

**IL SOCIAL JET LAG, I  
COMPORTAMENTI INADEGUATI  
DEGLI ADOLESCENTI E GLI ORARI  
SCOLASTICI**

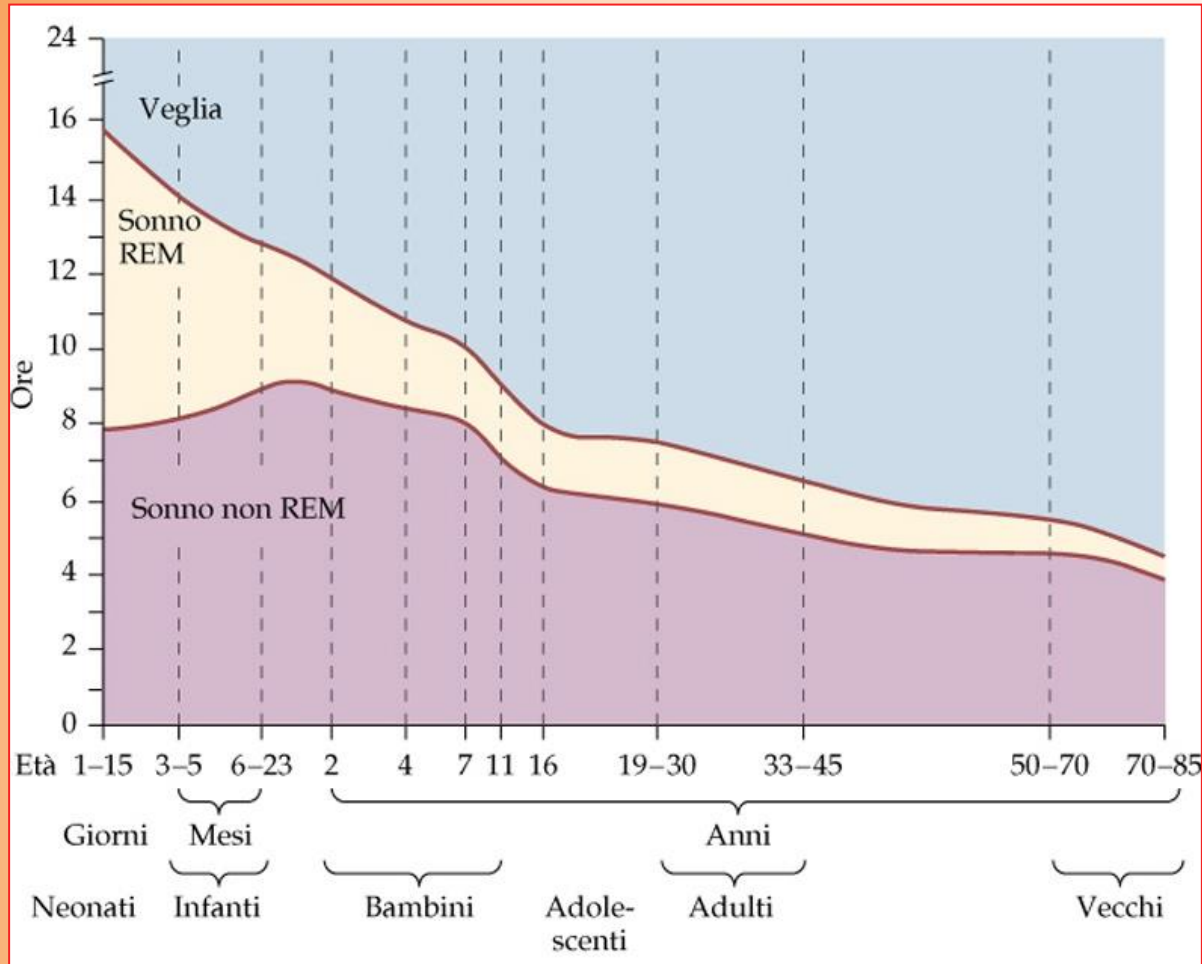
**Luigi De Gennaro**



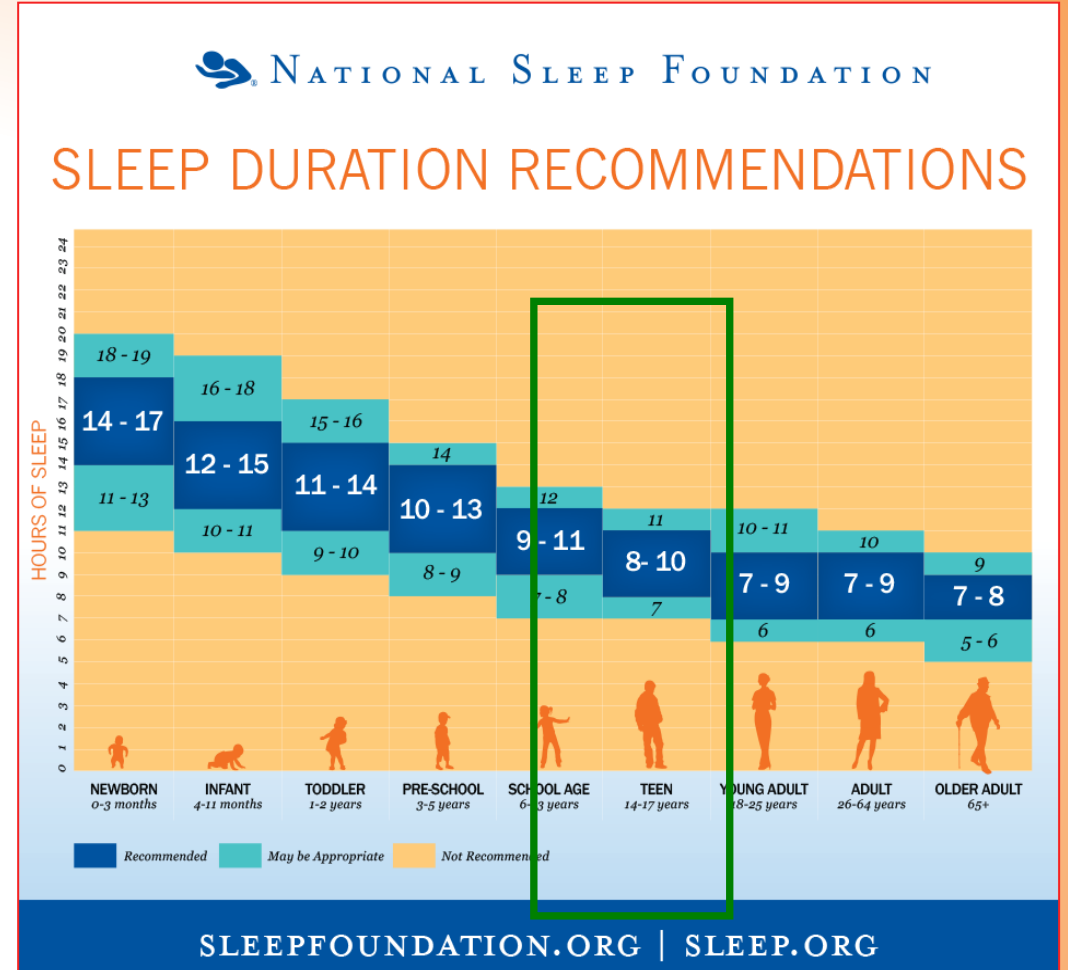
**SAPIENZA**  
UNIVERSITÀ DI ROMA



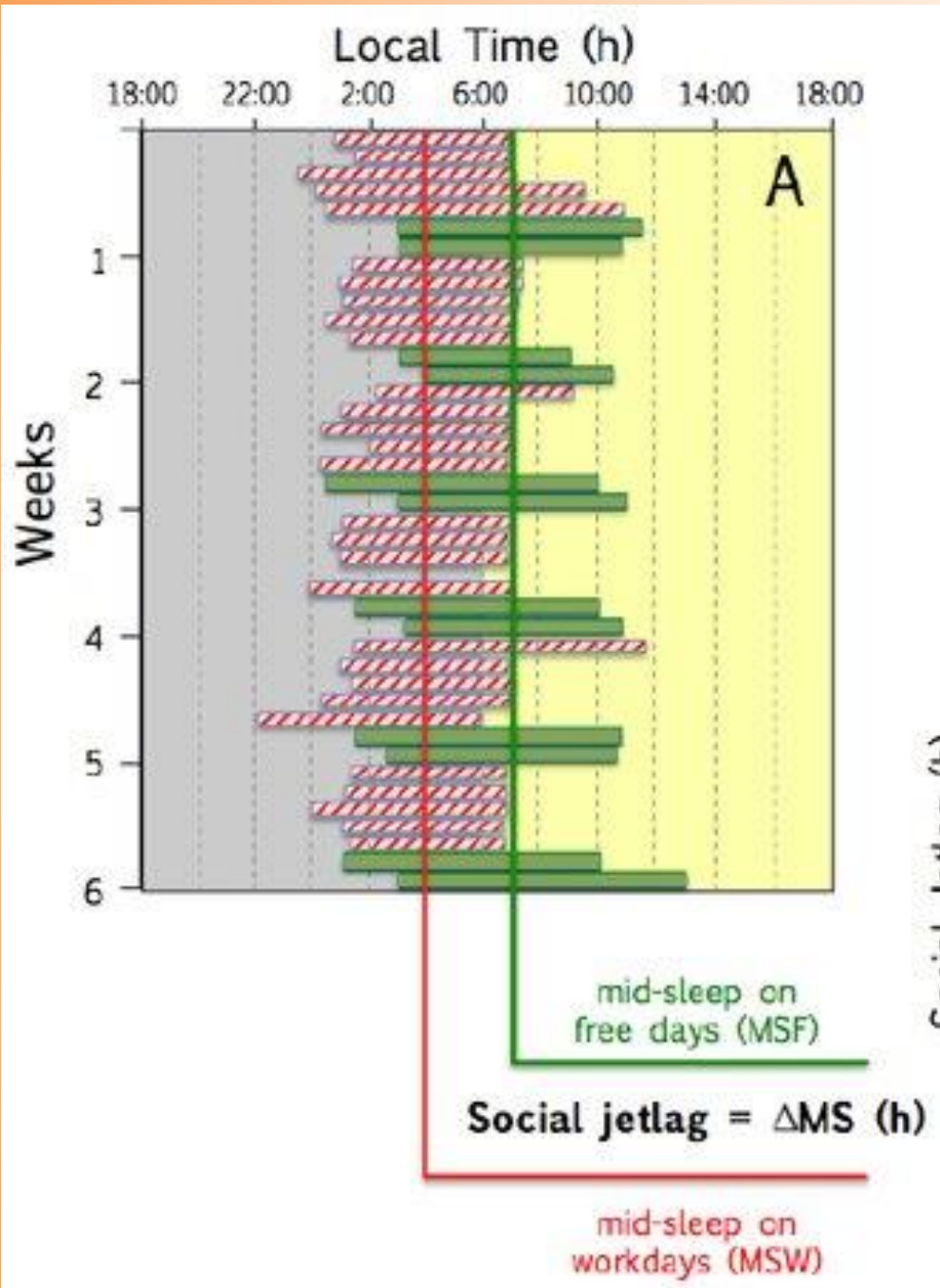
**AIMS** *Accademia Italiana  
di Medicina del Sonno*



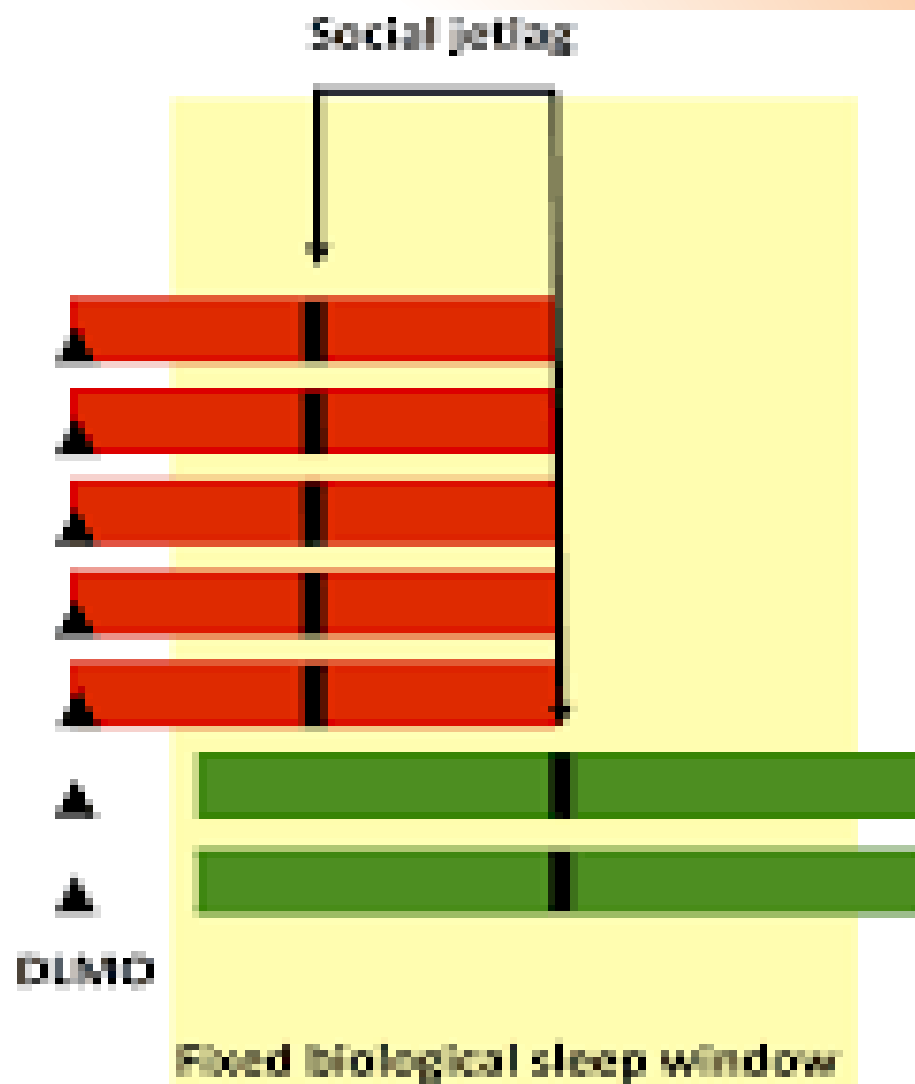
**Il sonno cambia nell'arco di vita**

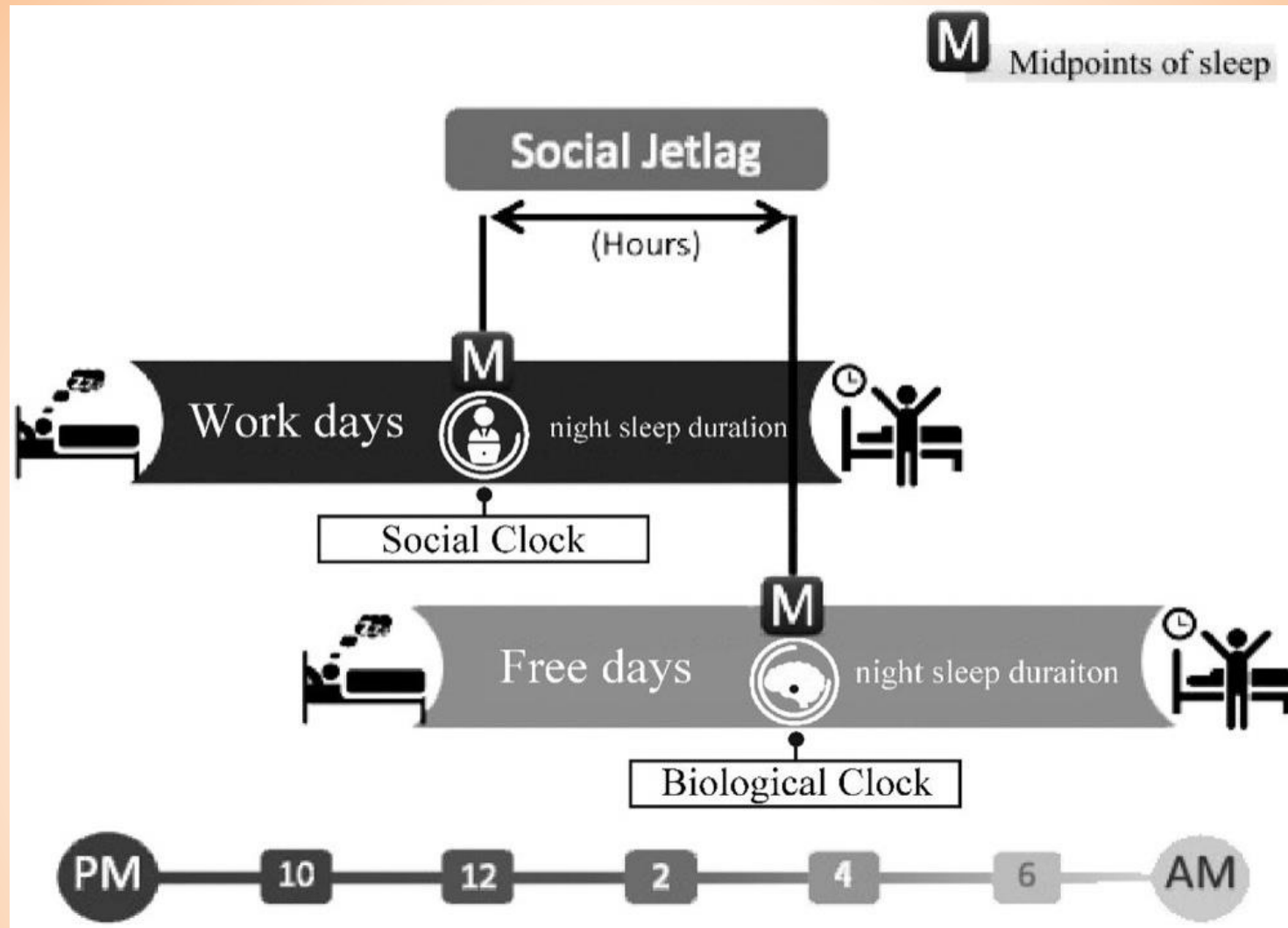


**Le differenze del sonno nelle diverse età della vita determinano un diverso fabbisogno di sonno raccomandato**

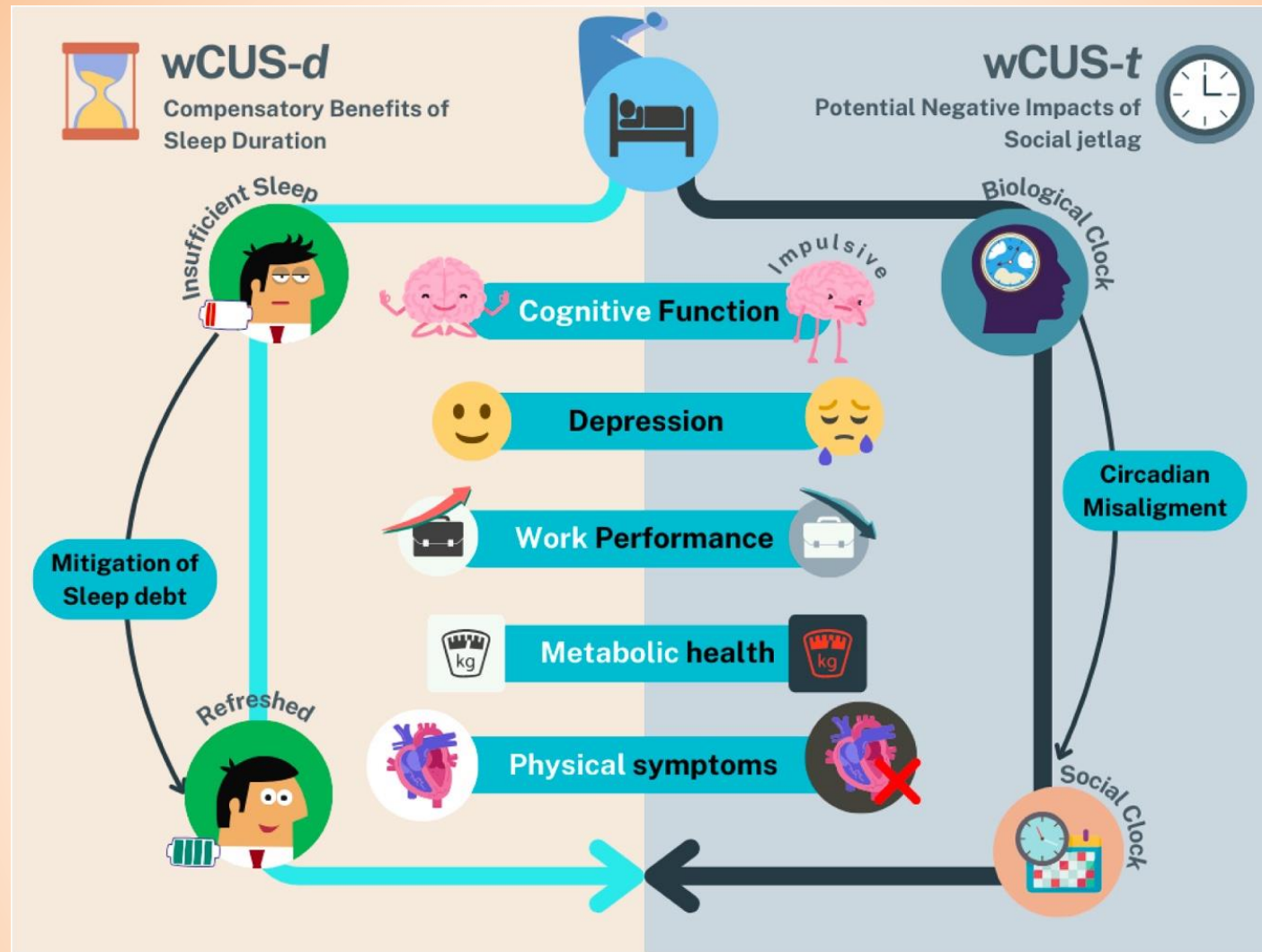


Una delle conseguenze è il fenomeno del *social jet lag*





La differenza nei tempi del sonno tra i giorni feriali e il fine settimana può portare al SJL, rappresentando la discrepanza tra l'orologio biologico e l'orologio sociale. Ciò rende il SJL un indicatore del disallineamento circadiano



**Il disallineamento circadiano conseguenza del social jetlag è associato a scarsa funzionalità diurna, ridotta qualità del sonno notturno e a un aumentato rischio di depressione, disturbi metabolici e altre malattie.**

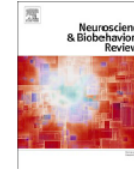


ELSEVIER

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Neuroscience and Biobehavioral Reviews

journal homepage: [www.elsevier.com/locate/neubiorev](http://www.elsevier.com/locate/neubiorev)



The sleep paradox: The effect of weekend catch-up sleep on homeostasis and circadian misalignment

Fan-Chi Hsiao<sup>a</sup>, Yun-Hsin Huang<sup>b,c</sup>, Chien-Ming Yang<sup>c,d,\*</sup>

<sup>a</sup> Department of Counseling, Clinical and Industrial/Organizational Psychology, Ming Chuan University, TaoYuan, Taiwan

<sup>b</sup> Department of Psychology, Fo Guang University, Yilan, Taiwan

<sup>c</sup> Research Center of Mind, Brain, and Learning, National Cheng-Chi University, Taipei, Taiwan

<sup>d</sup> Department of Psychology, National Cheng-Chi University, Taipei, Taiwan

## IMPATTO COGNITIVO E COMPORTAMENTALE

Sonnolenza  
Affaticamento  
Disattenzioni  
Errori prestazionali  
Comportamenti relati alla salute (fumo, abuso di sostanze)

## IMPATTO PSICOLOGICO

Depressione  
Salute mentale

## IMPATTO FISILOGICO

Stato di salute percepita  
Disfunzioni metaboliche  
Rischio cardiovascolare

**Paradossalmente, l'effetto protettivo della durata del sonno di recupero del fine settimana sul processo omeostatico (compensando il debito di sonno) e il potenziale impatto del timing del sonno di recupero del fine settimana sul processo circadiano (disallineamento circadiano) si contraddicono a vicenda.**

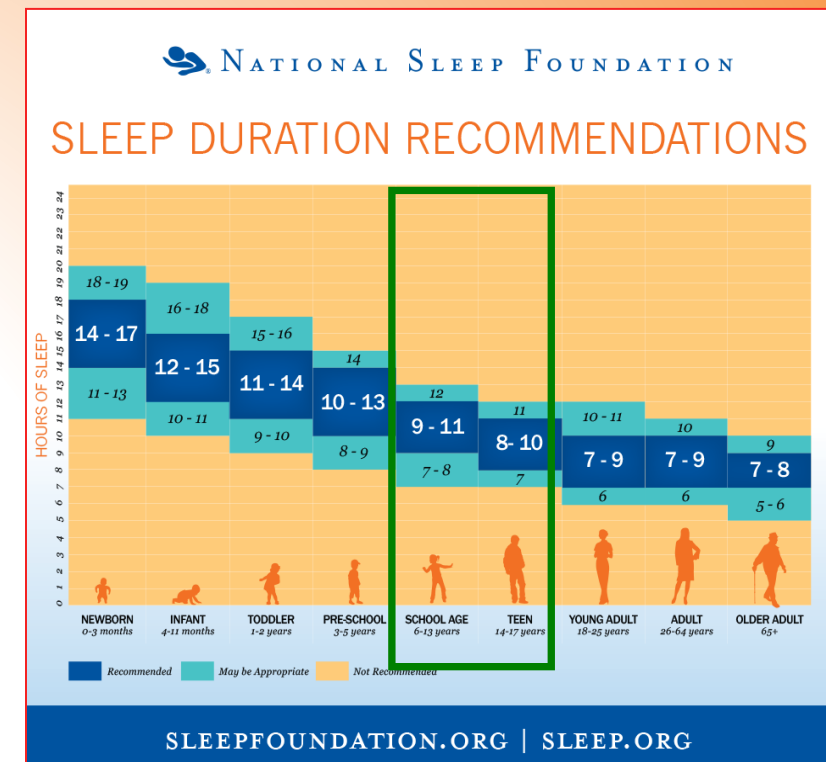
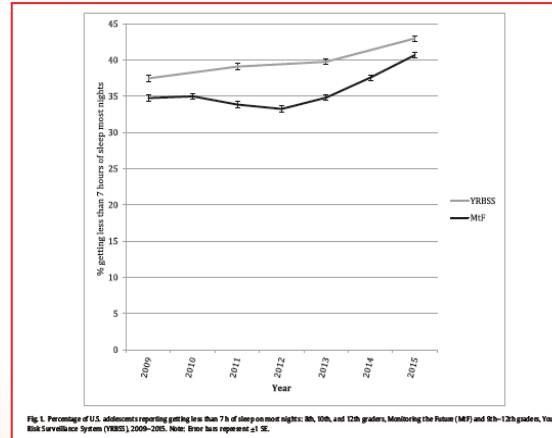
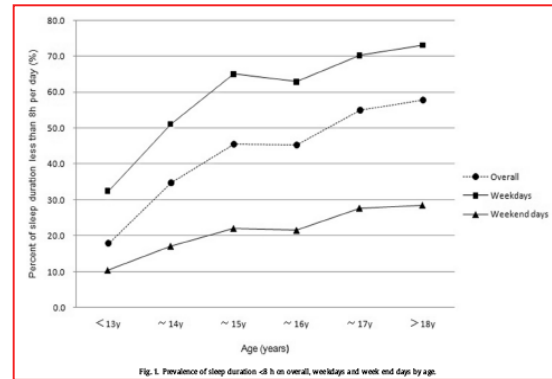
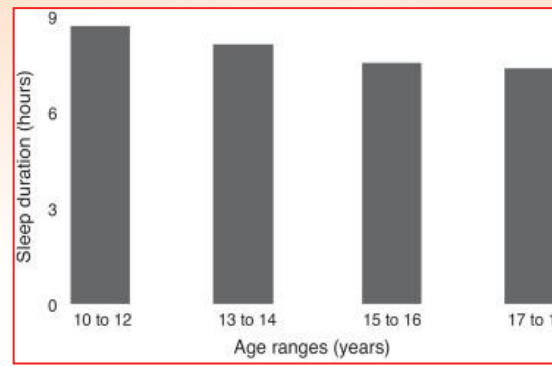
**Il social jetlag è, quindi, indicatore di un problema nella gestione del ritmo sonno-veglia durante la settimana con una perdita di sonno nei giorni infrasettimanali, ma determina a sua volta un problema ulteriore con il disallineamento circadiano**

**BISOGNO INSODDISFATTO DI  
SONNO IN ETÀ SCOLARE**

Brasile < 8 h = 53.6%

Cina < 8 h = 55.0%

USA < 8 h = 67.62% (2007-2015);  
55.58% (2009-2015)



La realtà del sonno in età scolare è però molto diversa dalle raccomandazioni internazionali

# National Sleep Foundation

Teens need between  
**8 and 10 hours**  
of sleep a night,  
but polls show most teens get much less



**60%**

of middle  
schoolers



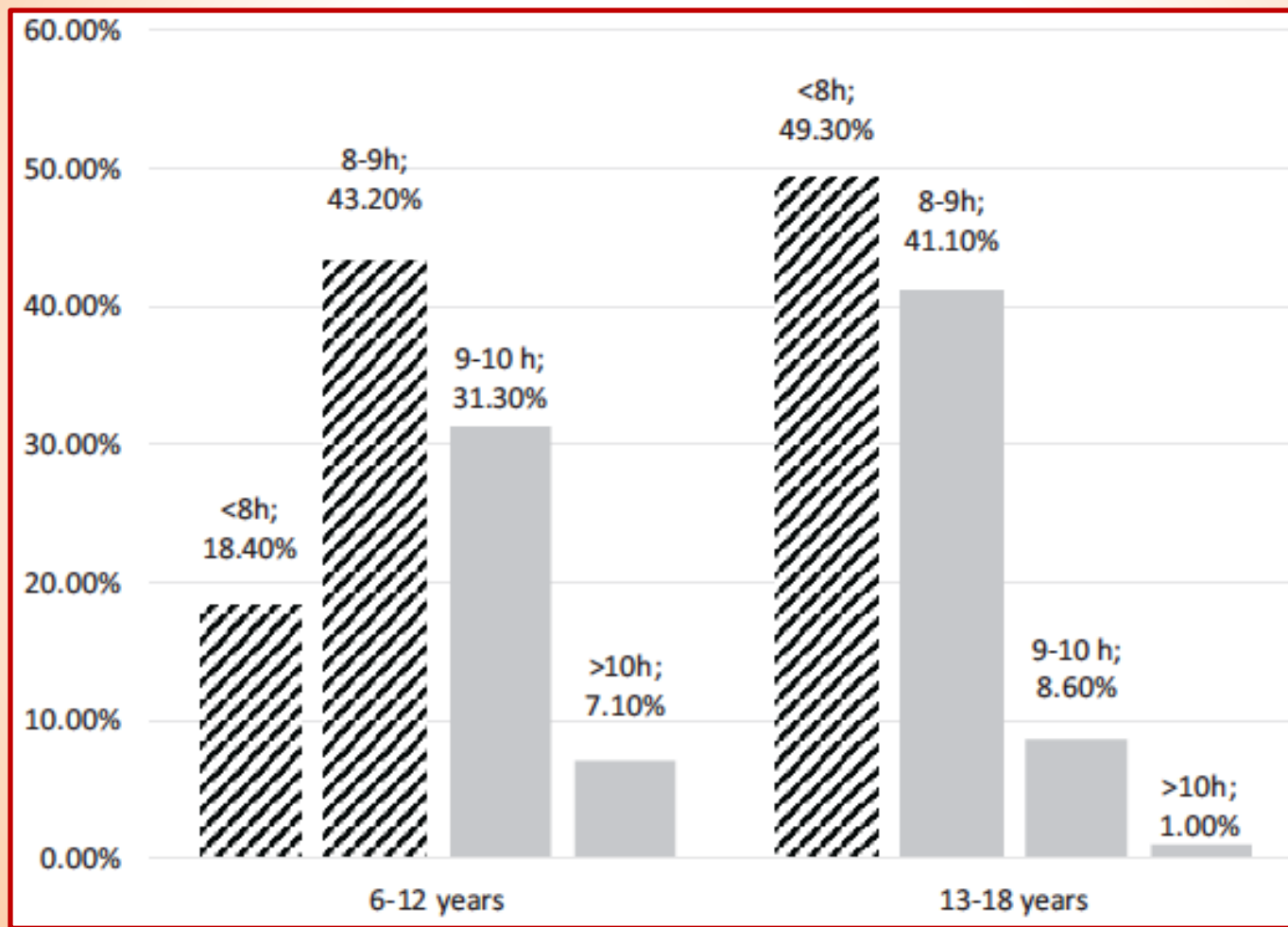
**70%**

of high  
schoolers

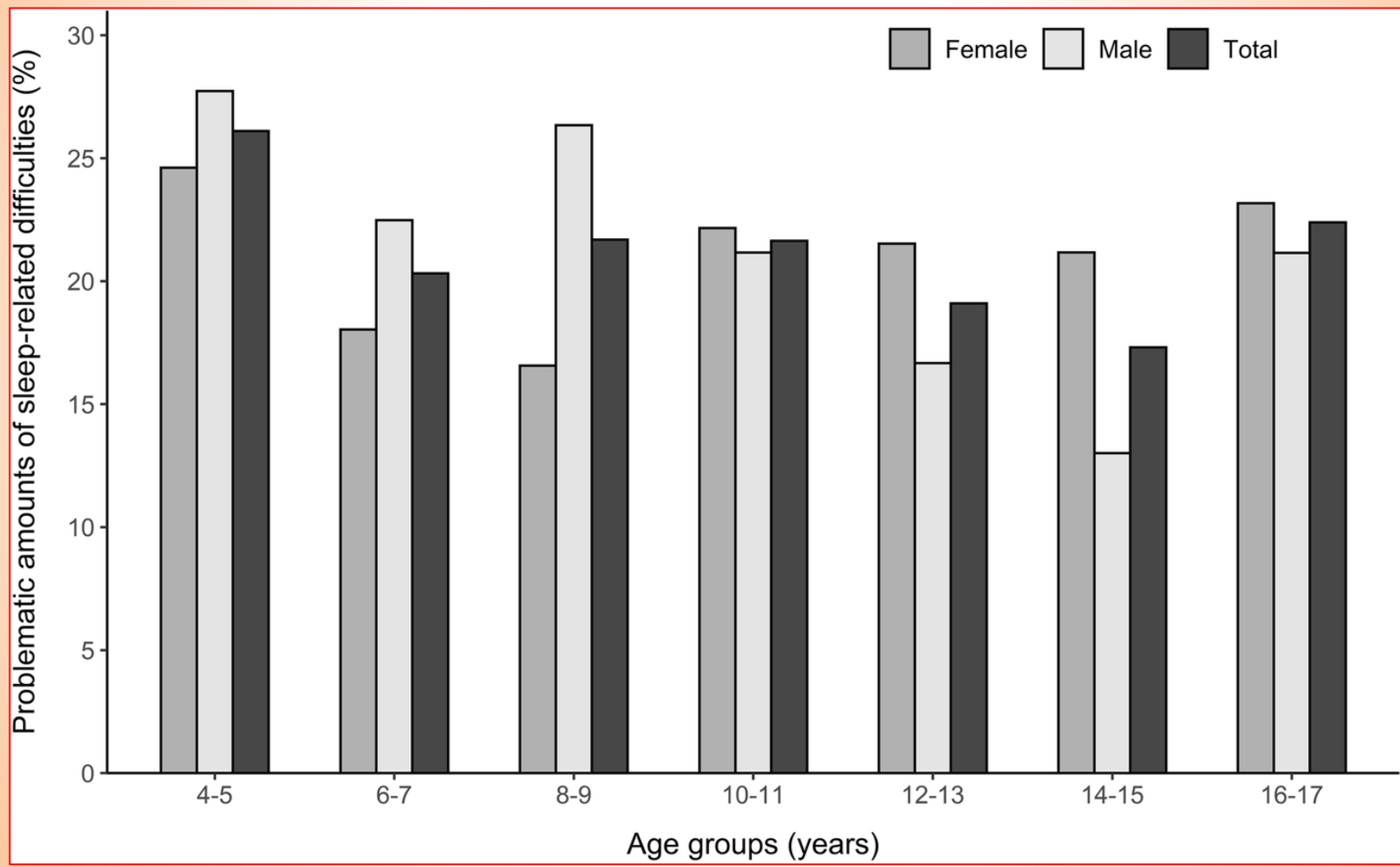


report **inadequate sleep on school nights**

**Italia < 8 h = 49.30%**



**Non è diversa la situazione in Italia**

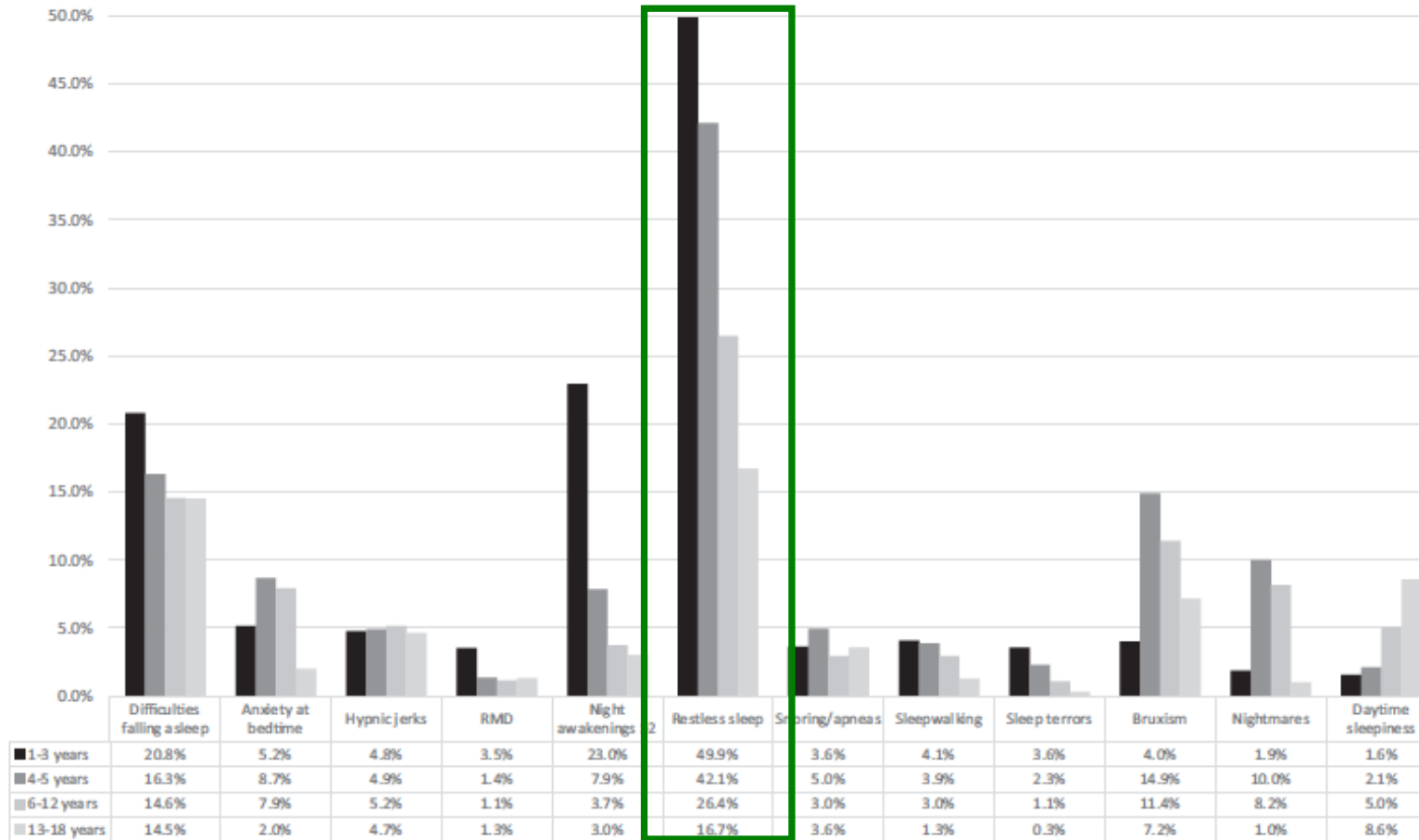


**Insoddisfatti bisogni di sonno si associano a difficoltà di sonno**

**Sleep habits and sleep disorders in Italian children and adolescents: a cross-sectional survey**

Maria Breda, MD<sup>1</sup>; Arianna Belli, MD<sup>1</sup>; Dario Esposito, MD<sup>1</sup>; Andrea Di Pilla, MD<sup>2</sup>; Maria Grazia Melegari, MD<sup>3</sup>; Lourdes DelRosso, MD, PhD<sup>4</sup>; Emanuela Malorgio, MD<sup>5</sup>; Mattia Doria, MD<sup>6</sup>; Raffaele Ferri, MD<sup>7</sup>; Oliviero Bruni, MD<sup>8</sup>

**Figure 3—Prevalence of sleep disorders in the different age groups.**

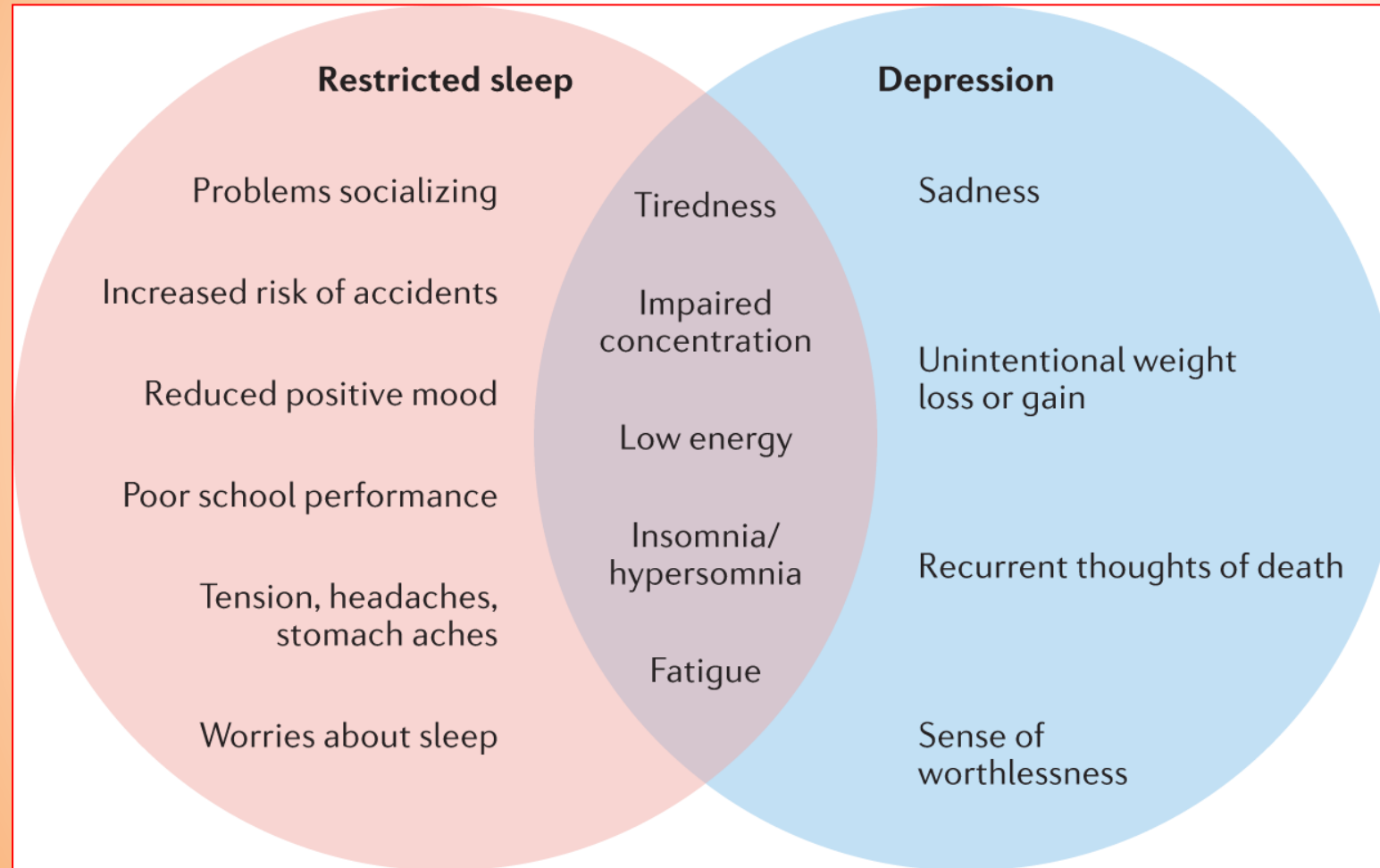


RMD = rhythmic movements disorder.

**Insoddisfatti bisogni di sonno si associano principalmente a sonno percepito come non ristorativo**

## Sleep's role in the development and resolution of adolescent depression

[Michael Gradisar](#) , [Michal Kahn](#), [Gorica Micic](#), [Michelle Short](#), [Chelsea Reynolds](#), [Faith Orchard](#), [Serena Bauducco](#), [Kate Bartel](#) & [Cele Richardson](#)



**Insoddisfatti bisogni di sonno si associano a disturbi depressivi**

**RAPPORTI TRA SONNO E  
PROCESSI DI RENDIMENTO  
SCOLASTICO**

Sleep Medicine Reviews 14 (2010) 179–189

Contents lists available at [ScienceDirect](http://www.sciencedirect.com)

**Sleep Medicine Reviews**

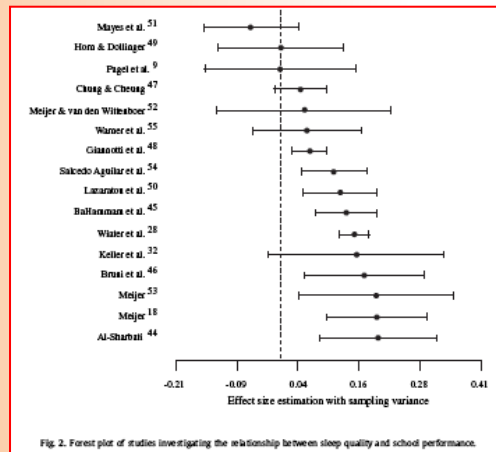
journal homepage: [www.elsevier.com/locate/smr](http://www.elsevier.com/locate/smr)

CLINICAL REVIEW

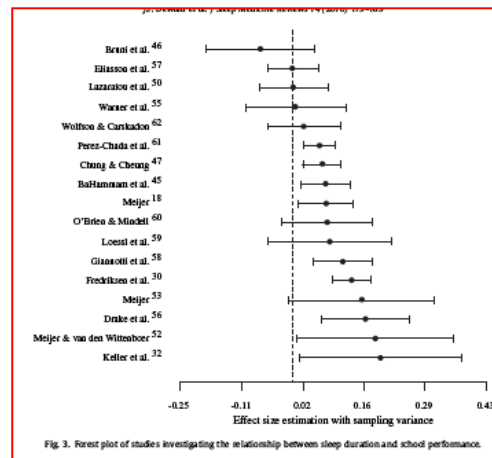
**The influence of sleep quality, sleep duration and sleepiness on school performance in children and adolescents: A meta-analytic review**

Julia F. Dewald<sup>a,\*</sup>, Anne M. Meijer<sup>a,c</sup>, Frans J. Oort<sup>a,d</sup>, Gerard A. Kerkhof<sup>b,e</sup>, Susan M. Bögels<sup>a,f</sup>

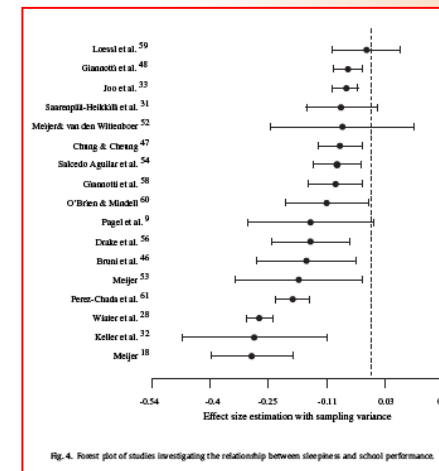
<sup>a</sup> Department of Education, Faculty of Social and Behavior Science, University of Amsterdam, Nieuwe Prinsengracht 130, 1018 VZ Amsterdam, The Netherlands  
<sup>b</sup> Department of Psychology, Faculty of Social and Behavioral Science, University of Amsterdam, Roeterstraat 15, 1018 WS Amsterdam, The Netherlands



**Qualità del sonno**



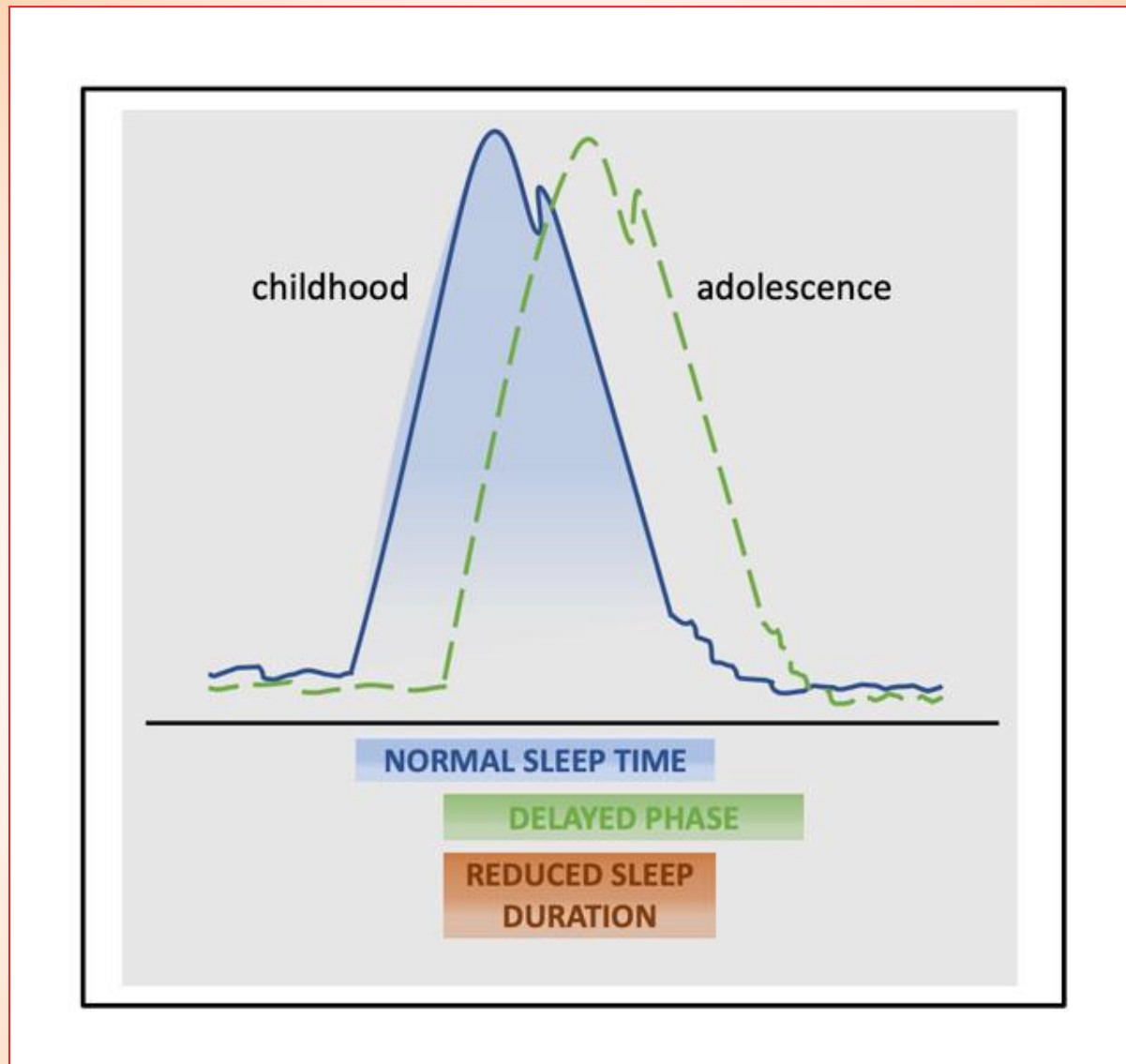
**Durata del sonno**



**Sonnolenza diurna**

**Gli studi dimostrano che insoddisfatti bisogni di sonno (durata, quantità, sonnolenza diurna) si associano fortemente a un peggiore rendimento scolastico**

**CAUSE  
DELL'INSODDISFATTO  
BISOGNO IN ETÀ SCOLARE:  
FATTORI SERALI**



**Una parte di questo fenomeno è spiegato da aspetti biologici, con un ritardato picco secretorio della melatonina**

**Table 1**

Frequency of sleep problems and daytime sleepiness in the total sample and sub-groups of E-type and M-type adolescents.

	Percentage of adolescents experiencing specific sleep problems more than once per week		
	Total sample (N = 3463)	E-type adolescents (n = 347)	M-type adolescents (n = 301)
<b>Sleep problems</b>			
Difficulty in waking up	39.7%	72.1%	11.9%
Unsatisfied with sleep	27.5%	70.5%	12.3%
Awakening too early	19.2%	28.5%	18.5%
Difficulties in falling asleep	17.2%	30.0%	9.2%
Late to class due to oversleeping	13.0%	29.5%	4.6%
Nightmares	12.9%	19.1%	10.4%
<b>Daytime sleepiness</b>			
Studying or doing homework	18.7%	45.5%	13.4%
Watching TV or listening music	17.6%	20.6%	10.5%
Traveling on bus, train, or car	13.4%	16.0%	5.0%
In a class at school	13.1%	34.6%	6.1%
Attending a performance	11.2%	15.4%	4.3%
Playing videogames	8.0%	10.6%	3.9%
During a test	6.1%	18.3%	8.7%
Doing work on a computer	5.9%	8.1%	5.1%
During a face-to face conversation	2.6%	6.2%	1.1%

E-type, evening-type; M-type, morning type.

Sleep Medicine 29 (2007) 20–22

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**Sleep Medicine**

journal homepage: [www.elsevier.com/locate/sleep](http://www.elsevier.com/locate/sleep)

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Brief Communication

Sleep habits, circadian preference, and school performance in early adolescents

Paolo M. Russo <sup>a,\*</sup>, Valeria Biasi <sup>b</sup>, Carlo Cipolli <sup>a</sup>, Luca Mallia <sup>c</sup>, Elisa Caponera <sup>d</sup>

**L' influenza del cronotipo (serotino vs. mattutino): più ampie alterazioni del sonno nei serotini**



# L'impatto delle nuove tecnologie sul sonno degli adolescenti

Received: 20 December 2022 | Revised: 21 March 2023 | Accepted: 21 March 2023  
DOI: 10.1111/jr.13899

JAMA Pediatrics | Original Investigation

## Association Between Portable Screen-Based Media Device Access or Use and Sleep Outcomes: A Systematic Review and Meta-analysis

Ben Carter, PhD, MSc; Philippa Rees, MPhil, MBBCh; Lauren Hale, PhD, MPH; Darshana Bhattacharjee, MBChB, MRCPCH; Mandar S. Paradkar, MBBS, DCH, MPH



Adolescents' internet use, mobile electronic device use, sleep and mental health: a systematic review of prospective studies  
BMC Psychiatry

Received: 26 February 2023 | Revised: 7 June 2023  
DOI: 10.1111/jr.13997  
Sohn et al. BMC Psychiatry (2019) 19:356  
<https://doi.org/10.1186/s12888-019-2350-x>

REVIEW ARTICLE

RESEARCH ARTICLE



nursing reports

Prevalence of problematic smartphone usage and associated mental health outcomes amongst children and young people: a systematic review, meta-analysis and GRADE of the evidence

Systematic Review

The Influence of Smartphone Use on Mental Health in Children and Young People: A Systematic Literature Review and GRADE of the Evidence

Sofia de Sá<sup>1,2,\*</sup>, Ana Baião<sup>1</sup>, Helen Seaton<sup>1</sup>, Sei Yon Sohn<sup>1</sup>, Philippa Rees<sup>2</sup>, Bethany Willdridge<sup>1</sup>, Nicola J. Kalk<sup>3,4†</sup> and Ben Carter<sup>5,6†</sup>  
\*Correspondence: sofia.de.s@nhs.uk  
†Equal contributors: Nicola J. Kalk, Ben Carter  
1. Department of Child and Adolescent Psychiatry, University of Manchester, Oxford Road, Manchester, M13 9PL, UK  
2. Department of Child and Adolescent Psychiatry, University of Manchester, Oxford Road, Manchester, M13 9PL, UK  
3. Department of Child and Adolescent Psychiatry, University of Manchester, Oxford Road, Manchester, M13 9PL, UK  
4. Department of Child and Adolescent Psychiatry, University of Manchester, Oxford Road, Manchester, M13 9PL, UK  
5. Department of Child and Adolescent Psychiatry, University of Manchester, Oxford Road, Manchester, M13 9PL, UK  
6. Department of Child and Adolescent Psychiatry, University of Manchester, Oxford Road, Manchester, M13 9PL, UK

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Christina M. Martin<sup>1</sup> | Colin B. Shore<sup>1</sup> | Avril Johnstone<sup>1</sup> |  
Palmer<sup>1</sup> | Juliana Pugmire<sup>2</sup> | Julie Riddell<sup>1</sup> |  
Ellis<sup>1</sup> | Lisa McDaid<sup>3</sup> | Sharon A. Simpson<sup>1</sup>

Social Networking Sites and the Brain: A Systematic Review of Effects on Mental Health



Healthatic

Depression in Adolescents: A Systematic Review and Meta-analysis

Additional information on the article is available at the end of the article.

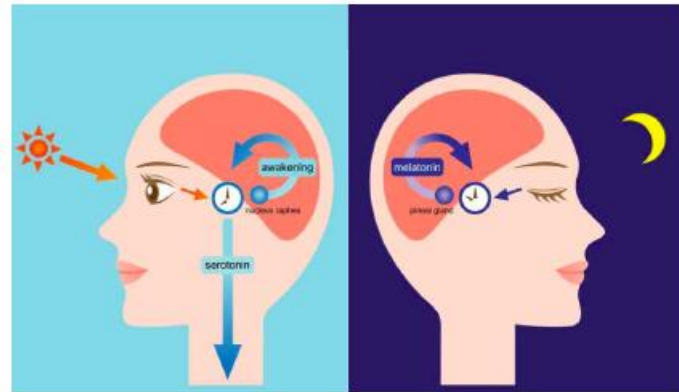
Corresponding author: Abderrahman M. Khalaf, ar.m.k\_speed@hotmail.com

2. College of Health and Life Sciences, University of Hail, Hail, Saudi Arabia

## Gli effetti dell'utilizzo di apparecchi digitali retroilluminati prima di dormire

- Aumento della *vigilanza serale*
- Riduzione/ritardo di fase della secrezione di melatonina
- **Impatto negativo sul sonno:**

- Posticipo orario scelto per andare a dormire (+30 min)
- Allungamento della latenza del sonno (+15 min)
- Riduzione quantità sonno REM-SWS
- Ridotta vigilanza al mattino successivo (<prestazioni, <sicurezza)



**RESULTS** Twenty studies were included, and their quality was assessed. The studies involved 125 198 children (mean [SD] age, 14.5 [2.2] years; 50.1% male). There was a strong and consistent association between bedtime media device use and inadequate sleep quantity (odds ratio [OR], 2.17; 95% CI, 1.42-3.32) ( $P < .001$ ,  $I^2 = 90\%$ ), poor sleep quality (OR, 1.46; 95% CI, 1.14-1.88) ( $P = .003$ ,  $I^2 = 76\%$ ), and excessive daytime sleepiness (OR, 2.72; 95% CI, 1.32-5.61) ( $P = .007$ ,  $I^2 = 50\%$ ). In addition, children who had access to (but did not use) media devices at night were more likely to have inadequate sleep quantity (OR, 1.79; 95% CI, 1.39-2.31) ( $P < .001$ ,  $I^2 = 64\%$ ), poor sleep quality (OR, 1.53; 95% CI, 1.11-2.10) ( $P = .009$ ,  $I^2 = 74\%$ ), and excessive daytime sleepiness (OR, 2.27; 95% CI, 1.54-3.35) ( $P < .001$ ,  $I^2 = 24\%$ ).

## Association Between Portable Screen-Based Media Device Access or Use and Sleep Outcomes A Systematic Review and Meta-analysis

Ben Carter, PhD, MSc; Philippa Rees, MPhil, MBChB; Lauren Hale, PhD, MPH; Darshana Bhattacharjee, MBChB, MRCPCH; Mandar S. Paradkar, MBBS, DCH, MPH

### Inadequate sleep quantity

Figure 2. Children With Inadequate Sleep Quantity

Source	Device Users Near Bedtime		No Access to a Device		Odds Ratio (95% CI)
	No. of Events	Total No.	No. of Events	Total No.	
Arora et al, <sup>30</sup> 2013	185	289	38	120	3.84 (2.44-6.04)
Arora et al, <sup>13</sup> 2014	199	440	71	298	2.64 (1.91-3.66)
Chahal et al, <sup>31</sup> 2013	207	611	914	2785	1.05 (0.87-1.26)
Gamble et al, <sup>32</sup> 2014	252	555	205	629	1.72 (1.36-2.18)
Gradisar et al, <sup>3</sup> 2013	116	181	8	24	3.57 (1.45-8.79)
Kubiszewski et al, <sup>35</sup> 2013	41	141	11	43	1.19 (0.55-2.59)
Lemola et al, <sup>27</sup> 2015	88	180	40	182	3.40 (2.15-5.36)
Total events	1088	2397	1287	4081	2.17 (1.42-3.32)

Heterogeneity:  $\tau^2 = 0.27$ ;  $\chi^2_6 = 57.48$ ;  $P < .001$ ;  $I^2 = 90\%$   
Test for overall effect:  $z = 3.57$ ;  $P < .001$

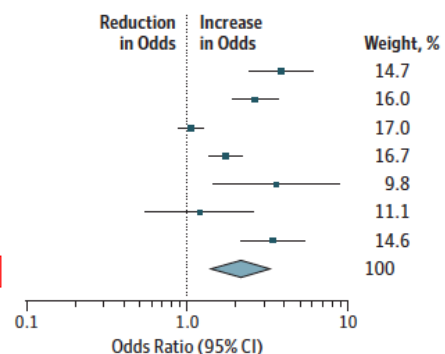
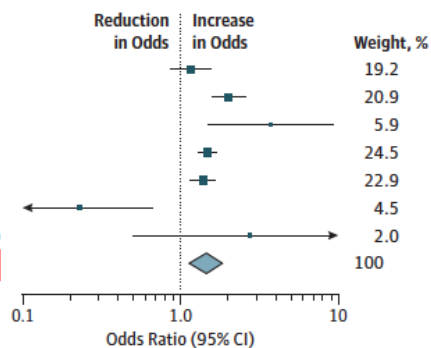


Figure 3. Children With Poor Sleep Quality

Source	Log Odds Ratio	SE	Device Users Near Bedtime, Total No.	No Access to a Device, Total No.	Odds Ratio (95% CI)
Gamble et al, <sup>32</sup> 2014	0.703	0.125	555	629	2.02 (1.58-2.58)
Gradisar et al, <sup>3</sup> 2013	1.319	0.462	181	24	3.74 (1.51-9.24)
Hysing et al, <sup>33</sup> 2015	0.392	0.065	0	0	1.48 (1.30-1.68)
Jiang et al, <sup>24</sup> 2015	0.329	0.094	0	0	1.39 (1.16-1.67)
Kubiszewski et al, <sup>35</sup> 2013	-1.470	0.546	141	43	0.23 (0.08-0.67)
Lemola et al, <sup>27</sup> 2015	1.008	0.867	180	182	2.74 (0.50-15.00)
Total events			1497	1176	1.46 (1.14-1.88)

Heterogeneity:  $\tau^2 = 0.06$ ;  $\chi^2_6 = 25.30$ ;  $P < .001$ ;  $I^2 = 76\%$   
Test for overall effect:  $z = 2.98$ ;  $P = .003$



We compared children having bedtime media device use with children not having access to a device. The number of participants was not provided by Hysing et al<sup>33</sup> or Jiang et al<sup>24</sup>; only the results from the statistical analysis were reported.

Le meta-analisi indicano ampi effetti dell'uso dei media device su:

- Inadeguata quantità di sonno
- Impoverita qualità del sonno

## Association of bedtime access to and the use of media devices with sleep outcomes:

- inadequate sleep quantity
- poor sleep quality
- excessive daytime sleepiness.



An integrated approach among teachers, health care professionals, and parents is required *to minimize device access at bedtime.*

Families should determine the appropriate **amount of time** and **content** for their child's media use and establish a ***media curfew 1 hour before bedtime.***

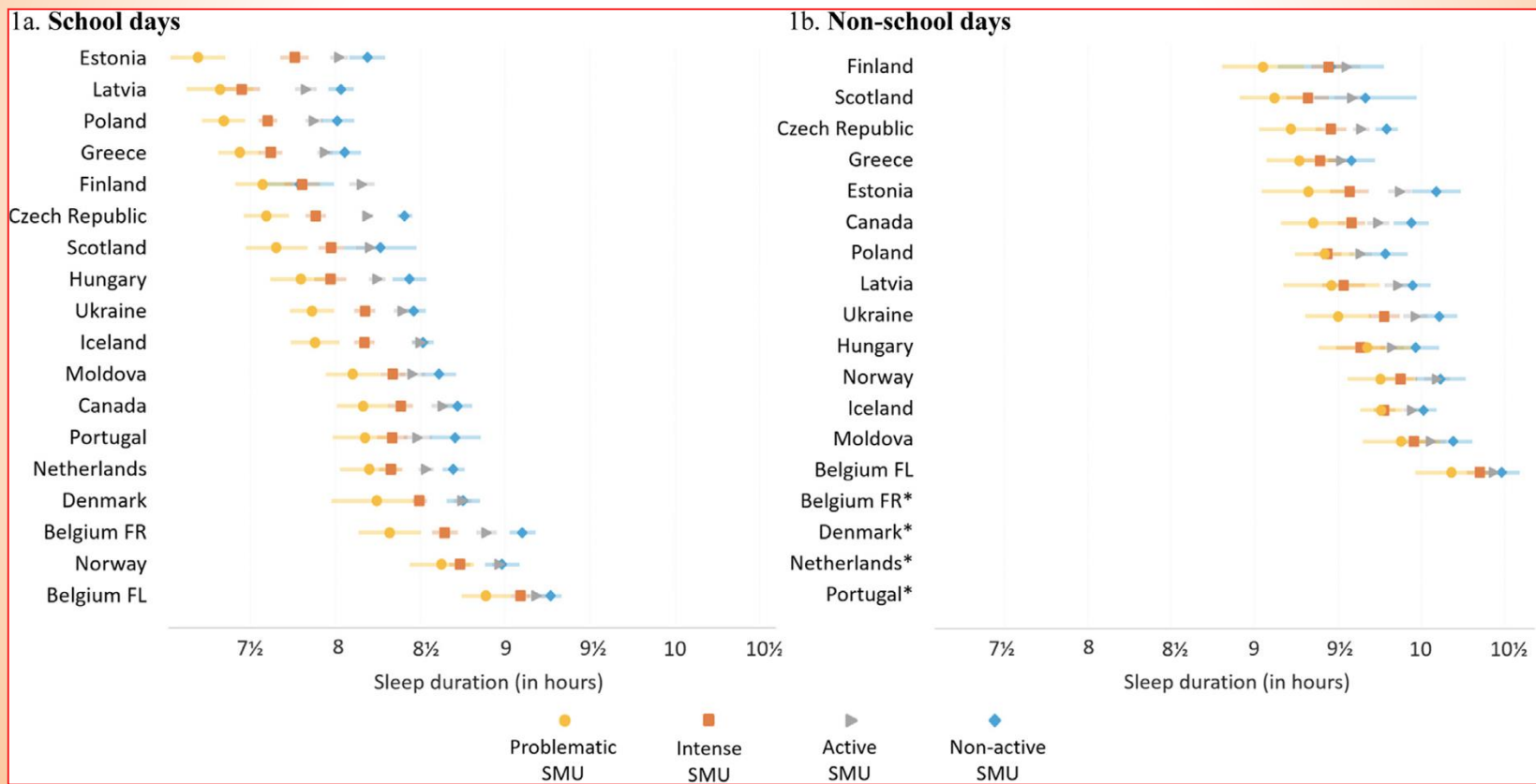
# 86.542 partecipanti in 18 Paesi

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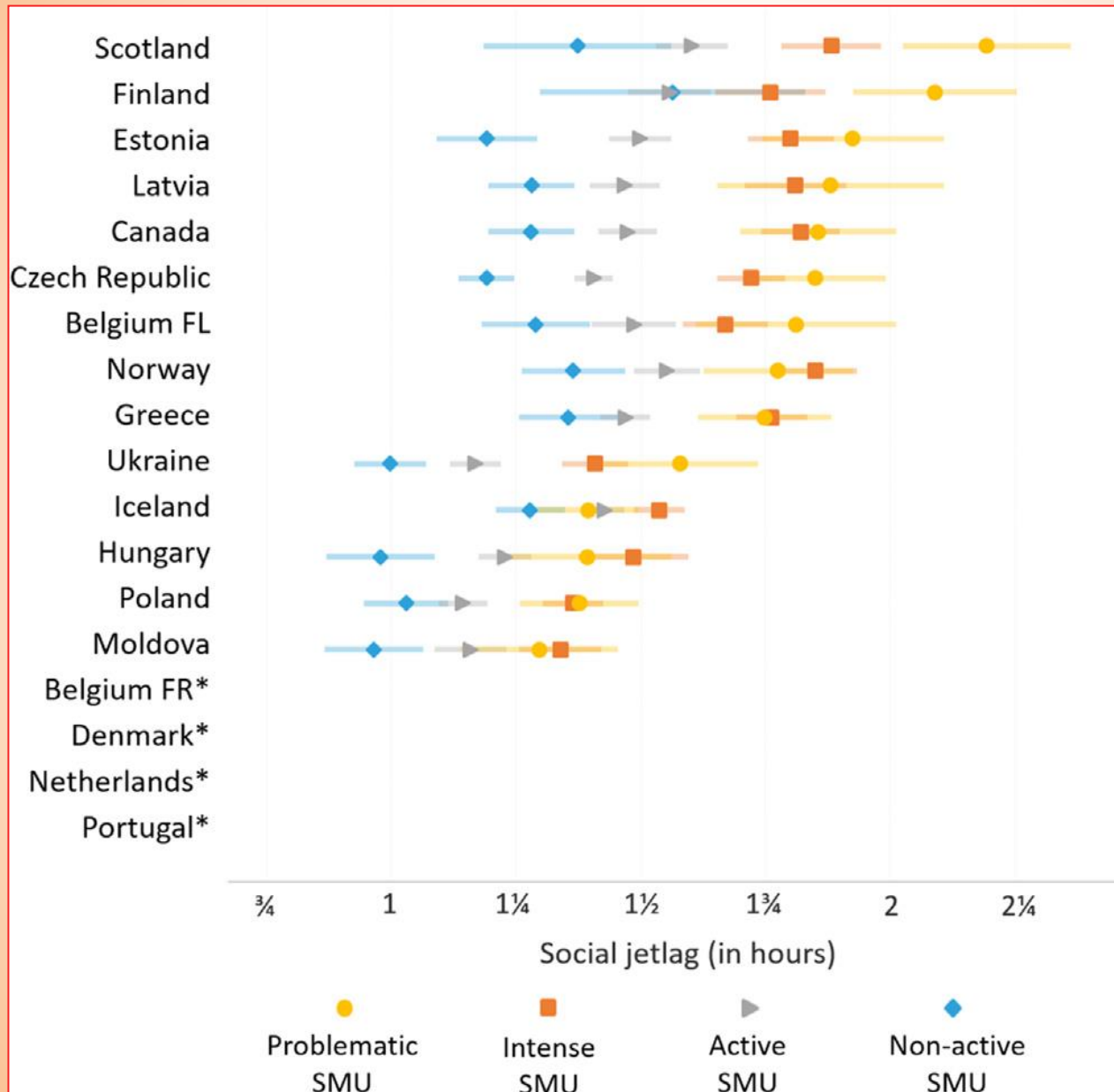
**Sleep Health**  
Journal of the National Sleep Foundation  
journal homepage: [sleephealthjournal.org](http://sleephealthjournal.org)

Adolescent use of social media and associations with sleep patterns across 18 European and North American countries

Meyran Boniel-Nissim, PhD<sup>a</sup>, Jorma Tynjälä, PhD<sup>b</sup>, Inese Gobiņa, PhD<sup>c</sup>, Jana Furstova, MSc<sup>d</sup>, Regina J.J.M. van den Eijnden, PhD<sup>e</sup>, Claudia Marino, PhD<sup>f</sup>, Helena Jeríček Klanšček, PhD<sup>g</sup>, Solvita Klavina-Makrečka, MSc<sup>h</sup>, Anita Villeruša, MD<sup>i</sup>, Henri Lahti, MSc<sup>b</sup>, Alessio Vieno, PhD<sup>j</sup>, Suzy L. Wong, PhD<sup>k</sup>, Jari Villberg, MSc<sup>b</sup>, Joanna Inchley, PhD<sup>l</sup>, Geneviève Gariépy, PhD<sup>k\*</sup>



**Influenza dei media digitali sulla durata del sonno nei giorni scolastici e non: maggiori utilizzatori presentano inferiori durate del sonno**



**Il ruolo dei social media nel fenomeno del social jet lag**



*Systematic Review*

## **Sleep Is a Family Affair: A Systematic Review and Meta-Analysis of Longitudinal Studies on the Interplay between Adolescents' Sleep and Family Factors**

Fabio Maratía \*, Valeria Bacaro and Elisabetta Crocetti

Uno studio di meta-analisi su 23 studi longitudinali con un totale di 38.010 partecipanti tra gli 11-18 anni) ha dimostrato che i **fattori relazionali familiari positivi e negativi** sono, rispettivamente, correlati positivamente e negativamente alla qualità e/o quantità del sonno degli adolescenti.

Tale associazione potrebbe essere bidirezionale



## Psychosocial determinants of sleep difficulties in adolescence: the role of perceived support from family, peers, and school in an Italian HBSC sample

Ilaria Maria Antonietta Benzi<sup>1</sup> · Silvano Gallus<sup>2</sup> · Eugenio Santoro<sup>3</sup> · Lavinia Barone<sup>1</sup> · the HBSC Lombardy Committee

Tra i fattori che influenzano i problemi di sonno degli adolescenti diversi fattori che si associano a un' aumentata probabilità di disturbi del sonno

**Fattori individuali:** aumento del fumo e del tempo trascorso davanti ai media digitali

**Fattori familiari:** comunicazione compromessa con entrambi i genitori e diminuito supporto genitoriale

**Fattori scolastici:** aumento della pressione scolastica e mancanza di sostegno agli studenti

**FATTORI SERALI ASSOCIATI  
A INSODDISFATTO BISOGNO  
IN ETÀ SCOLARE:**

- **Ritardo di fase nella secrezione di melatonina**
- **Cronotipo**
- **Uso dei media digitali**
- **Fattori psicosociali**

**STRATEGIE DI INTERVENTO**

**SERALI**



## Interventions to increase sleep duration in young people: A systematic review



Sylistah Gadam <sup>a, b, \*</sup>, Cassandra L. Pattinson <sup>a, b, c</sup>, Kalina R. Rossa <sup>a, b</sup>,  
Shamsi Shekari Soleimanloo <sup>a, b</sup>, Jane Moore <sup>d</sup>, Tahmina Begum <sup>a, b</sup>,  
Arvind Gnani Srinivasan <sup>a, b</sup>, Simon S. Smith <sup>a, b, c</sup>

1. Interventi comportamentali che mirano ai comportamenti del sonno (ad esempio tempi, abitudini e ambiente)
2. Interventi educativi che forniscono informazioni sul sonno (ad esempio, conoscenza, uso appropriato degli strumenti digitali e credenze)
3. Interventi combinati che coinvolgono una combinazione di strategie comportamentali ed educative per influenzare il sonno
4. Altri interventi che utilizzano strategie diverse da quelle comportamentali o educative, o una combinazione di "Altro" con strategie comportamentali o educative

Una **combinazione di strategie** con un'enfasi sulla **personalizzazione dell'intervento** potrebbe massimizzare le possibilità di successo nel migliorare la durata del sonno in soggetti sani giovani

**Interventi comportamentali, educazionali e combinati**

**STRATEGIE DI INTERVENTO**


**MATTUTINE**

# I programmi di posticipo dell'orario scolastico

# TIME

## When Sleep and School Don't Mix

By Alexandra Sifferlin



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### Start school day at 11am to let students sleep in, says expert

Paul Kelley says young people are losing 10 hours' sleep a week, and calls for 8.30am starts for primary pupils and 10 or 11am for teenagers



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### Morbidity and Mortality Weekly Report (MMWR)

News

School Start Times for Middle School and High School Students – United States, 2011-12 School Year

Please note: An erratum has been published for this article. To view the erratum, please click [here](#).

Weekly August 7, 2015 / 64(30):809-813

Anne G. Wheaton, PhD<sup>1</sup>; Gabrielle A. Ferro, PhD<sup>2</sup>; Janet B. Croft, PhD<sup>2</sup>

telegram.com WORCESTER, MASSACHUSETTS

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Tue, February 2, 2016 CALENDAR MOVIES THEN & NOW WORCESTER WORCESTER LIVING T&G 150TH TRAFFIC

NEWS NOW sex Worcester firefighter arraigned in Dudley domestic assault case

### Should students sleep in? Worcester committee tackles later school start times

By Scott O'Connell  
Telegram & Gazette Staff Follow @@ScottOConnellTG

Posted Feb. 1, 2016 at 9:35 PM

WORCESTER – Hoping to finally reach a conclusion on the issue, a school standing committee Monday night tasked district administrators with investigating the potential pitfalls of introducing later start times at the district's secondary schools.

The School Committee's Teaching, Learning and Student Supports Standing Committee plans to discuss their findings at a meeting in March.

While school officials in Worcester have been entertaining the idea of later school start times for a decade, recent studies showing the relationship between how much sleep teenagers get and their academic performance has solidified an argument in favor of making the move, committee member John Monfredo said.

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### Want to save the next generation of kids? Start school later in the morning

SUNDAY, JANUARY 14, 2018 - 4:00 AM




Image by AP

U.S. Census Bureau

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E. KENT WINWARD, special to the Standard-Examiner

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Michael J Breus Ph.D. Sleep Newzzz


### How School Start Times Affect the Economy

The surprising news about school start times and the economy. Use 30

Posted Dec 22, 2017

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It might surprise you to learn that there's also a very significant economic benefit to pushing school start times later. A first-of-its-kind study by the RAND Corporation and RAND Europe has found that moving school start times to 8:30 a.m. could contribute a whopping \$83 billion to the U.S. economy within a single decade. You read that right—that's an average of



The New York Times

Yes, Lots of People Are Getting the Flu. No, This Season Isn't So Unusual. Here's Why.

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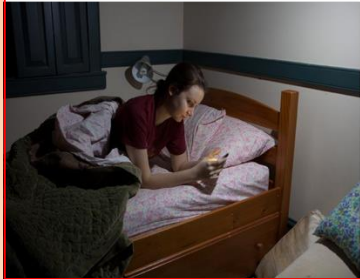
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To Keep Teenagers Alert, Schools Let Them Sleep In

BY JAN HOFFMAN MARCH 13, 2014 1:20 PM 476



The Washington Post

Democracy Dies in Darkness

Answer Sheet

# U.S. doctors urge later school start times for teens

By Valerie Strauss August 25, 2014



HUFFPOST

Terra Ziporyn, PhD, Contributor  
Executive Director and Co-Founder, Start School Later, Inc.; medical writer and historian, novelist, playwright

## California Bill Would Start School Later To Protect Teen Sleep

04/20/2017 09:37 am ET | Updated May 09, 2017

U.S. EDITION

Newsweek

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### WHY DO SCHOOLS FLUNK BIOLOGY?

BY NEWSWEEK STAFF ON 2/18/96 AT 7:00 PM

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### Why teenagers need more sleep

Allowing adolescents to lie in has benefits for health, education and the economy

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Sleeping in could mean big bucks, Santos - MCT

HEALTH & FITNESS

## How to save \$9 billion a year — letting teens sleep in and start school later

Like 13 000 Friday, Jan

MailOnline

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## Sleepy teenage brains need school to start later in the morning, CDC-backed researcher says

- Kyla Wahlstrom in a CDC-funded research fellow at the University of Minnesota
- She explains how her research shows high schoolers should get a lie-in

By KYLA WAHLSTROM FOR THE CONVERSATION  
PUBLISHED: 18:14 GMT, 14 September 2017 | UPDATED: 18:14 GMT, 14 September 2017

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Start School Later Healthy Hours

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## Why We Must - and Can - Restore Safe & Healthy School Hours

Returning to later, healthier, safer, evidence-based school hours is a reform with the potential to improve the health, safety, and academic achievement of all students. What are we waiting for?

NUFFIELD DEPARTMENT OF CLINICAL NEUROSCIENCES  
Medical Sciences Division

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## Teensleep

SCNi

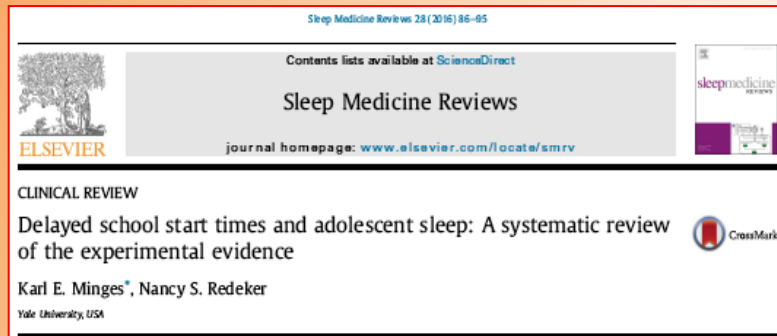
IN THIS SECTION

**Key Areas**

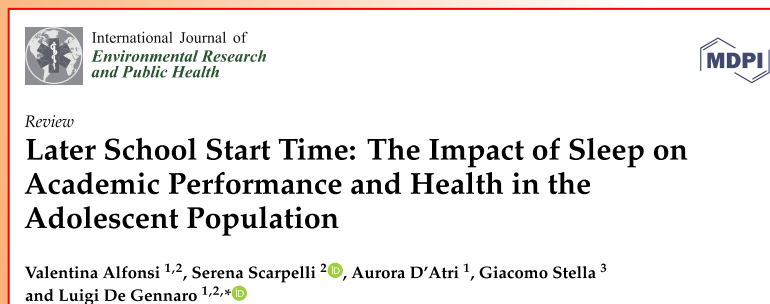
- Experimental & Clinical Sleep Medicine
- Light and The Eye
- Neuroscience of Sleep and Circadian Rhythms
- Sleep and Mental Illness
- Sleep and Society

The Teensleep project is the largest study ever to look at adolescent circadian delay and the effects of sleep education on academic, health and sleep outcomes. If the proposed intervention is found to be effective, more evidence will exist to support the introduction of a sleep education programme into the PSHE curriculum across the UK school system.

**Una grande organizzazione (USA) e un importante progetto (Oxford)**



Prove cumulative dimostrano che ritardare l'orario di inizio della scuola può essere un metodo efficace per migliorare il sonno, come il **tempo di sonno totale** e **ridurre la sonnolenza diurna**, **esiti di salute**, inclusa la riduzione della depressione e del consumo di caffeina, e **funzionamento scolastico**, come il ritardo e lo stare svegli in classe

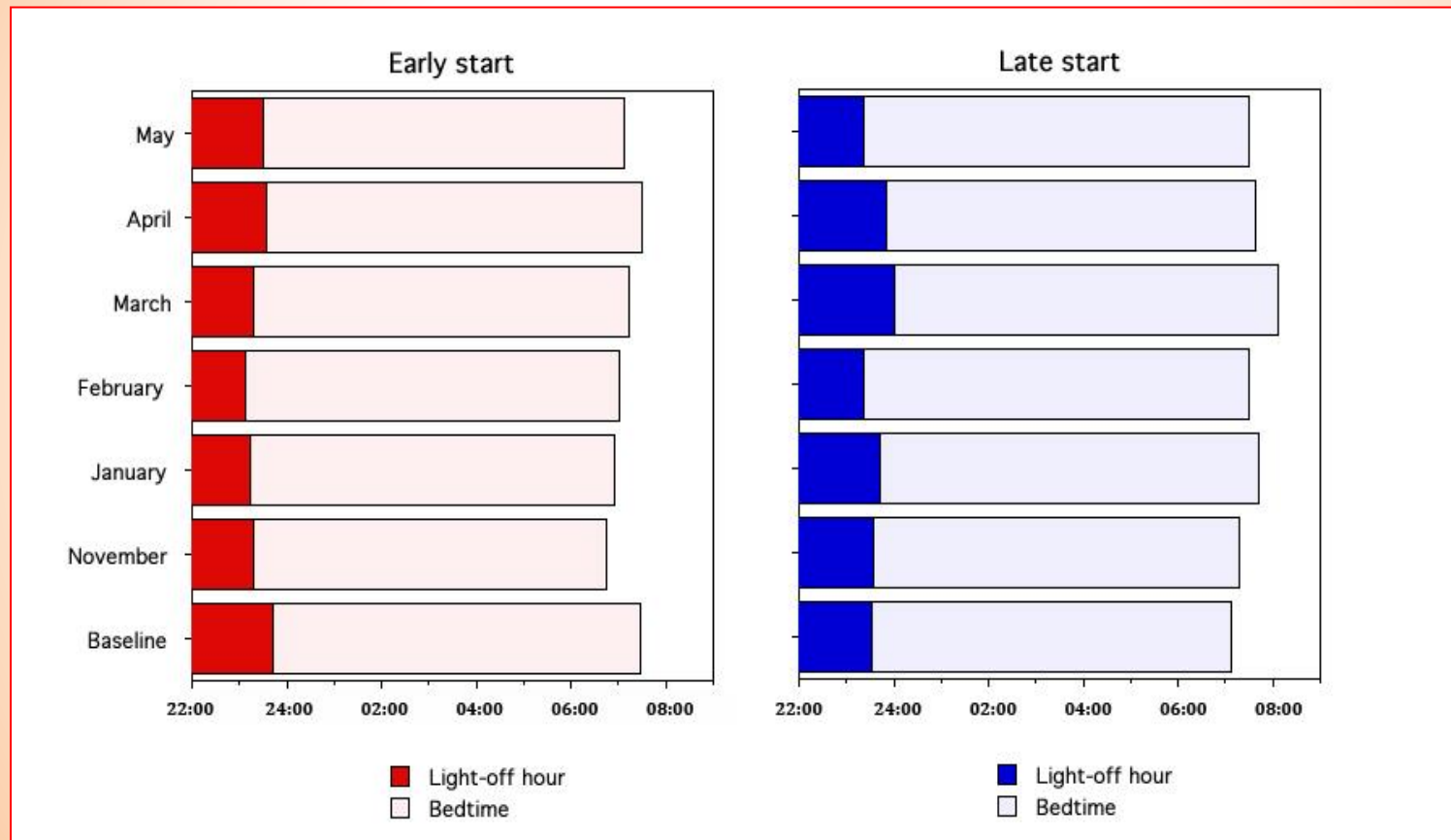


La maggior parte degli studi trasversali e longitudinali ha riportato un **aumento dei minuti totali di sonno**, in seguito ad orari posticipati, e un **miglioramento dei risultati accademici**. Il livello scolastico (scuola elementare, media, superiore) non era un fattore predittivo di eventuali variazioni nell'entità dell'aumento del sonno

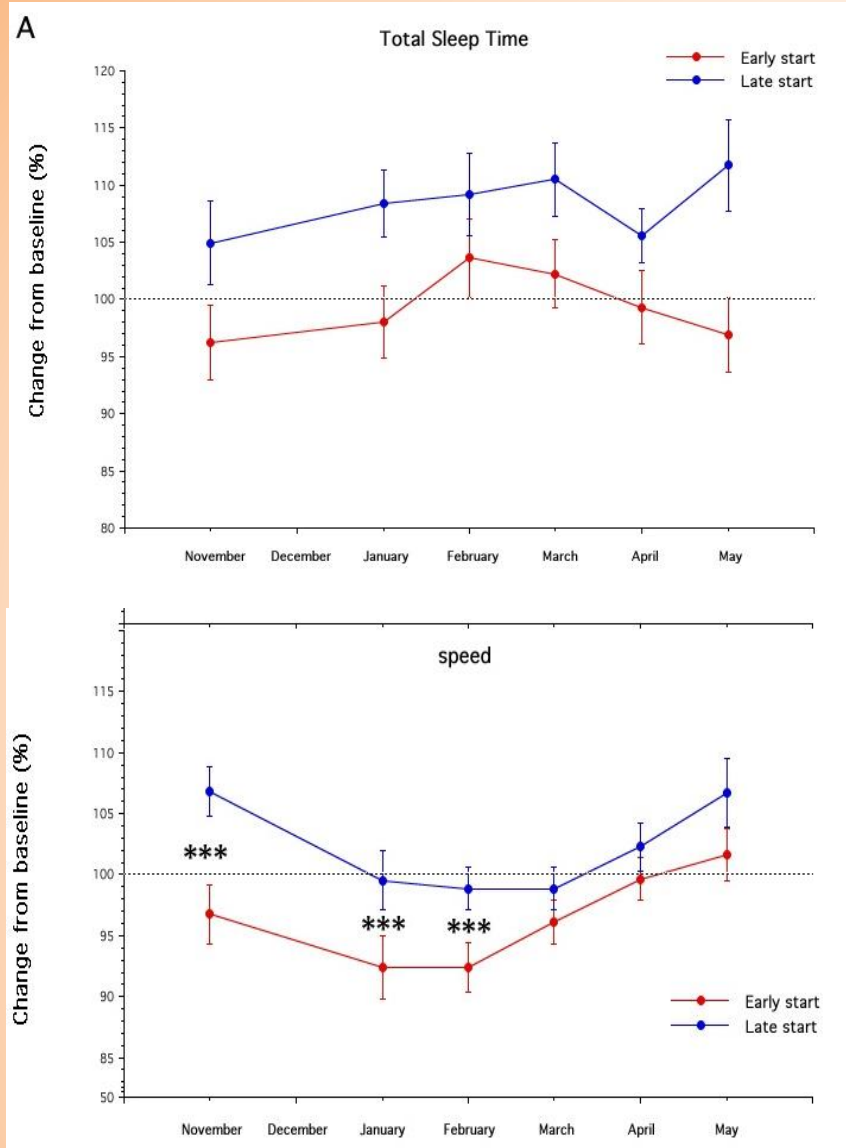
**Efficacia dei programmi di posticipo dell'orario scolastico**



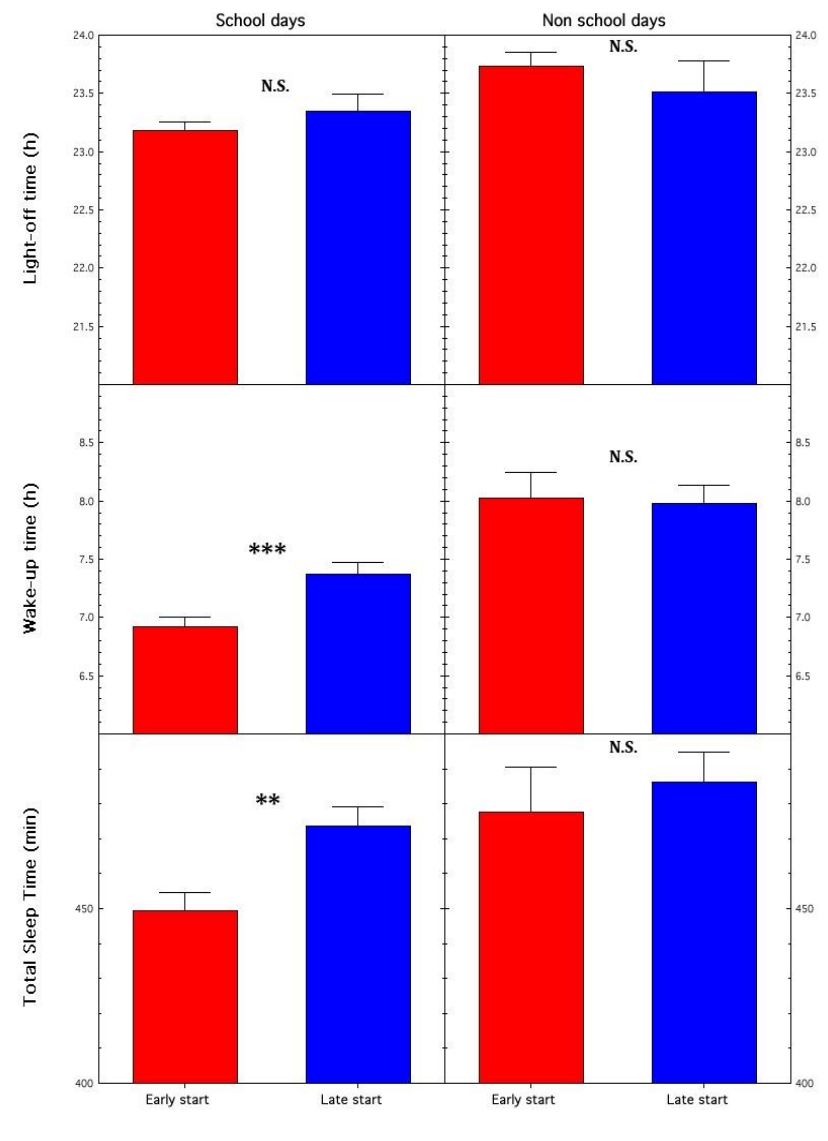
# The Association Between School Start Time and Sleep Duration, Sustained Attention, and Academic Performance



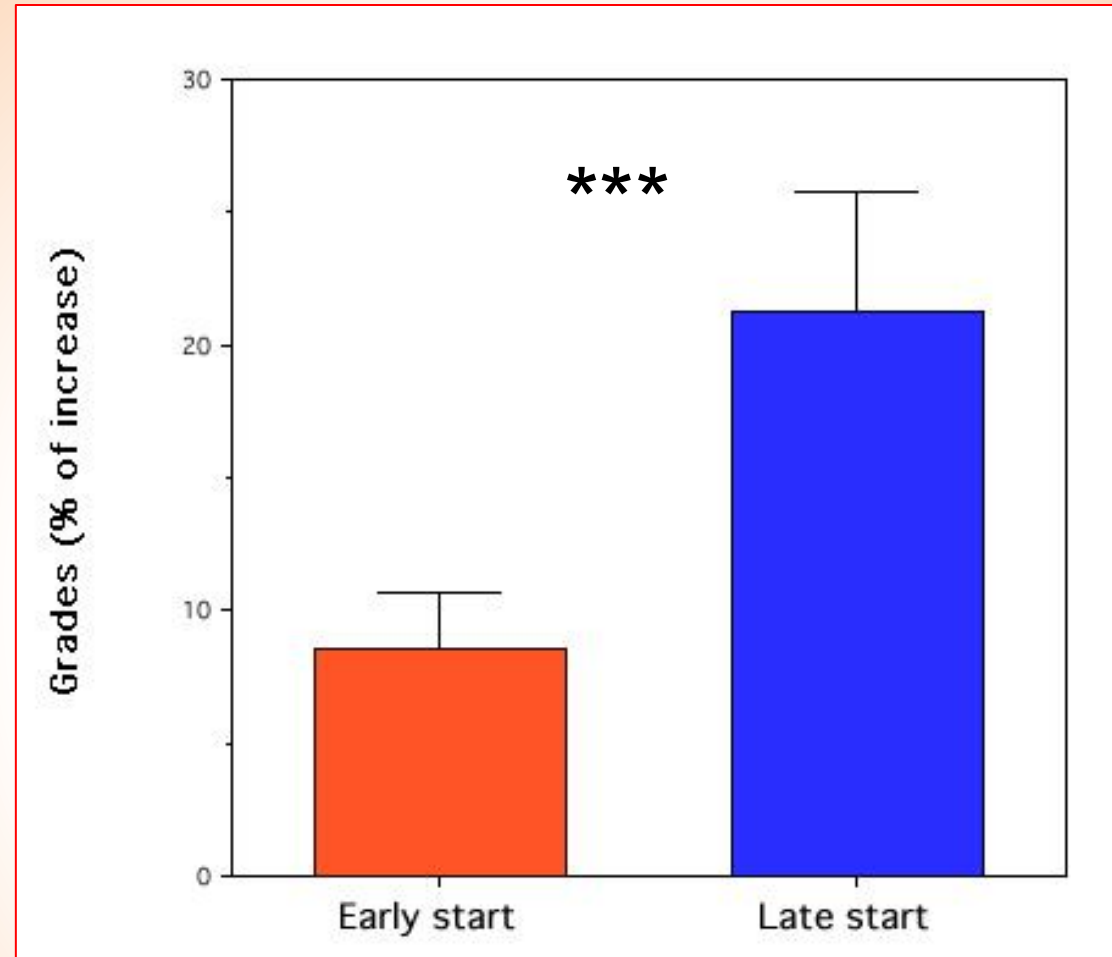
**Un anno di posticipo dell'orario scolastico nel primo progetto italiano**



Un'ora di posticipo dell'orario scolastico **aumenta il sonno, l'attenzione diurna**

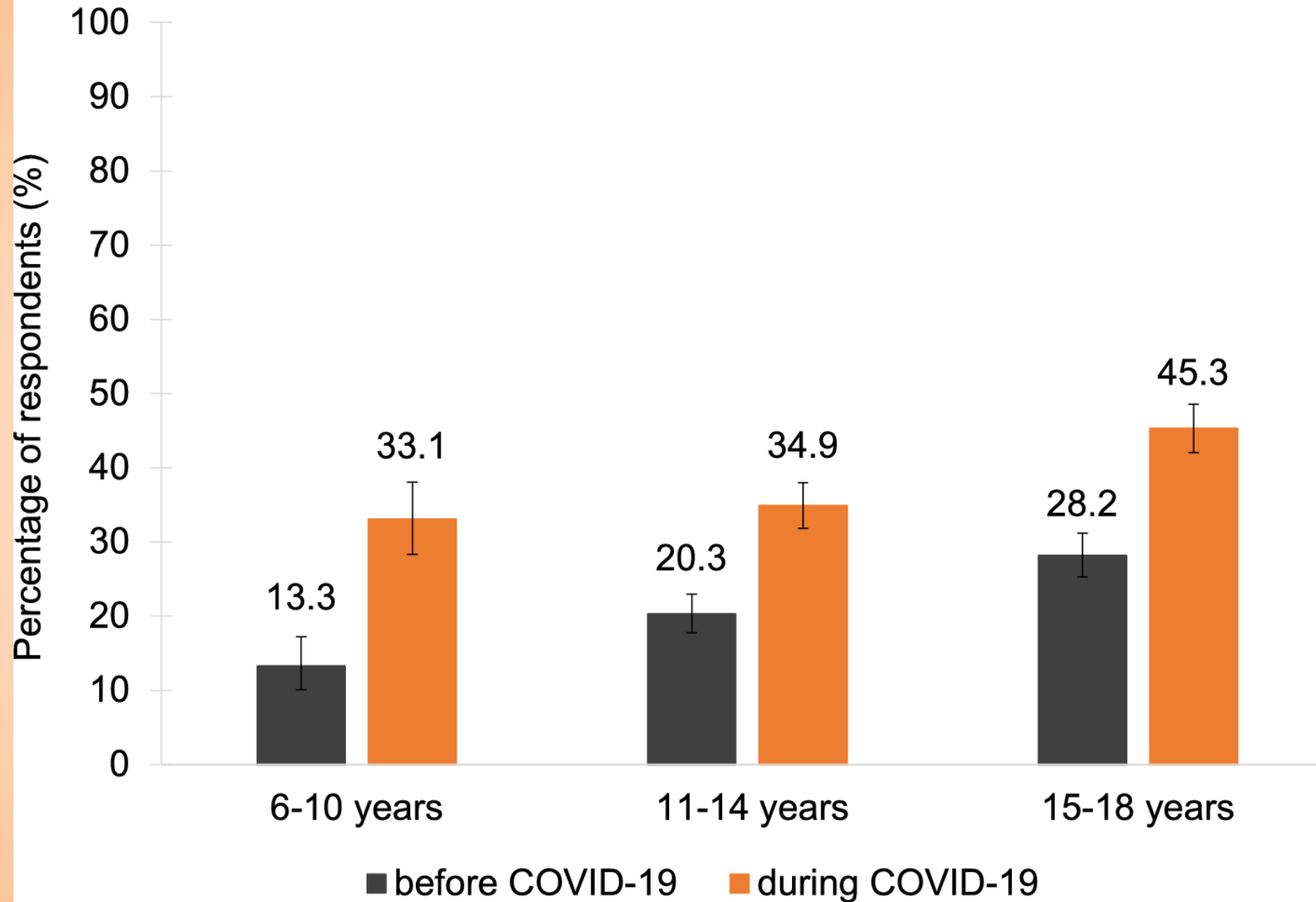


Differenze sono limitate ai **sol** giorni di scuola



**Un anno di posticipo dell'orario migliora il rendimento accademico**

# Sleeping problems

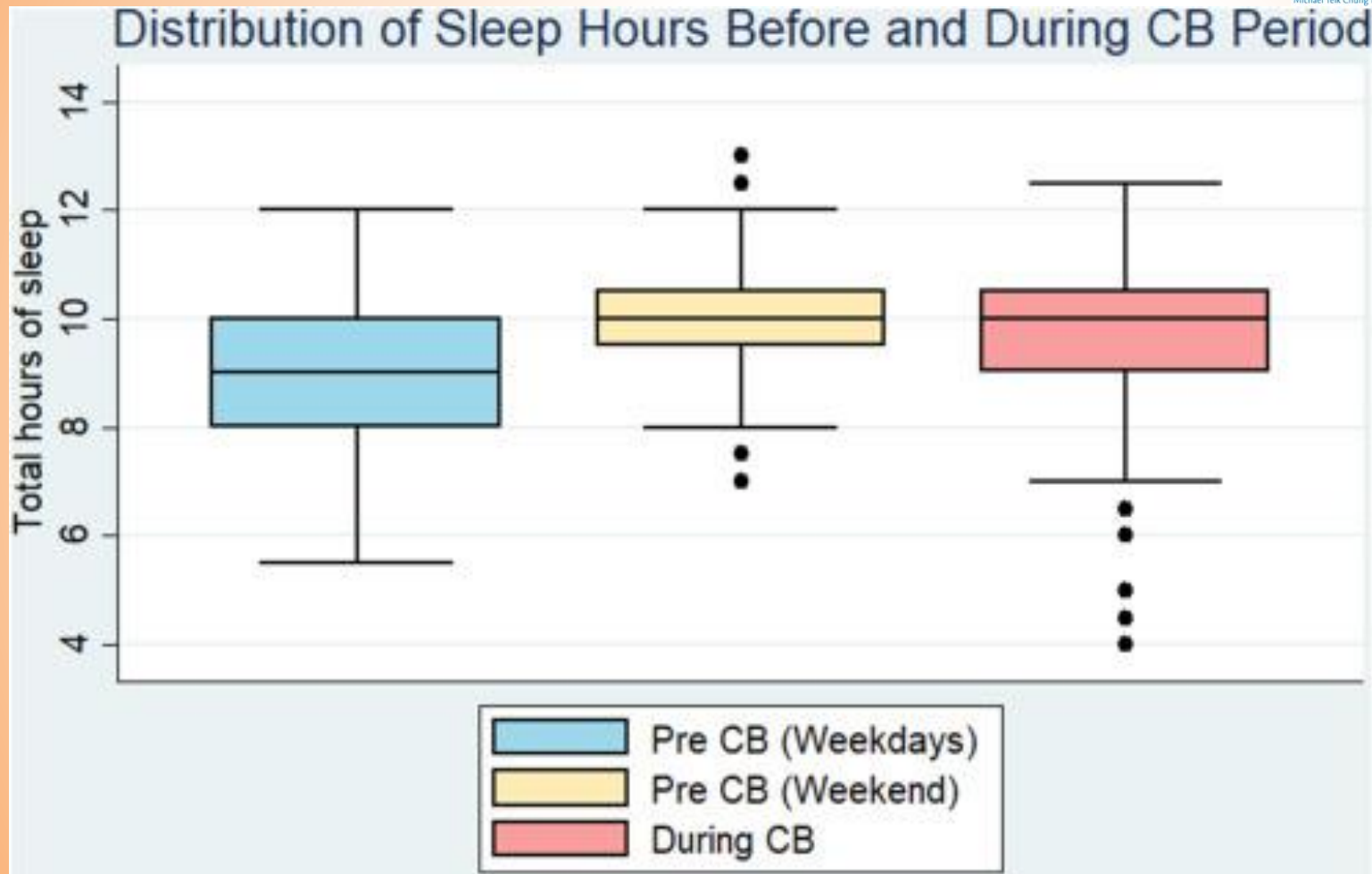


**L'esperienza del COVID-19**

Original Article

### School Closure During the Coronavirus Disease 2019 (COVID-19) Pandemic – Impact on Children's Sleep

Michael Teik Chung Lim<sup>a, b</sup>, Mahesh Babu Ramamurthy<sup>a, b</sup>, Ramkumar Aishworiya<sup>a, b</sup>, Dimple D. Rajgor<sup>a, b</sup>, Tran Ana Hiriyur<sup>c</sup>, Shangari Kunaseelan<sup>b</sup>, Majid Jabri<sup>b</sup>, Daniel Yam Thiam Goh<sup>a, b, A, B</sup>



Hypothesis test for equality of means :  $F = 242.79$ ,  $p\text{-value} = 0$

National lockdown period (called 'Circuit Breaker' or CB in Singapore)

# 8 idee per la ripartenza

di Cristina Lucera - illustrazioni di Elisa Heinger



Il 14 settembre tornano  
in classe otto milioni e mezzo  
di studenti italiani

## 7

«Iniziamo  
le lezioni  
più tardi  
al mattino»

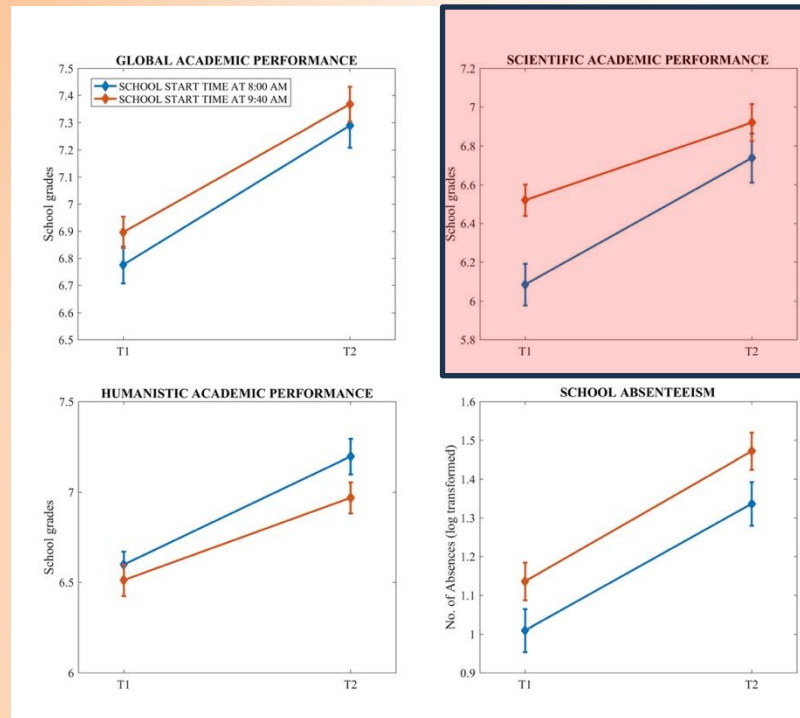
**Luigi De Gennaro,**  
docente di Psicobiologia alla  
facoltà di Medicina  
e Psicologia dell'Università  
La Sapienza di Roma



«Abbiamo la necessità di differenziare gli ingressi dei ragazzi. Quale occasione migliore per posticipare l'inizio delle lezioni? Gli studenti vanno a letto più tardi di una volta, e la mattina arrancano. L'anno scorso ho coordinato un progetto pilota all'istituto Majorana di Brindisi: una 1° è entrata alle 9 per tutto l'anno, ed è stata messa a confronto con un'altra 1° che invece entrava alle 8. Ebbene, gli alunni della classe sperimentale hanno mostrato un'attenzione più elevata e un rendimento via via migliore rispetto alla classe di confronto. Non è vero che se si entra più tardi si va a letto più tardi: gli studenti della classe col posticipo dormivano in media mezz'ora in più. Qualche settimana fa ho presentato al Miur il progetto Chronos: attraverso dei facili test si potrebbe individuare il cronotipo, cioè il ritmo biologico, degli studenti, e dividerli in due fasce con orari differenziati, facendo entrare prima chi al mattino rende meglio. Sarebbe razionale e utile, sia alle superiori, sia alle medie».

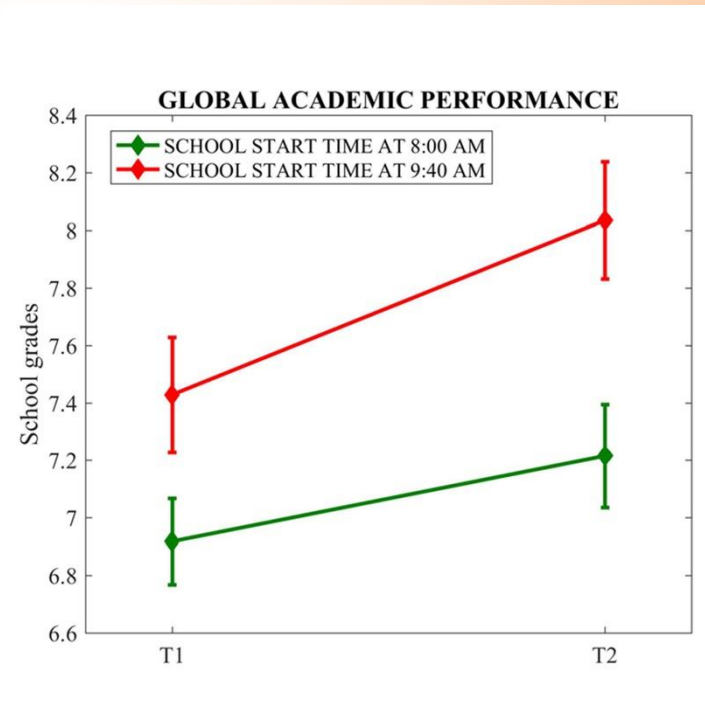
***Ex malo bonum***

## 2020/2021 (FIRST/SECOND YEAR)



Gli studenti con orari di inizio scolastico ritardati hanno mostrato una migliore performance accademica in ambito scientifico.

## 2021/2022 (LAST YEAR)



Nel secondo semestre l'orario ritardato si associava a un più elevato rendimento scolastico

# ***Take home messages***

- **Gli adolescenti dormono insufficientemente, per quantità e qualità, rispetto alle raccomandazioni internazionali**
- **Il social jetlag è, da una parte, indicatore di una perdita di sonno nei giorni infrasettimanali e, dall'altra, determina problema ulteriore con il disallineamento circadiano**
- **Un sonno adeguato per quantità e qualità si associa a migliore prestazioni di apprendimento e memoria**
- **Maggiore tempo e migliore qualità del sonno hanno effetti sul rendimento scolastico, sulla vigilanza diurna e sulla salute psico-fisica**
- **Una combinazione di strategie personalizzate di intervento potrebbe massimizzare le possibilità di successo nel migliorare la durata del sonno**
- **I programmi di posticipo dell'orario scolastico hanno rivelato un'efficacia per quanto riguarda (A) rendimento scolastico, (B) vigilanza diurna e (C) salute psico-fisica**

