

Impact of Bedtime Screen Use on Sleep Outcomes in the Elderly: A Systematic Review and Meta-Analysis

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KEY TAKEAWAYS

Bedtime screen users are **twice** as likely to experience sleep disturbances, in general, while **no impact** on sleep onset latency

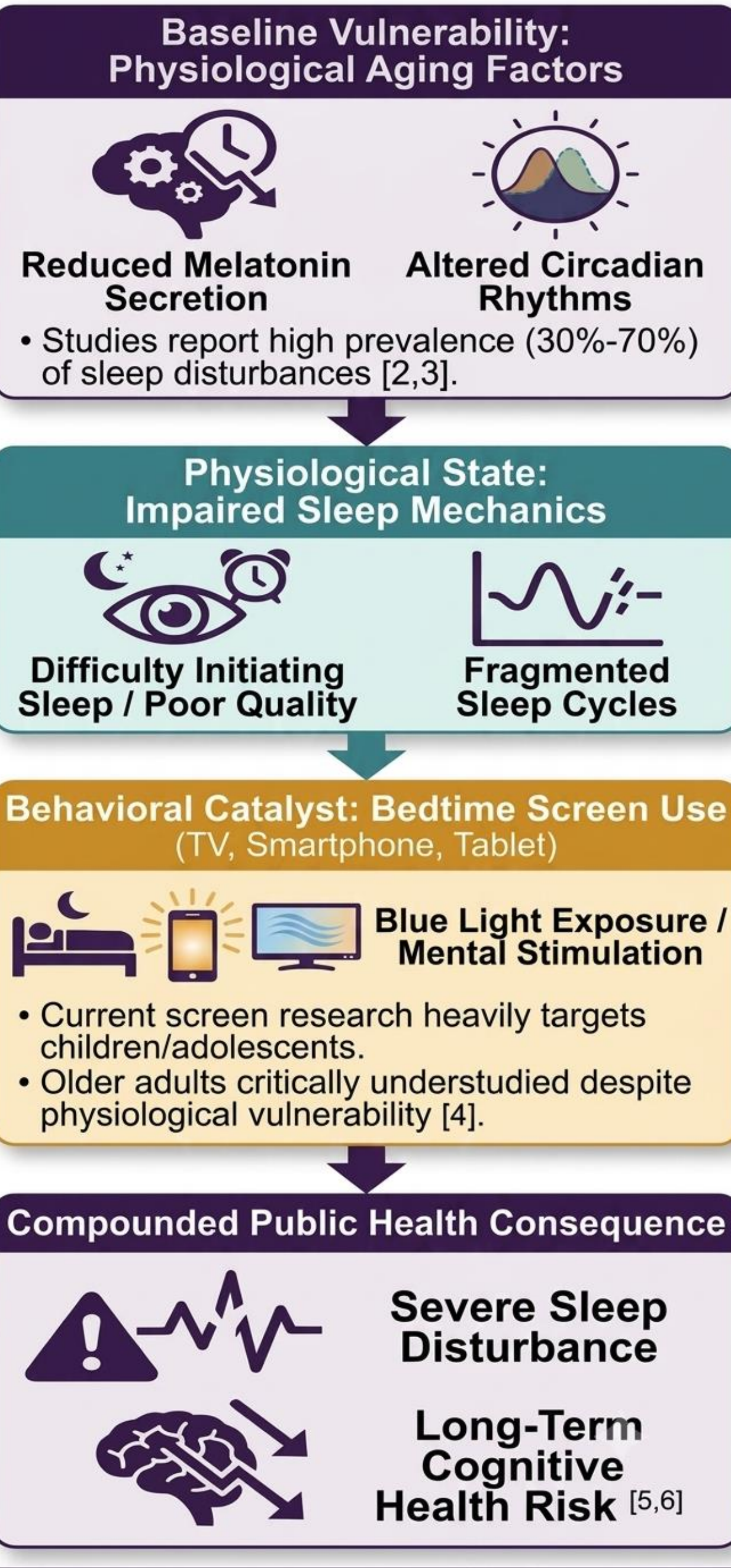
Older adults show lower usage rate, yet they can face a higher impact on sleep due to age-related sleep changes → marking a critical, unstudied **research gap**

Interactive media can be more disruptive to sleep than passive media

High heterogeneity among current cross-sectional studies highlights the need for **standardized longitudinal** research

INTRODUCTION

Sleep is a vital process that is crucial for maintaining overall health and cognitive performance [1].



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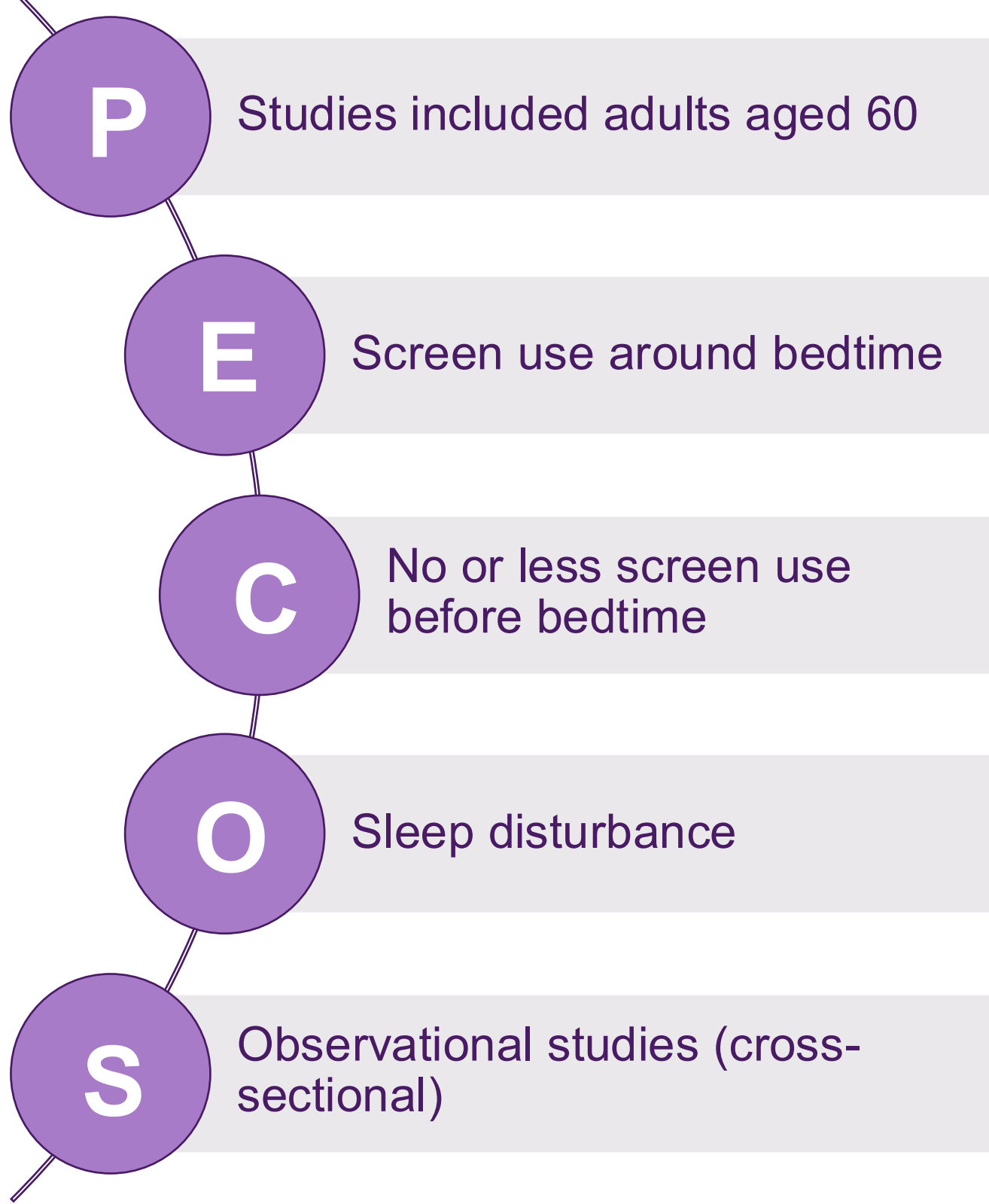
OBJECTIVES

This study aimed to examine the effect of screen use before bedtime on sleep in older adults, identify gaps in the current literature, and highlight the importance of raising public awareness about this issue.

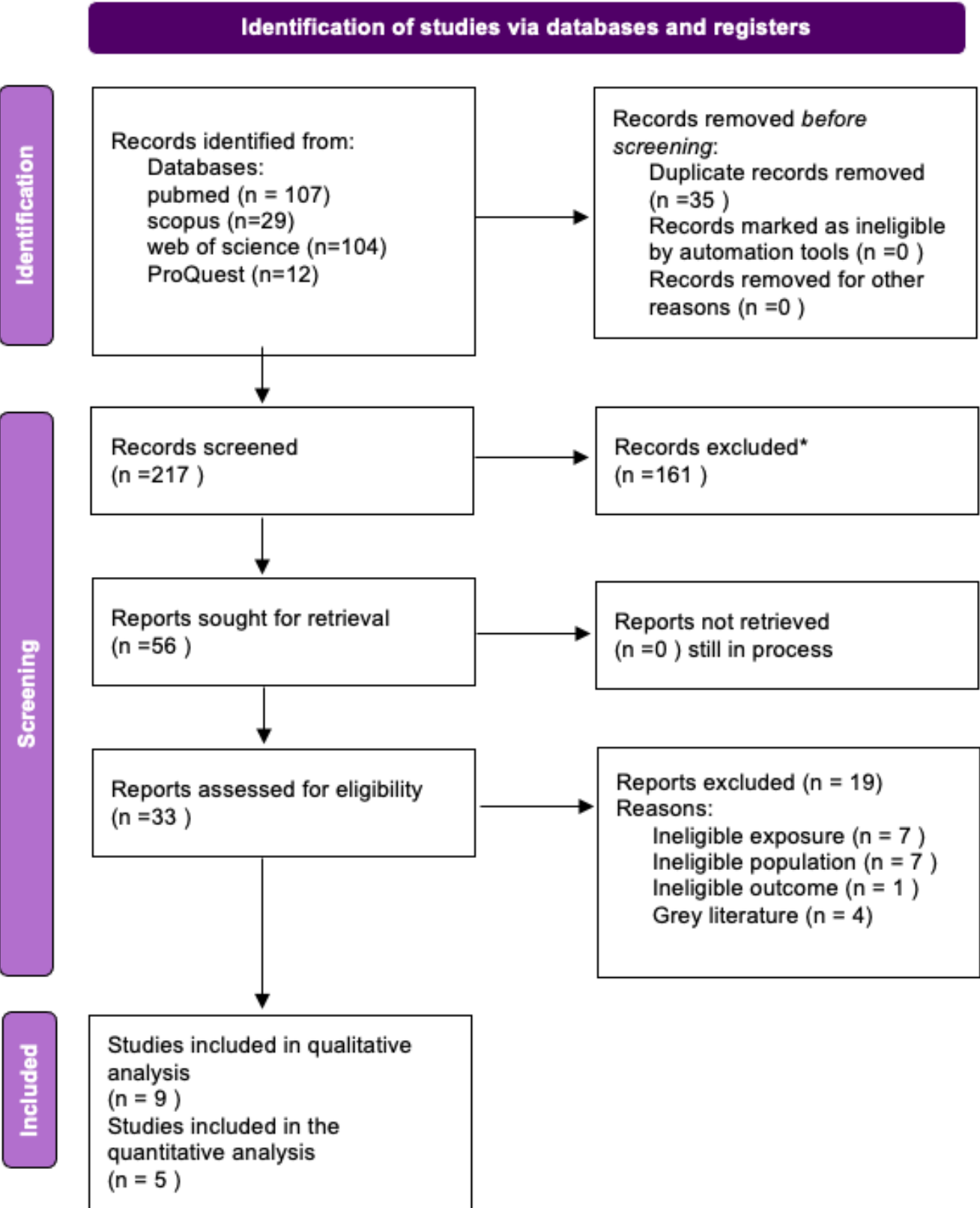
METHODS

This is a systematic review that follows PRISMA 2020 framework using PECOS model.

The PECOS model:



The PRISMA flow diagram presenting the study selection process:



*all excluded by authors. No automation was used
Databases were searched from January 2007 to November 2025

RESULTS

A total of 14 studies met the inclusion criteria. **Nine studies** were included in a **narrative synthesis** to contextualize findings and identify research gaps.

Thematic Analysis of Non-Pooled Qualitative Studies:

Study	Age-Based Usage Gaps	Interactive vs. Passive	Impaired Sleep Parameters	Workday vs. Weekend	Device Dependency
Suganuma et al. (2007)	●	●	●	●	●
Gradisar et al. (2013)	●	●	●		
Exelmans & Van den Bulck (2014)	●	●	●		●
Christensen et al. (2016)	●		●		
Green et al. (2018)			●	●	
Sun et al. (2022)	●		●		
Wang et al. (2022)	●		●	●	
Karila et al. (2025)	●		●		●
Zhong et al. (2025)			●	●	

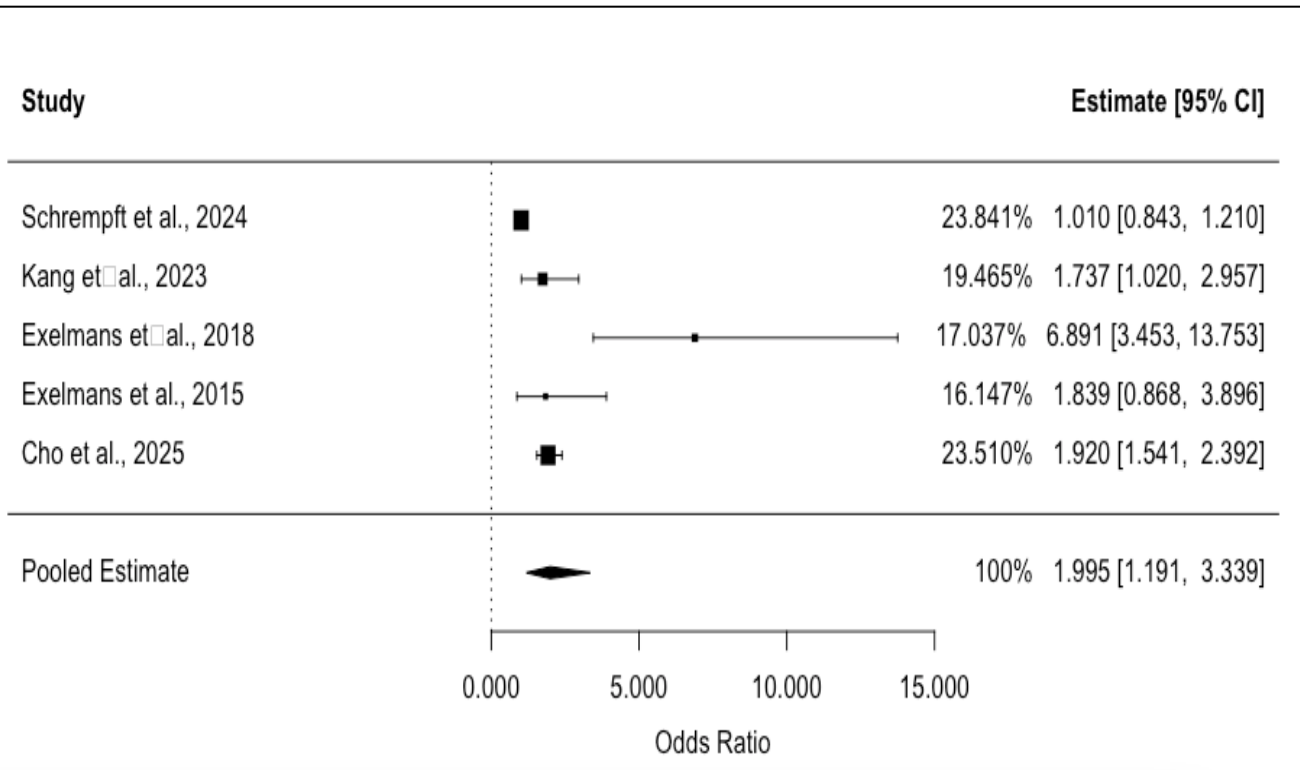
● indicates the study reported findings on this specific theme

Quantitative meta-analysis was conducted using the ORs reported for the variables of interest that most relevant to older adults

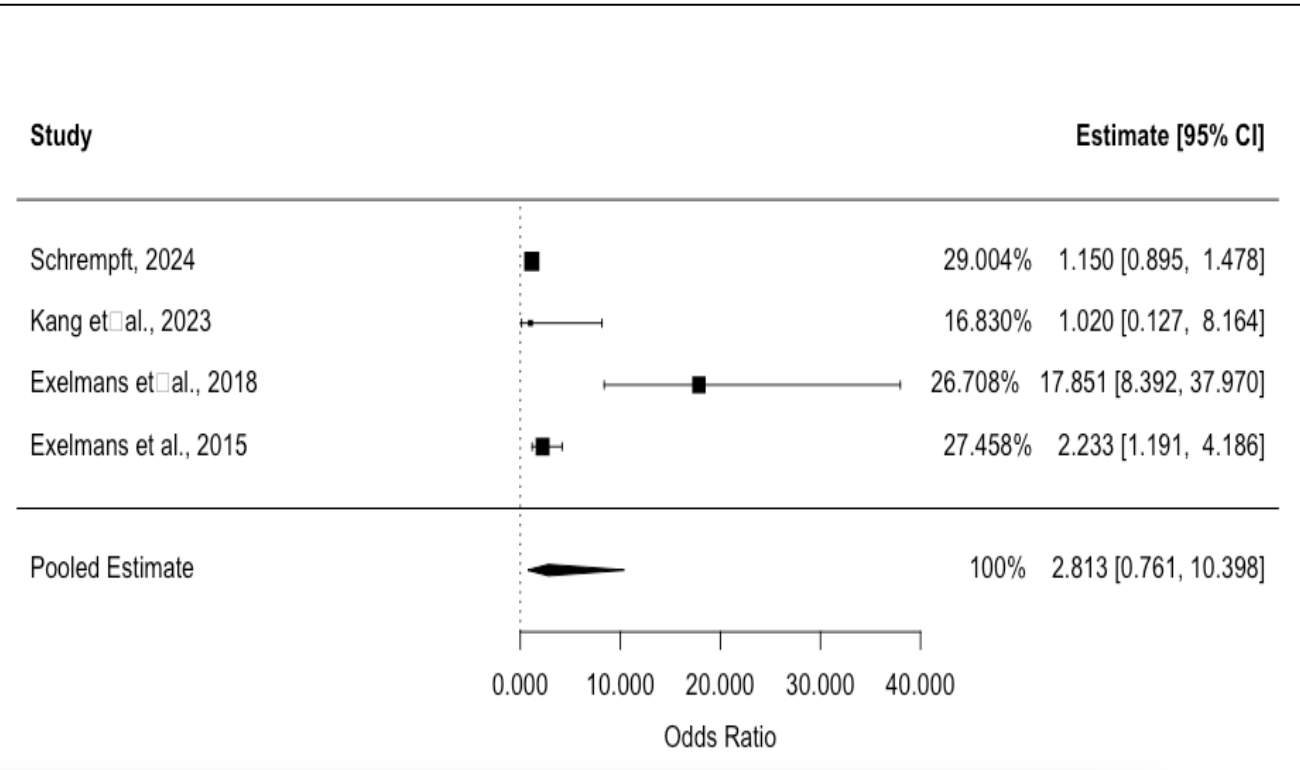
The first analysis showed that greater screen exposure before bedtime was associated with increased odds of sleep disturbances (**pooled OR ≈ 2**, 95% CI: 1.19-3.34, **p = 0.009**; $I^2 = 90.47\%$).

The second analysis did not find a significant association between bedtime screen use and sleep onset latency (**pooled OR = 2.81**, 95% CI: 0.76-10.40, **p = 0.12**; $I^2 = 93.64\%$).

Forest plot of effect size (OR) of sleep disturbances due to use of screens around bedtime:

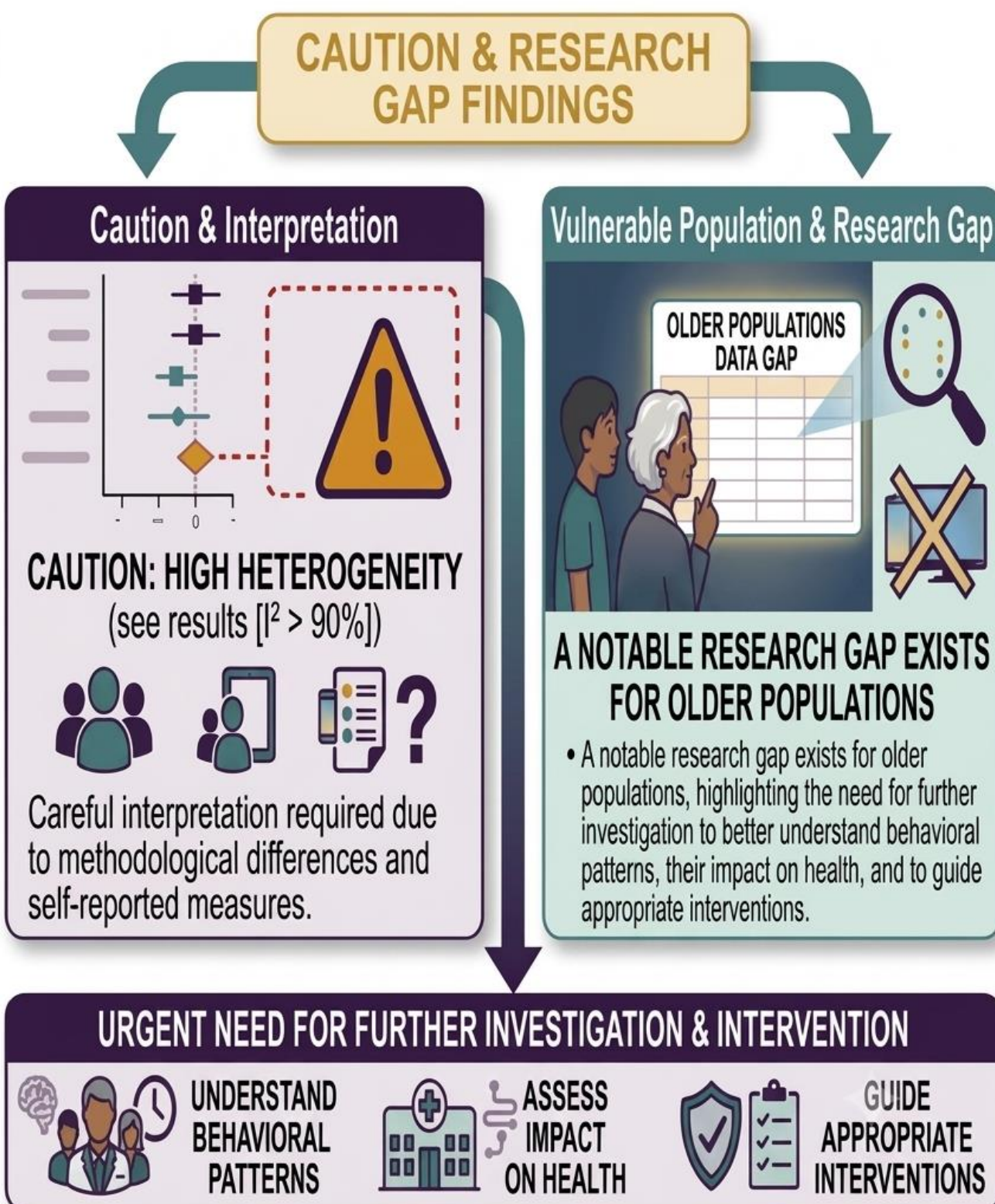


Forest plot of effect size (OR) of sleep onset latency due to use of screens around bedtime:



CONCLUSION

Although the study revealed different effects of bedtime screen use on sleep, the findings should be interpreted with caution due to high heterogeneity among studies.



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CONTACTS



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