

# Adolescent Sleep Research in Low- and Middle-Income Countries: A Scoping Review

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## REFERENCES



## INTRODUCTION

- Sleep problems and disorders are recognised as major health issues facing adolescents, but the majority of sleep research has been conducted in high-income countries (HICs).<sup>1,2</sup>
- Contextual factors (e.g., social, economic, geographical) are known to shape sleep, which suggests that data obtained in HICs cannot necessarily be extrapolated to low- and middle-income countries (LMICs).<sup>3,4</sup>
- This study aimed to scope the type of sleep problems and disorders that have been examined in adolescents in LMICs, including their measurement and prevalence.

## METHODS

### Literature search

- Databases: OVID Medline, PsycINFO, PubMed
- Terms related to: “adolescents”, “sleep” and “LMICs”.

### Study Selection

- English language
- 2011-2020
- Primary studies
- Adolescents aged 10-24 years old
- LMICs
- Prevalence studies
- Sleep problems and/or disorders

### Data extraction

- Based on JBI tool<sup>5</sup>

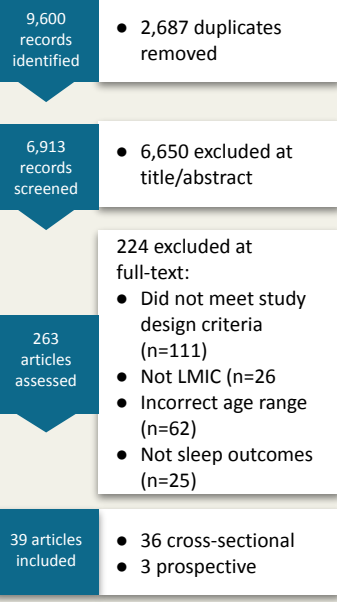
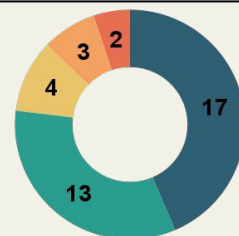


Figure 1. PRISMA Flow diagram.

Table 1. Summary of identified sleep problems and disorders.

Sleep Outcomes	N	Prevalence range (%)
<b>Sleep disorders (diagnosed or above clinical cut-off on a questionnaire)</b>		
Insomnia disorder <sup>6-10</sup>	5	1.4 - 18.9
Restless leg syndrome <sup>11-15</sup>	5	0.7 - 7.0
Sleep bruxism <sup>8,16-17</sup>	3	13.0 - 38.2
Sleep disordered breathing disorder <sup>18-20</sup>	3	3.2 - 53.3
Parasomnia disorders (e.g., sleep walking, sleep terrors) <sup>8</sup>	1	47.8
<b>Insomnia symptoms</b>		
Difficulty initiating sleep (self-report) <sup>7,10,15,19,21-22</sup>	6	0.6 - 54.2
Prolonged sleep onset latency (>30mins) <sup>23-24</sup>	2	22.7 - 48.0
Difficulty maintaining sleep <sup>7,9-10,19,21-25</sup>	9	3.1 - 51.4
Early morning awakenings <sup>7,10</sup>	2	1.7 - 4.9
<b>Other sleep problems</b>		
Poor sleep quality <sup>17,23,26-33</sup>	10	1.7 - 65.1
Excessive daytime sleepiness <sup>9,15,19,21-24,31,34-36</sup>	11	16.7 - 66.2
Insufficient sleep duration <sup>10,15,23-24,26,31,35-42</sup>	14	1.5 - 65.9
Snoring <sup>8,17</sup>	2	6.0 - 31.0
Sleep paralysis <sup>43</sup>	1	6.8
Worry-induced sleep problems <sup>44</sup>	1	14.7



- Validated questionnaire
- Single item/question
- Researcher developed questionnaire
- Validated interview or clinician
- Parent-report questionnaire

Figure 2. Summary of measurement tools (N= 39)

## KEY FINDINGS

- Data were obtained from 29 different LMICs. Asian countries and upper-middle income countries (rather than low income countries) were heavily represented.
- 15 different sleep problems and disorders were identified.
- Sleep problems and disorders were variably defined and measured.
- Prevalence rates for most sleep problems and disorders ranged widely.
- No studies examined circadian rhythm disorders.

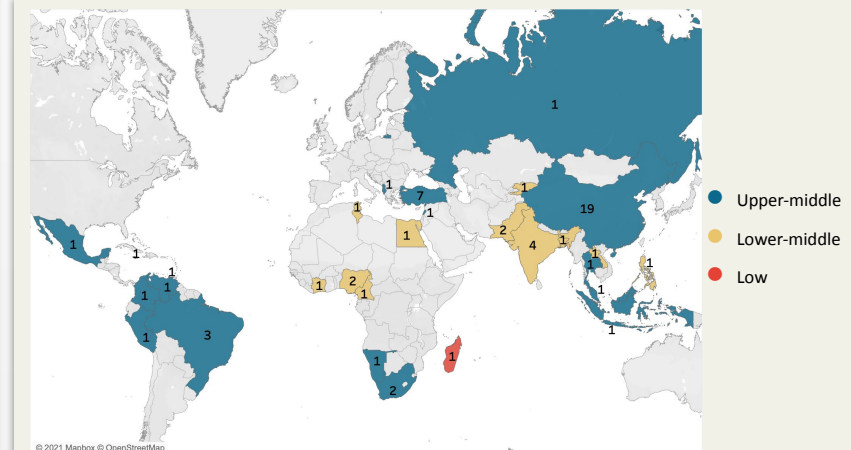


Figure 3. World map of data sources.

## CONCLUSION

- Given the significance of human sleep, there has been remarkably little adolescent sleep research in LMICs.
- Caution is required when interpreting these results as there was heterogeneity in how the outcomes were measured. However, the upper bounds of the prevalence ranges suggest sleep problems and disorders are likely to be a major public health issue in LMICs.
- More research needed, including in low- income countries, to better understand the extent and impact of adolescent sleep problems and disorders.