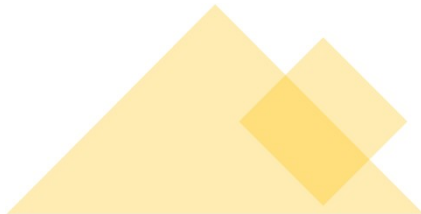


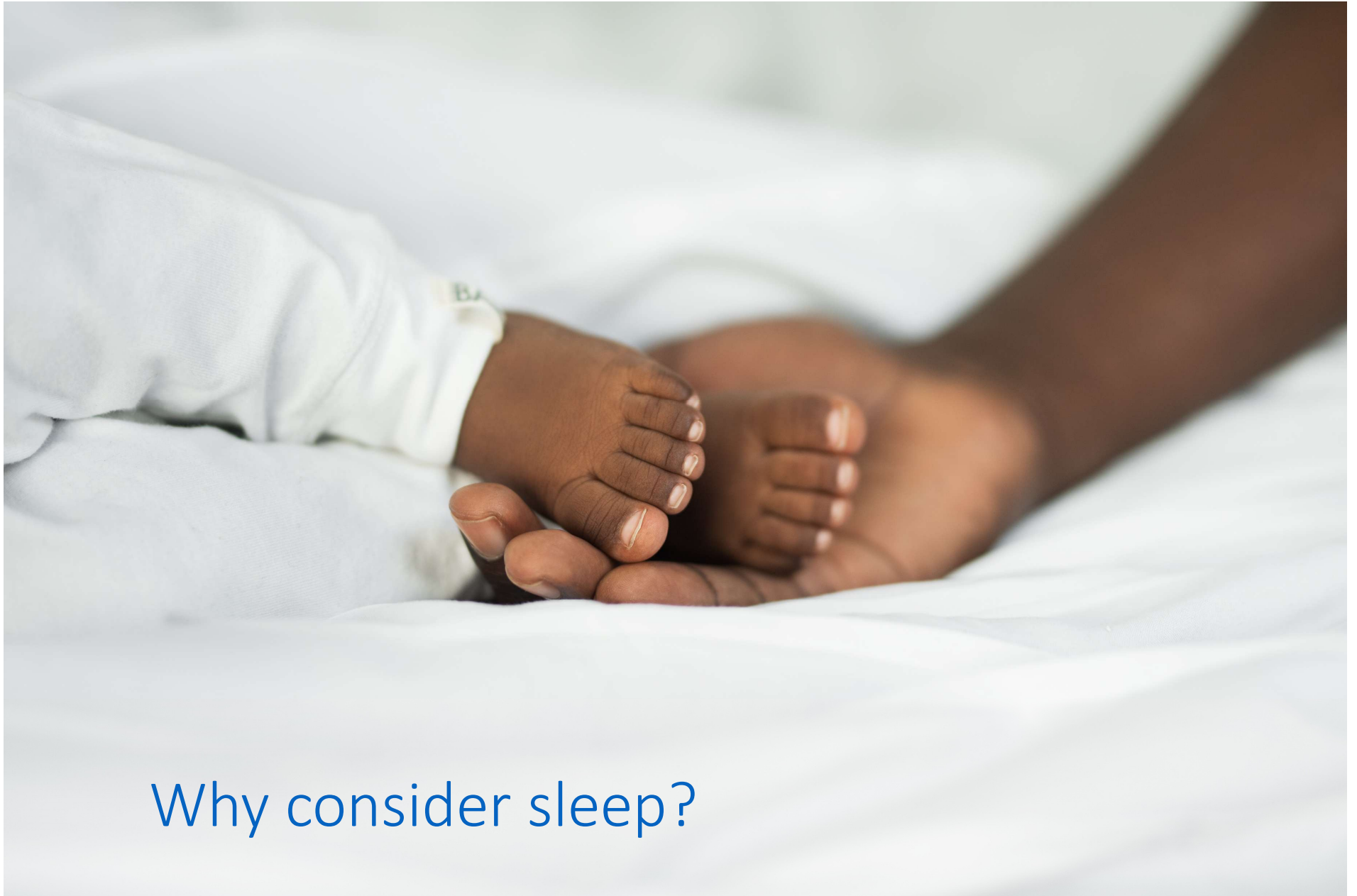


Alice Gregory
RHUL



Sleep as a critical
ingredient for mental
health





We sleep a lot

Age	Sleep recommendations
0-3 months	-
4-12 months	12 to 16 hours
1-2 years	11 to 14 hours
3-5 years	10 to 13 hours
6-12 years	9 to 12 hours
13-18 years	8 to 10 hours
18-25 years*	7 to 9 hours
26-64 years*	7 to 9 hours
65+ years*	7 to 8 hours

Paruthi et al (2016). American Academy of Sleep Medicine. J Clin Sleep Med, 12, 785+

**Hirshokowitz et al (2015). National Sleep Foundation. Sleep Health, 1, 40+*

It's important

Some theories...	
Restorative theory	Sleep allows brain and body growth/repair
Information/ memory processing	New brain circuits laid down when sensory input is minimal; unnecessary connections pruned
Emotional recalibration	REM helps us recalibrate emotional functions

It's important

'If sleep doesn't serve an absolutely vital function, then it is the greatest mistake the evolutionary process ever made'

- Allan Rechtschaffen

It can go wrong

Category	Brief Description
Insomnia	Persistent sleep difficulty
Sleep Related Breathing Disorder	Abnormal respiration during sleep
Central Disorders of Hypersomnolence	Excessive sleepiness
Circadian Rhythm Sleep-Wake Disorders	Misalignment of sleep-wake propensity and environment
Parasomnias	Physical events/ experiences related to sleep
Sleep Related Movement Disorder	Movements that prevent/ disrupt sleep

Six main categories of sleep disorders (See ICSD-3-TR , AASM, 2023)

NB// In this presentation, different definitions of sleep difficulties are considered reflecting the wider literature



Why consider sleep in relation to mental health?

Sleep and mental health are linked



See Also: Morales-Muñoz & Gregory (2023). *Sleep Med Clin*, 18, 245+



Almost all mental health problems are associated with sleep difficulties



Anxiety and depression as an example

DSM-5 criteria for anxiety and depression

- Generalised anxiety disorder
 - The anxiety or worry is associated with three (or more) of the following six symptoms. [Note. Only one is required for children].
 - Restlessness, fatigued, difficulty concentrating, irritability, muscle tension, **sleep disturbance (difficulty falling asleep or staying asleep or restless, unsatisfying sleep)**
- Major depressive disorder
 - Five or more of the following symptoms have been present for the same 2-week period:
 - Depressed mood, lack of interest, weight change, **insomnia or hypersomnia** nearly every day, psychomotor agitation or retardation, fatigue/ loss of energy, worthlessness, concentration issues, recurrent thoughts of death

Anxiety and depression as an example

TABLE 4 Depressive symptoms recorded at baseline research assessment

Depressive symptom	Treatment group, frequency (%)			
	BPI (n = 155)	CBT (n = 154)	STPP (n = 156)	Total (n = 465)
2 weeks prior to baseline assessment				
Sleep disturbance	141 (91.0)	141 (91.6)	145 (92.9)	427 (91.8)
Depressed mood	131 (84.5)	134 (87.0)	125 (80.1)	390 (83.9)
Disturbed concentration, inattention	112 (72.3)	119 (77.3)	118 (75.6)	349 (75.1)
Fatigue, lack of energy	117 (75.5)	113 (73.4)	111 (71.2)	341 (73.3)
Worthlessness	108 (69.7)	101 (65.6)	105 (67.3)	314 (67.5)
Anhedonia, apathy	96 (61.9)	104 (67.5)	103 (66.0)	303 (65.2)
Irritable, anger	97 (62.6)	104 (67.5)	91 (58.3)	292 (62.8)
Suicidal ideation	95 (61.3)	91 (59.1)	97 (62.2)	283 (60.9)
Decreased appetite	71 (45.8)	78 (50.6)	71 (45.5)	220 (47.3)
Hopelessness	74 (47.7)	66 (42.9)	71 (45.5)	211 (45.4)
Indecision	47 (30.3)	62 (40.3)	51 (32.7)	160 (34.4)
Guilt	53 (34.2)	51 (33.1)	45 (28.8)	149 (32.0)
Agitation	43 (27.7)	53 (34.4)	50 (32.1)	146 (31.4)
Psychomotor retardation	37 (23.9)	38 (24.7)	36 (23.1)	111 (23.9)
Weight loss	29 (18.7)	25 (16.2)	23 (14.7)	77 (16.6)
Increased appetite	21 (13.5)	23 (14.9)	23 (14.7)	67 (14.4)
Weight gain	15 (9.7)	12 (7.8)	15 (9.6)	42 (9.0)
Hallucinations	12 (7.7)	16 (10.4)	6 (3.8)	34 (7.3)
Delusions	4 (2.6)	5 (3.2)	5 (3.2)	14 (3.0)
Recent suicidal attempt	3 (1.9)	2 (1.3)	7 (4.5)	12 (2.6)
Lifetime suicidal attempt	57 (36.8)	48 (31.2)	55 (35.3)	160 (34.4)

- Study on treatment for depression
- 11-17 years old with unipolar depression
- Great study – but for this slide, my interest is symptoms at baseline (pre-treatment)
- 92% had sleep disturbance
- More common than depressed mood!
- Table is from the Appendix

Goodyer, I. M., Reynolds, S., Barrett, B., Byford, S., Dubicka, B., Hill, J., ... & Fonagy, P. (2017). Cognitive-behavioural therapy and short-term psychoanalytic psychotherapy versus brief psychosocial intervention in adolescents with unipolar major depression (IMPACT): a multicentre, pragmatic, observer-blind, randomised controlled trial. *Health Technology Assessment (Winchester, England)*, 21(12), 1.

Slide: Faith Orchard

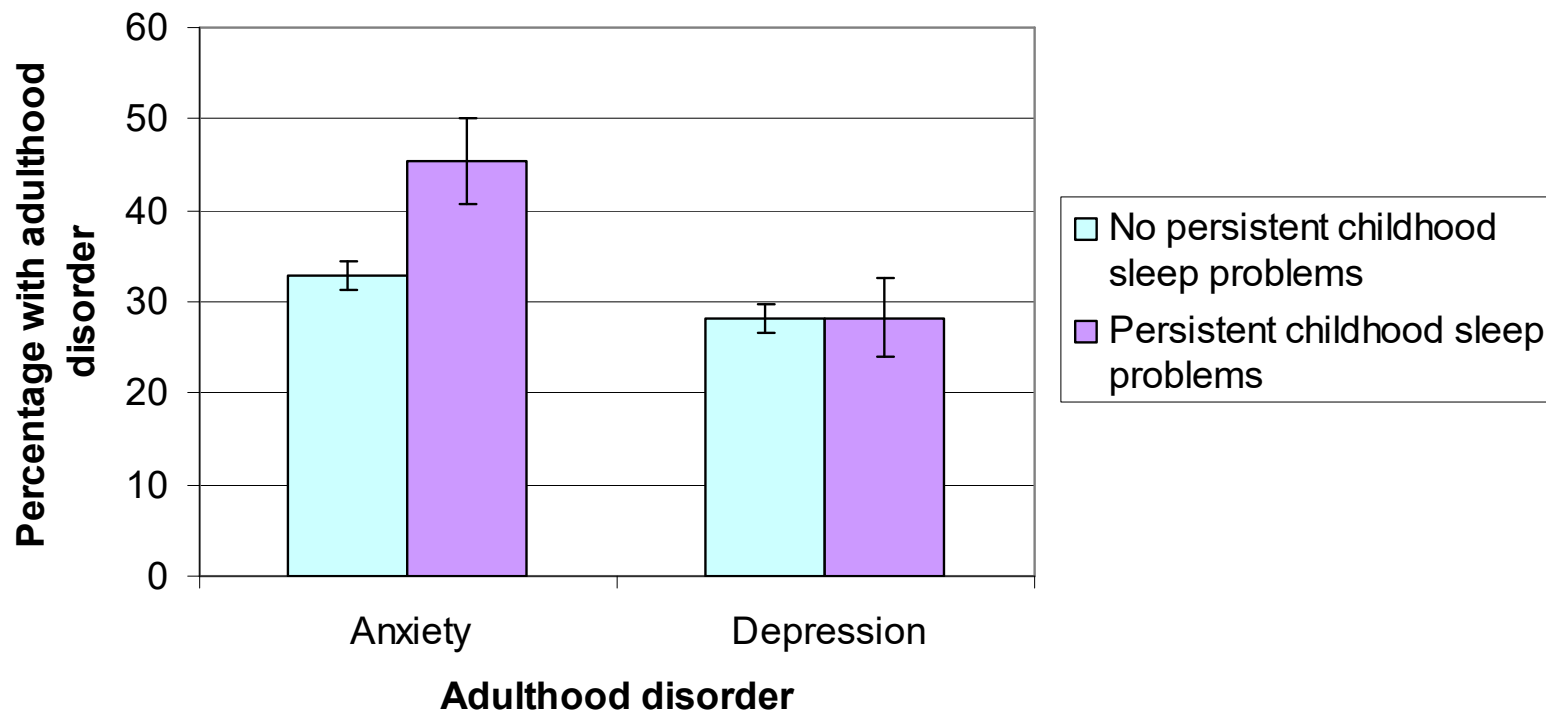
Longitudinal

Study	Dunedin Multidisciplinary Study of Health and Development
N	1037 (912 provided relevant information in childhood and adulthood)
Age	Longitudinal (5, 7, 9 years; 21, 26 years)
Measures	Sleep problems (signs of sleep problems at 9 years and at one other assessment as assessed by questionnaire items)
	Anxiety & Depression (Diagnostic Interview Schedule)

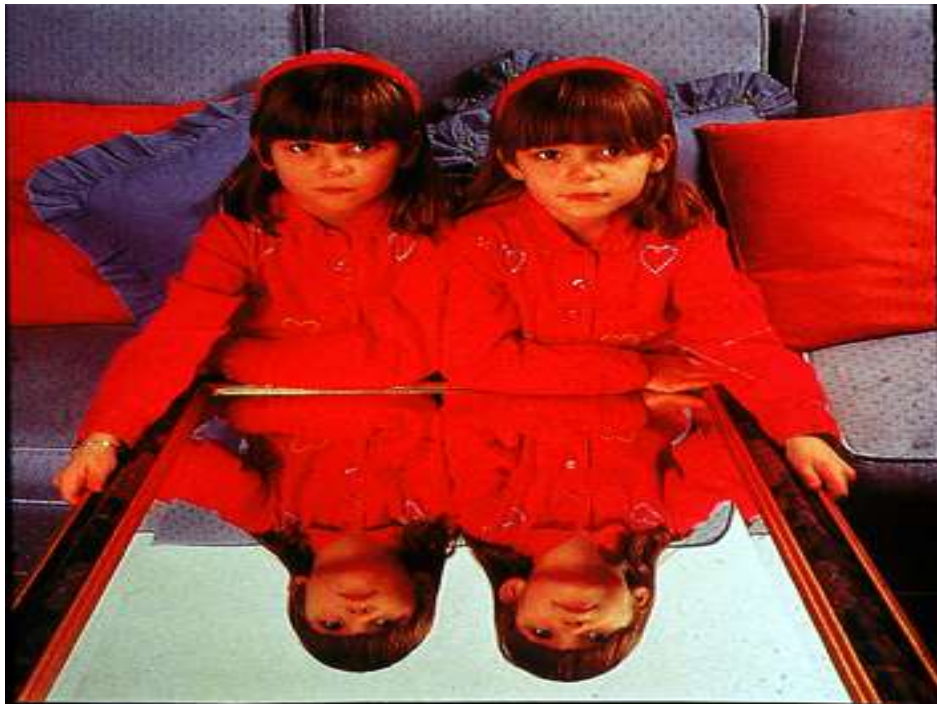
Gregory et al., (2005) J Ab Child Psychol, 37, 157+

Longitudinal

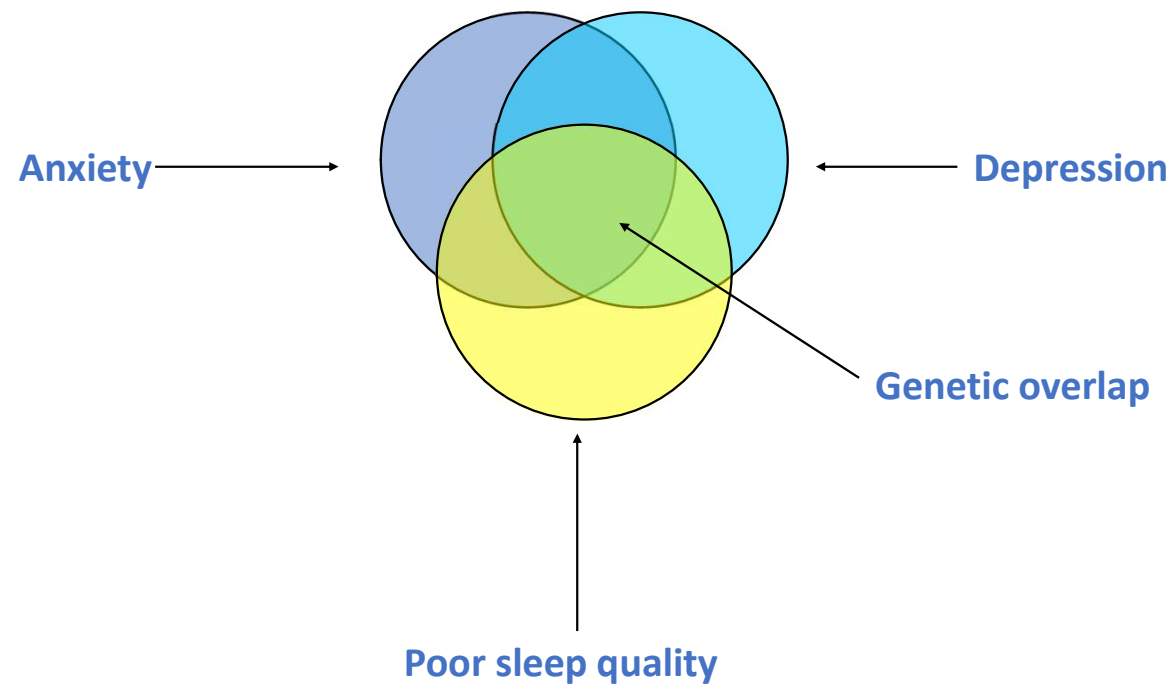
- Childhood sleep problems predict adult anxiety BUT not adult depression



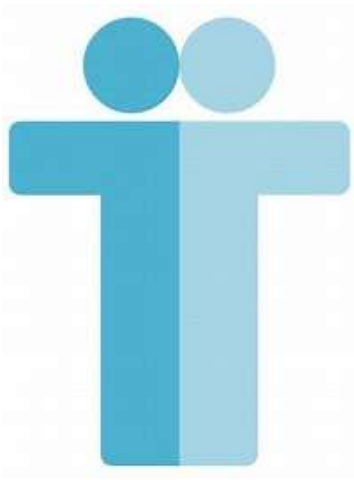
Origins of associations



Origins of associations

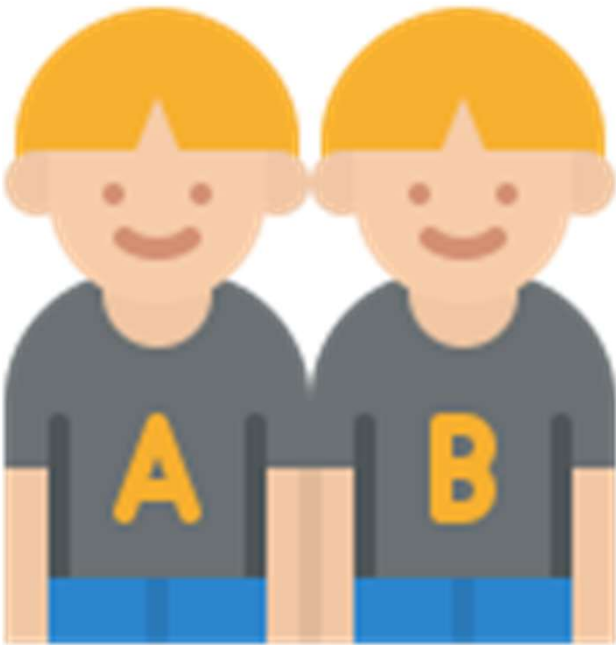


Origins of associations: genetic correlations



Madrid-Valero et al (2020). SLEEP, 43, zsz229

Specifying environments



Identical twins share:

- Genotype
- Parents
- Age
- Sex

They differ: non-shared environment

MZ differences design: examines whether environmental factors can predict the differences between twins

Specifying environments



MZ twin differences for problematic use of technology were associated with their differences for sleep quality ($p < 0.001$; $B = 0.21$).



Although: Think EDI!

Article DOI : 10.1111/jcpp.70000

EDITORIAL

Editorial: Sleep privilege – research and clinical recommendations for when sleep cannot be optimal

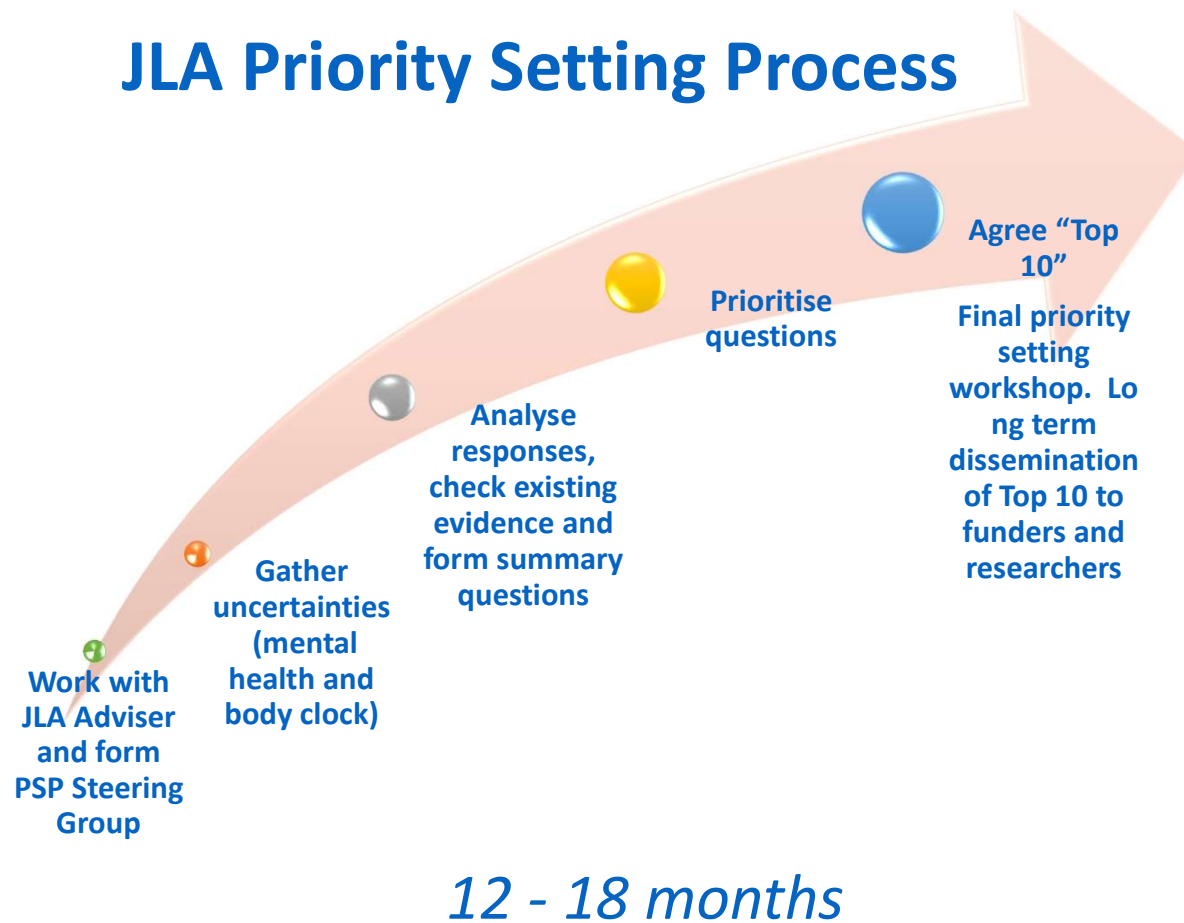
Alice M. Gregory¹,  | Allison G. Harvey² | Roz Shafran^{3,4}



Circadian Mental Health Network



JLA Priority Setting Process



Circadian Mental Health Network (a selection of the 'top 10')

Number	
1	Does the interaction between mental health and the body clock vary by age, especially during different life stages?
3	What is the relationship between the body clock and mental health in neurodivergent individuals and does body clock disruption worsen mental health in these individuals?
5	What societal and/ or policy changes can help prevent mental health issues for, and reduce stigma towards, extreme chronotypes?
8	Would it be better for a person's mental health to follow their own (natural) rhythms or to follow more typical sleep patterns and/ or social norms?

<https://www.jla.nihr.ac.uk/priority-setting-partnerships/mental-health-and-the-body-clock#tab-78746>



What you can do to support sleep in schools...

What you can do in schools to help...

Tips!

Understand the sleep challenges...

Understand how sleep is associated with learning, emotional regulation etc

Educate the children about sleep (see Department of Education Content)

Understand methods by which sleep can be improved

An ideal world...delay school start times; nap pods

Acknowledge that not everyone has 'the sleep privilege'

Conclusions

Conclusions

Sleep is associated with mental health

These associations occur at the same time and over time too

There are different explanations for these links (some are genetic and some environmental)

Consider EDI in discussions of this topic

There are lots of ways that you can support sleep of young people

This could have an impact on other aspects of school life

Acknowledgements

- Collaborators (including):

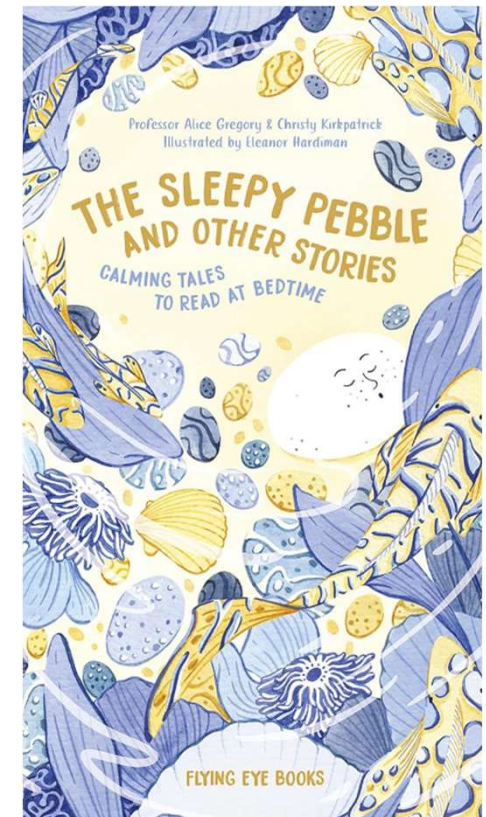
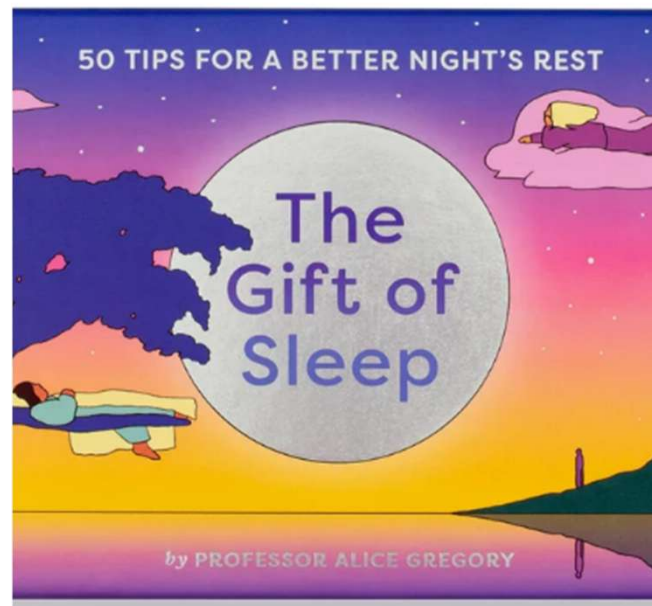
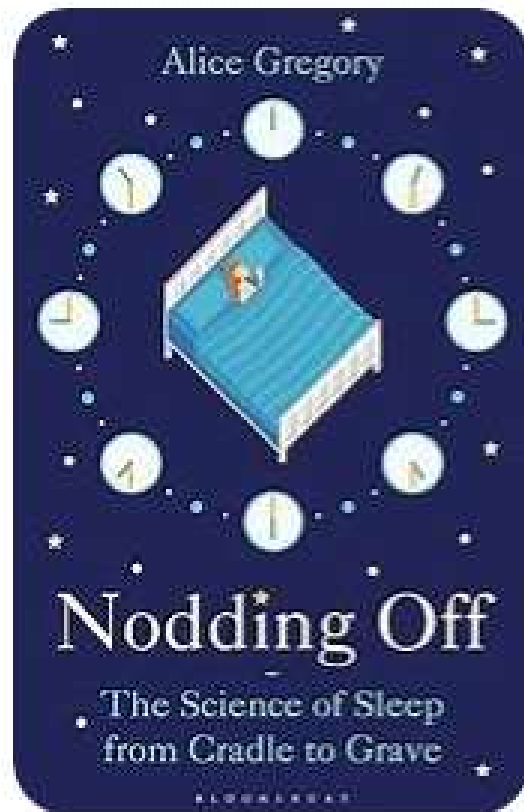
- Louise Arseneault
- Nicola Barclay
- Dan Buysse
- Avshalom Caspi
- Dan Denis
- Thalia Eley
- Amy Fergusson
- Chris French
- Allison Harvey
- Yulia Kovas
- Kate Lawrence
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- Rotem Perach
- Betul Rauf
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- Avi Sadeh
- Fatos Selita
- Roz Shafran
- Danny Smith
- Essi Viding
- Malcolm von Schantz
- Tom Willis
- **And so many more!!!**

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Thank you