise regularly but not too late at night

Thou shalt get light during the day and avoid it at night

Thou shalt keep your bedroom cool, dark and comfortable

Thou shalt not consume excessive foods or liquids in the evening

Thou shalt put down screens before getting ready for bed

Thou shalt not ingest caffeine, nicotine and alcohol at night

Thou shalt not go to bed angry or worried or upset

Thou shalt get rid of the clock

Thou shalt not nap too long or too late during the day





# Other recommendations and guidance

## **The Society of Behavioral Sleep Medicine (SBSM) COVID-19 Task Force: Objectives and Summary Recommendations for Managing Sleep during a Pandemic**

Earl Charles Crew , Kelly Glazer Baron , Michael A. Grandner , Carolyn E. Levers-Landis , Christina S. McCrae , Michael R. Nadorff , Sara Nowakowski , Skye Ochsner Margolies & Kathryn Hansen



# Recommendations in this document

- Managing new-onset (acute) insomnia
  - Remember stimulus control
  - Adopt behavioral and environmental controls: detect, detach, distract
  - Assess for maladaptive coping strategies
  - Enhance resources for coping with daytime stressors
- Managing delayed / irregular schedules
  - Encourage developing consistency where possible
  - Go outside for bright light in the morning
  - Establish social, dietary, and exercise routines
  - Avoid screens at night



# Recommendations in this document

- Managing nightmares
  - Recognize and address causes (such as stress)
  - Limit exposure to triggers
  - Physical relaxation upon awakening
- Telehealth
  - Sleep interventions via telehealth can be effective and should be utilized
  - Even if delivered to groups



# Recommendations in this document

- Dealing with children / teenagers
  - Prioritize parent-child relationships
  - Manage expectations
  - Encourage activities that build sleep need (like time outside)
  - Discourage activities that lead to sleep disruption (like screens and naps)
- Dealing with older adults
  - Recognize impact of home confinement, inactivity, and social isolation
  - Establish activity and light exposure routines in early part of the day
  - Encourage communication and social interaction
  - Avoid excessive napping



# For stressed healthcare workers

- Be as well-rested as possible because getting good sleep is important
- Set yourself up for optimal sleep
- If your schedule is disrupted by long shifts and sleepless nights, get sleep where you can
- When you are able to sleep, try to protect it
- Do what you can to protect the sleep of others as well
- If you cannot sleep, get out of bed
- When you have to stay awake, set yourself up for alertness



# Other options

These sleep “tips” may not be enough, especially if you have an untreated sleep disorder!

Help is available:

Sleep Disorders Center (Medicine)

Behavioral Sleep Medicine Clinic (Psychiatry)





University of Arizona College of Medicine

# Sleep & Health Research Program

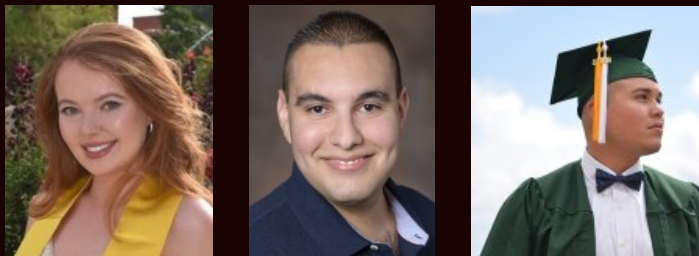
Department of Psychiatry

<http://www.sleephealthresearch.com>

## Trainees



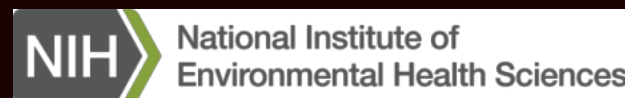
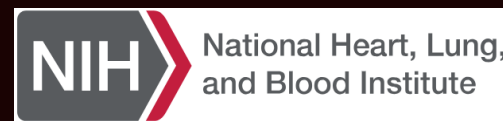
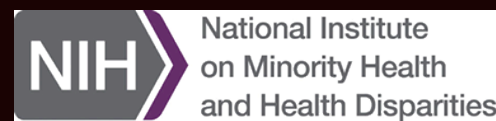
## Staff



## Undergraduate Students



## Funding Support





# Thank you!

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