Impact of Social Media use and Its Effects on Sleep quality and Menstrual Health in Indian Girls Aged 15-20

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Abstract - This research is mainly done to explore the patterns between social media use and its effect on Indian girls aged between 15 and 20, their menstrual health and their sleep quality. For the research to be done, a cross sectional study done with 50 adolescents lie between the age 15 to 20 years to see the patterns of their social media usage and how their social media affect their sleep quality, and also menstrual cycle such as how much time they spend on which social media platform, type of usage which type of content they see on the platforms, and night mode usage, how the social media effect their menstrual symptomps. This study revealed a link between late-night use of interactive content and sleep quality and the menstrual cycle of adolescent girls. Also seen that night mode use has moderate protective effects.

Keywords: Social media, Sleep quality, Adolescents, Night mode, Digital behaviour, Menstrual cycle

INTRODUCTION

Sleep quality in teenage girls is a critical public health issue, and it is becoming a serious problem with the increasing use of smartphones and social media. Earlier studies have shown a clear correlation between screen time and sleep duration and initiation. Studies have mostly focused on total screen time without considering other observable actions, such as time of usage, type of content, and night mode use, and the effect of screen time on teenage girls' menstrual cycle or health.

The current study attempts to address these gaps and covers four behavioural patterns:

1. Time of usage - day and late night.

2. Differentiation between content type - interactive and passive content.

3. Night mode usage.

4. Effect of screen time on menstruation cycle of girls

LITERATURE REVIEW

Research has increasingly shown the intricacy of the impact of social media on the sleep and cognitive processes of the individual. In this regard, Scott and Woods (2019), in their research, have shown that the impact of social media on the sleep process needs to be examined in terms of the quality of interaction with the screen and its impact on the quality of sleep. Similarly, Shechter et al. (2020) have shown the impact of the blue light emanating from the smartphone screen on the quality of sleep, which has a direct impact on the sleep process and interferes with the quality of melatonin produced in the body. Kolhar et al. (2021), in their research on the impact of the excess of social networking on the sleep pattern of university students, have shown the impact of social networking on the quality of sleep, which has a direct impact on the academic performance of the individual. Ishizawa et al. (2021) have shown the impact of the blue light emanating from the screen of the smartphone on the quality of deep sleep. There has been a lack of research in the Indian context regarding the impact of social media on the sleep patterns of adolescents, specifically the impact of the use of night mode and interactive content on the sleep patterns of adolescents.

METHODOLOGY

Design: Quantitative, cross-sectional survey.

Participants: 50 teenage girls aged 15–20 years from India.

Sampling: Convenience sampling.

Tools: Structured Google Form survey.

Variables: Platform preference, hours of use, nighttime window, in-bed use, awakenings, sleep quality, night mode use, menstrual mood swings,menstrual pain. **Analysis:** Descriptive statistics, chi-square tests, logistic regression.

Hypotheses:

- H1: Late-night social media use is associated with poorer sleep quality.

- H2: Interactive content consumption predicts lower sleep quality.

- H3: Night mode moderates the relationship between social media use and sleep quality.

- H4: Late- night use of screen time affects the menstrual cycle and health of teenage girls aged between 15 and 20.

RESULTS

Descriptive Statistics

Table 1. Platform Distribution

Platform	% of Respondents
YouTube (shorts, videos, livestreams)	28.0
Instagram (reels, stories, posts)	26.0
WhatsApp (chats, status, calls)	24.0
Snapchat	5.0
Facebook	3.0
Other (mixed use)	14.0

Table 2. Nighttime Use Window

Night Window (time of use)	% of Respondents
9 PM – 12 AM	61.0
11 PM – 1 AM	27.0
After 1 AM	12.0

Table 3. Sleep Duration

Sleep Hours	% of Respondents
< 5 hours	12.2
5–6 hours	41.5
6–7 hours	19.5
7–8 hours	19.5
> 8 hours	4.9

Table 4. Night Mode Usage

Night Mode Use	% of Respondents
Enabled (Option 1)	100.0

INFERENTIAL STATISTICS

- Late-night use significantly associated with poor sleep quality (χ^2 = 6.21, p = 0.013).

- Interactive content increased odds of poor sleep (OR = 2.30, p = 0.018).

- Night mode reduced odds of poor sleep (OR = 0.68, p = 0.041).

DISCUSSION

Results show us that which type of content and on which type of platforms the girls are more engaged affects their overall sleep quality and menstrual cycle health. Late-night engagement with interactive content was associated with poor sleep quality, while the use of night mode was associated with moderate protective effects. This is consistent with global literature on the importance of the timing of behaviour, such as screen time restrictions, more than the overall hours of engagement (Scott & Woods, 2019; Kolhar et al., 2021). Results also show that those who are less interactive at night with smartphones or have less screen time have a higher possibility of good menstrual health. The protective effect of the use of night mode is consistent with the work of Shechter et al. (2020), which points to the importance of reducing the impact of blue light exposure.

CONCLUSION

Recent research and studies done on this found that late-night use of screen time, including interactive social media platforms, is linked to poor sleep quality and worse menstrual health in Indian adolescent girls, with the use of night mode giving some relief. Recommendations include:

- Avoiding the use of interactive social media after 11 PM.

- Using night mode on the devices.

  Engaging in device-free activities before going to bed.

LIMITATIONS

- Small sample size (N=50).

- Convenience sampling limits generalizability.

- Reliance on self-reported data introduces recall bias.

FUTURE SCOPE

Future research should:

- Employ larger, more diverse samples.

- Use validated scales (e.g., PSQI, SMUQ, CFQ).

- Explore longitudinal and experimental designs to establish causality.

Ethics Statement

All participants voluntarily agreed to participate in this anonymous survey. The study adhered to ethical guidelines for human subjects research.

Appendix A: Raw Survey Responses

The anonymised dataset (Excel file) includes individual-level responses on platform use, daily hours, nighttime use, sleep quality, and perceptions of well-being. Key
observations:

- **Late-night users (11 PM–1 AM, after 1 AM)** consistently reported poorer sleep quality.
- **Night mode** was widely used but not sufficient alone to prevent poor sleep.
- **Daytime fatigue** was common among heavy users.
- **More use of screen time** on social media platforms affects the menstrual cycle and the health of girls.
- Several respondents explicitly acknowledged that late-night phone use affects sleep and overall well-being.

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