

Social Media Use and Sleep Quality among Indian Adolescents and Young Adults: A Pilot Cross-Sectional Survey with Directions for a Larger Study

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Abstract

It is getting harder to ignore how many young Indians are losing sleep at roughly the same time that smartphones and social apps have taken over their evenings. International studies keep finding that heavier, more compulsive platform use goes hand in hand with shorter and worse-quality sleep but Indian research has mostly stopped at total screen time without asking which platforms at what hour or how habitually. We surveyed 22 Indian social media users between the ages of 10 and 32 to see how platform choice, timing, notification exposure and habitual use tendencies actually affect with sleep duration, sleep quality, and everyday sleep disturbance. On average the respondents slept 6.8 hours a night (SD = 1.4) and most described their sleep as fairly or very good (81.8%). Interestingly, how many hours someone spent on their phone each day barely correlated with any sleep outcome we measured but a short five item habitual-use score did: it tracked more frequent sleep disturbance ($r = 0.56$) and fewer hours of sleep ($r = -0.45$). People whose heaviest scrolling happened late at night or after getting into bed slept less and rated their sleep worse than those who used social media mostly earlier in the day and the youngest group in our sample (10–18 years) slept over an hour less on average than participants in their twenties. Even in a dataset this small, it looks like how people use social media matters more than how much a pattern that matches larger international work and makes a reasonable case for a properly powered validated follow-up study among Indian adolescents.

Keywords: social media, sleep quality, Indian adolescents, habitual use, screen time, pilot survey.

I. INTRODUCTION

Adolescence and early adulthood are busy years, physically, cognitively, and socially, and sleep is one of the few things holding all of that change together: it shapes mood, memory, and how well a student performs the next day [1]. Over the last decade, smartphones and the apps that live on them have quietly taken over how young people spend their evenings. Internet and social media access among Indians aged 12 to 29 has grown faster than almost any other consumer trend, and platforms such as Instagram, WhatsApp, and YouTube are now a normal part of daily life in cities and, increasingly, in smaller towns and villages too [2].

There is no shortage of international evidence linking social media use, especially at night and when it becomes habitual, to later sleep onset, shorter sleep, and worse subjective sleep quality [3]. Indian

research, though, has mostly stayed at the level of total screen time, which leaves an obvious question unanswered: do specific platforms, timing patterns, or compulsive habits matter more than sheer duration? We try to chip away at that question here using an original, small-scale survey of Indian social media users. What we found is modest in scope, but it is enough to point toward where a larger, more rigorous study should look next.

II. LITERATURE REVIEW

A. Social Media Use and Sleep: The Global Evidence

The link between social media and sleep has by now been studied across a huge range of adolescent and young adult populations, and the picture that emerges is fairly consistent. A 2025 scoping review that pooled ten systematic reviews and meta-analyses found a small but dependable negative association between social media use and sleep quality, and, notably, that habitual or problematic use tracked poor sleep far more consistently than simple time-on-app did [3]. A related meta-analysis put the pooled effect size in the small-to-moderate range ($r \approx 0.36$), a number that has held up reasonably well across different kinds of studies. Large cohort data tells much the same story: the UK Millennium Cohort Study found that adolescents who used social media more heavily each day fared worse on several sleep measures, including how long it took them to fall asleep and how often they woke at night, even after adjusting for other factors. European longitudinal work reaches a similar conclusion, finding that both how often teens used social media and how compulsively they used it predicted later bedtimes and poorer perceived sleep, with parental rules about nighttime device use offering only partial protection for the heaviest users [3].

B. Why Social Media Might Disrupt Sleep

A few overlapping explanations have been put forward for why this happens. The most physiological one is light: screens give off short-wavelength light that suppresses melatonin and pushes back the body's internal signal for sleep, something that has been replicated repeatedly in lab studies of evening light exposure [4]. Then there is the content itself. Messaging threads, video feeds, and social comparison can leave someone keyed up rather than settled, which is the opposite of what you want right before bed. Fear of missing out plays a role too; it is a well-documented driver of compulsive checking, and it raises pre-sleep arousal even independently of how much time someone actually spends online, sometimes pulling adolescents awake specifically to check a notification [5], [6]. And finally, there is design: streaks, disappearing content, and push alerts are all built to hold attention, and holding attention at 11 p.m. tends to come at sleep's expense.

C. Does the Platform Itself Matter?

Most of the early research treated social media as one undifferentiated activity, but that has started to change. The 2025 scoping review found that Facebook and Twitter were the platforms most strongly tied to shorter sleep and later bedtimes, Snapchat and Instagram sat in the middle, and messaging-first apps like WhatsApp and WeChat showed comparatively small effects [3]. A similar picture came out of the EHDLA project's data on Spanish adolescents, where overall network use, and especially addictive engagement with it, was linked to sleep problems, with the strength of that link shifting from platform to platform. What keeps coming up across this body of work is that compulsive or addictive patterns of use, marked by a loss of control, mood-dependence, and something close to withdrawal, predict poor sleep more reliably than raw time spent does. In other words, how a teenager uses these apps may matter just as much as how long they are on them.

D. Evidence from India

India has more studies on this than it used to, but they mostly still look at total screen exposure rather than social media on its own. Using the nationally representative UDAYA survey of over 16,000 Indian adolescents and young adults, Maurya et al. found that more than two hours of daily smartphone use came with significantly higher odds of self-reported sleep problems, and that this effect was stronger among girls [7]. A Mumbai study of over 1,200 adolescents reported that just over half (52.5%) scored in the poor-sleep range on the Pittsburgh Sleep Quality Index, and that nearly two-thirds spent at least two to three hours a day on social networking, with heavier use tied to both worse sleep and less physical activity [8]. Earlier school-based research in Delhi found a similar pattern of disrupted sleep, along with knock-on effects on mood and academic performance [9].

Qualitative work fills in some of the texture the numbers miss. In interviews conducted by Taddi et al., Indian adolescents brought up, unprompted, that social media interfered with their sleep, alongside effects on mood and self-esteem, and named Instagram and Facebook most often as the platforms behind these experiences [2]. Put all of this together and the message from Indian research is clear enough: heavier smartphone and social media use goes with worse adolescent sleep. What it has not done yet is dig into platform-specific patterns, nighttime engagement, or how severe someone's compulsive use is, with anything like the detail international studies now bring to the table.

E. The Gap This Paper Addresses

Three gaps stand out to us. Indian research has generally lumped every platform together instead of distinguishing, say, a messaging app from a short video feed, even though the two behave very differently. Very few Indian studies use a validated sleep instrument such as the PSQI on a general adolescent population rather than a clinical or college sample. And nobody as far as we can tell has systematically tested within an Indian sample whether habitual or compulsive use matters more than sheer duration, despite fairly strong international evidence that it does. The survey we describe below is a first, admittedly small step toward closing these gaps, and we use its results to sharpen the design of a larger study that could address them properly.

III. MATERIALS AND METHODS

A. Design, Setting, and Participants

We ran a cross-sectional, questionnaire-based pilot survey online in 2026, sharing the link informally through student and community networks in India. This was a convenience/snowball approach rather than formal institutional sampling, and we return to what that means for the results in the limitations section. Twenty-two valid responses came in from participants aged 10 to 32, split across three broad age bands: 10–18 years ($n = 8$, 36.4%), 19–25 years ($n = 11$, 50.0%), and 26–32 years ($n = 3$, 13.6%). The sample was 54.5% female ($n = 12$) and 45.5% male ($n = 10$), and mostly urban (81.8%), with smaller shares from rural (13.6%) and semi-urban (4.5%) areas.

Given how small, self-selected, and geographically lopsided this sample is, we treat it here as a pilot dataset rather than a definitive account of Indian adolescent sleep; in scale, it is not far off the pretest phase ($n \approx 30$ –50) that would normally come before a full study. Its job is to surface preliminary patterns and stress-test the questionnaire before a properly powered, stratified data collection effort is attempted.

B. Measures

The questionnaire was organized around five broad areas:

- Demographics - age band, gender, and type of residential setting.

- Platform use - which platforms respondents used regularly, which single platform they used most, how much time they spent on it daily, and when in the day their use peaked.
- Nighttime behavior - whether they used their phone after getting into bed, how long they kept scrolling if so, how often notifications disturbed them overnight, and whether they slept with their phone within arm's reach.
- Habitual use tendencies - a five-item Likert scale (Strongly Disagree to Strongly Agree) asking about restlessness when unable to check social media, checking it first thing on waking, trying and failing to cut down, losing track of time while scrolling, and fear of missing out. We averaged these five items into a single composite score.
- Sleep and wellbeing - usual bedtime, how long it takes to fall asleep, average hours slept on a school or work night, a global rating of sleep quality over the past month, a four-item sleep-disturbance scale (trouble falling asleep, waking during the night, daytime sleepiness, and waking up still tired) modelled loosely on standard sleep indices like the PSQI, self-rated academic stress, whether they exercise regularly, and overall mood.

Bedtime and sleep-onset latency were collected as free text, so answers came back in every format imaginable, things like "10.3", "11pm", or "around 60 minutes", and we standardized these into numeric values during cleaning. A handful of sleep duration entries had also been silently converted into calendar dates by the spreadsheet software whenever someone typed a range like "8-9"; we reconstructed the original hour range from the underlying month day values before analysis.

C. Data Analysis

We summarized categorical variables as frequencies and percentages, and sleep duration as a mean and standard deviation. Ordinal items, including screen time, notification frequency, the habitual use responses, the disturbance items, and global sleep quality, were coded numerically so we could run exploratory correlations using Pearson's *r*. Given how small the sample is, we treat these coefficients as indicators of direction and rough strength rather than as anything approaching a significance test, and we did not correct for multiple comparisons. All of the analysis was done in Python using pandas and NumPy.

D. Ethical Considerations

Participation was voluntary and we anonymized responses before analysis; the email addresses collected for form validation were never used in reporting results. Since this was a pilot exercise rather than a formally registered study, it did not go through institutional ethics review. Section VIII carries forward the fuller consent, assent, and ethics-committee procedures that a larger follow-up study, built on what this pilot suggests, would need to follow.

IV. RESULTS

A. Sample Profile

Table I lays out the demographic makeup of the 22 respondents.

TABLE I sample characteristics (n = 22)

Characteristic	Category	n	%
Age	10–18 years	8	36.4
	19–25 years	11	50.0
	26–32 years	3	13.6

Characteristic	Category	n	%
Gender	Female	12	54.5
	Male	10	45.5
Residence	Urban / City	18	81.8
	Rural / Village	3	13.6
	Semi-urban / Town	1	4.5

B. Patterns of Social Media Use

Instagram came out as the most-used platform overall (45.5%, $n = 10$), with YouTube (27.3%, $n = 6$) and WhatsApp (22.7%, $n = 5$) behind it; one respondent could not choose between WhatsApp and Instagram and named both. Daily time on that primary platform was fairly evenly spread across the options: 31.8% said one to two hours, 27.3% said two to four hours, 22.7% said four to six hours, and 18.2% said under an hour. A little over half (54.5%) said their heaviest use happened in the evening, 22.7% said late at night or after getting into bed, 18.2% said the afternoon, and just one respondent (4.5%) said morning.

Most respondents (59.1%, $n = 13$) admitted to using their phone after getting into bed, and among those who kept scrolling, how long varied a lot: 36.4% said under 15 minutes, 22.7% said 15 to 30 minutes, another 22.7% said 30 to 60 minutes, and 18.2% said over an hour. Roughly four in ten (40.9%) kept their phone within arm's reach overnight. When it came to notifications, 63.6% said they were never or rarely disturbed at night, while the rest reported some level of disruption, whether sometimes, often, or always. On the habitual-use items, responses clustered around neutral-to-mild agreement rather than anything stronger. Losing track of time while scrolling got the most agreement (50.0% agreed or strongly agreed), followed by finding it hard to cut down despite trying (22.7% agreed). Feeling restless when unable to check social media was the item people agreed with least; most either disagreed or stayed neutral.

C. Sleep and Wellbeing Profile

Sleep duration averaged 6.8 hours a night across the whole sample ($SD = 1.4$), ranging from as little as 3 hours to as much as 9. Most people rated their sleep positively overall: 50.0% called it fairly good and 31.8% called it very good, which together add up to 81.8% of the sample, against 13.6% who called it very bad and 4.5% who called it fairly bad. Academic stress mostly sat at moderate (63.6%), with smaller groups reporting high (22.7%) or very high (4.5%) stress. Just under 60% (59.1%) said they exercised regularly. Half the sample (50.0%) rated their mood as good and a further 40.9% as fair, with excellent and poor each claimed by a single respondent.

D. Associations Between Use Patterns and Sleep Outcomes

Table II sets out exploratory correlation coefficients linking the key use-related variables to three sleep outcomes: self-rated global sleep quality, average sleep duration, and the four-item sleep-disturbance composite.

TABLE II exploratory correlations between social media use and sleep outcomes

Predictor	Sleep Quality (r)	Sleep Duration (r)	Sleep Disturbance (r)
Daily screen time	-0.09	+0.22	+0.05

Predictor	Sleep Quality (r)	Sleep Duration (r)	Sleep Disturbance (r)
Bedtime phone / social media use	-0.10	+0.23	+0.19*
Notification disturbance	-0.04	-0.01	+0.35
Habitual-use index	-0.15	-0.45	+0.56
Academic stress	-0.07	-0.11	+0.18*

**Estimated from related item groupings; interpret with particular caution given the very small subgroup sizes involved.*

Two things jump out of this table. Raw daily screen time barely moved any of the three sleep outcomes. Its correlation with quality, duration, and disturbance all sat close to zero. The habitual-use index told a completely different story: it correlated moderately with more frequent sleep disturbance ($r = 0.56$) and with shorter sleep ($r = -0.45$), even though its link to the single-item global sleep-quality rating stayed weak. In short, how habitually someone used social media said more about their sleep than how many hours they logged on it.

Timing added another layer to the story. Respondents whose heaviest use fell late at night or after getting into bed averaged 6.4 hours of sleep and a mean sleep-quality score of 2.2 on a 1–4 scale, against 7.2 hours and 3.1 among evening users. Age stood out too: the youngest group (10–18 years) averaged 6.0 hours of sleep, over an hour less than the 7.3 hours reported by the 19–25 group, which is notable given that adolescents generally need more sleep than young adults, not less. Gender made almost no difference to any of the three outcomes. Differences between platforms, on the other hand, were smaller than we expected given the international literature: Instagram, YouTube, and WhatsApp users came out with broadly similar sleep-quality and disturbance scores. We would not read too much into that, though, since some of these platform, groups had as few as five respondents, which makes the comparison shaky rather than a real contradiction of prior findings.

As a rough sanity check on the questionnaire itself, we looked at whether the sleep-disturbance composite behaved the way it should. It did: it correlated with the global sleep-quality rating ($r = -0.41$) and with sleep duration ($r = -0.57$) in the expected direction, and weakly with mood ($r = 0.29$ between mood and sleep quality). That internal consistency is a small but reassuring sign that respondents were answering the different sleep-related items in a coherent way even with so few of them.

V. DISCUSSION

The clearest signal to come out of this pilot echoes what larger international studies have already reported. It is not really how long young people spend on social media that tracks with their sleep but how habitually they use it and when. A plain hours per-day figure told us almost nothing about sleep quality, duration, or disturbance in our sample, whereas the habitual use index and the timing of peak use both showed moderate, meaningful associations in the direction we would expect. That fits well with the 2025 scoping review's finding that problematic use predicts poor sleep more reliably than general or time based use does [3], and with longitudinal evidence that frequency and compulsive engagement together, not time alone, predict later bedtimes and worse perceived sleep [10].

One finding worth sitting with is that our youngest respondents (10–18 years) reported markedly less sleep than those in their twenties, even though younger adolescents generally need more sleep, not less, for

healthy development. Taken alongside the fact that late night and in-bed users reported both shorter and lower-quality sleep, it looks like whatever pressure social media places on adolescent sleep may be landing hardest on the group least able to absorb it. That fits with the UDAYA-based finding that heavier smartphone use carried a stronger sleep problem association in some demographic subgroups than others [7].

We expected platform specific differences to show up more clearly, given how strong they appear in the international literature [3], but they did not in our data. That is probably down to small, uneven subsamples, as few as five respondents in the WhatsApp primary group, rather than real evidence that platform choice does not matter in India. Settling that would take a larger, better stratified sample.

Put together, these results back up a broader point: Indian research on adolescent sleep needs to get past aggregate screen time measures. The behavioral texture of use, how habitual it is, when it happens and possibly which platform it happens on seems to carry more explanatory weight than raw duration, even in a dataset this small.

VI. LIMITATIONS

The biggest limitation here is simply size. Twenty-two respondents cannot carry statistically robust conclusions, and every correlation reported in this paper should be read as suggestive rather than confirmed. We also recruited through convenience and snowball methods, relying on personal and student networks rather than a structured sampling frame, so the sample is not representative of Indian adolescents or young adults as a whole. It skews urban and reasonably well educated. Age, gender, and platform subgroups were uneven in size too, which weakens any subgroup comparison, including the platform specific one reported above.

The measures we used were self-constructed rather than drawn from validated instruments such as the full Pittsburgh Sleep Quality Index or the Bergen Social Media Addiction Scale. The sleep-disturbance and habitual use composites behaved sensibly and correlated the way we would expect, which is encouraging, but they have not been formally validated. All the data were self-reported, which opens the door to recall error and to people answering in a more socially acceptable way than reality, especially on items touching compulsive behaviour. A few open-text fields, bedtime and sleep-onset latency in particular, were filled in inconsistently and needed interpretation during cleaning, adding another layer of noise. And because the design is cross-sectional, we cannot say anything about causal direction; it is entirely possible that adolescents who already sleep badly turn to their phones more during the hours they are awake, rather than the phone use causing the poor sleep in the first place, a two-way relationship the wider literature has also flagged.

VII. TOWARD A LARGER, VALIDATED STUDY

We would read these preliminary results as a case for investing in a properly designed follow-up, not as a final word on the subject. A fuller study should keep this pilot's focus on platform-specific and behavioral detail while fixing its shortcomings: a stratified, multi-stage sample of roughly 800 to 1,200 school and college going adolescents across government and private institutions in several Indian cities, recruited to capture really socioeconomic and geographic diversity. The full Pittsburgh Sleep Quality Index as the main sleep-quality measure, paired with a validated habitual use scale such as the Bergen Social Media Addiction Scale adapted for adolescents and multivariable regression models adjusting for age, gender,

academic stress, physical activity, and mental wellbeing, following the approach used in comparable Indian studies [7].

If the associations we found here hold up at scale, the evidence could feed into action at several levels at once. At the individual level, that means sleep hygiene and self-regulation skills, things like recognizing FOMO-driven checking and using scheduled do-not-disturb settings. At the family level, it means guidance on device rules before bedtime, which longitudinal research suggests works best early on, as prevention rather than a fix once someone is already a heavy user [10]. Schools could fold digital-wellbeing content into existing health education, platforms could default to pausing notifications overnight for younger account holders, and public-health messaging could start treating sleep and digital habits as connected rather than as two separate problems.

VIII. ETHICAL FRAMEWORK FOR THE PROPOSED FOLLOW-UP STUDY

- Approval will be sought from the relevant Institutional Ethics Committee before any further data collection begins.
- Informed consent will be obtained from parents or guardians, with assent obtained from adolescent participants themselves, consistent with standard practice for minors in Indian research [2].
- Participation will remain voluntary and anonymous, with participants free to withdraw at any point without consequence.
- Any participant flagged by screening instruments as being at meaningful risk for example, severe sleep disturbance or psychological distress will be offered appropriate referral information.

IX. CONCLUSION

Even at this modest scale, our survey adds a small but coherent piece of Indian evidence to a growing international picture: how young people use social media, habitually or casually, late at night or earlier in the day which seems to matter more for their sleep than how many hours a screen sits in front of them. Younger respondents slept noticeably less than older ones and anyone whose engagement crept into bedtime paid for it in both how long and how well they slept. None of this settles the question for good, given the sample's size and how informally it was recruited but it does strengthen the case we made in the literature review: Indian research on adolescent sleep is overdue for a move away from blunt screen-time tallies and toward the platform-specific, behavioral detail that this pilot has only started to sketch out.

ACKNOWLEDGMENT

The authors thank the students and community members who volunteered their time to complete the survey that made this pilot analysis possible and acknowledge the School of Management, CMR University, Bangalore, for its consistent support during the preparation of this paper.

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