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Research Paper

Changes in Sleep and Dietary Habits among Indian High School Students during the COVID-19 Lockdown

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ABSTRACT

The COVID-19 lockdown resulted in substantial disruptions to adolescents' daily routines, potentially influencing key lifestyle behaviours such as sleep and dietary habits. The present study aimed to examine changes in sleep patterns and eating behaviours among Indian high school students by comparing self-reported behaviours before and during the COVID-19 lockdown. A retrospective within-subject quantitative design was employed. Data were collected through an online survey from 127 participants who were enrolled in Classes 9–12 during the lockdown period. Participants retrospectively reported their pre-lockdown and during-lockdown behaviours using the Athens Insomnia Scale (AIS) and the Dutch Eating Behavior Questionnaire–Short Form (DEBQ-short). Wilcoxon signed-rank tests and paired-samples t-tests were used for analysis. Results indicated a significant increase in insomnia-related symptoms during the lockdown compared to the pre-lockdown period, whereas no significant changes were observed in emotional, external, or restrained eating behaviours. These findings suggest that while adolescents' sleep patterns were adversely affected during the lockdown, dietary habits remained relatively stable, possibly due to structured family meal practices. The study highlights the importance of promoting healthy sleep routines among adolescents during periods of large-scale societal disruption.

Keywords: *COVID-19 Lockdown, Adolescents, Sleep Patterns, Dietary Habits, India*

The COVID-19 pandemic led to unprecedented public health measures worldwide, including prolonged lockdowns and school closures. In India, the sudden shift from structured school-based routines to home-based online learning significantly altered adolescents' daily schedules. Adolescence is a critical developmental period characterised by biological, psychological, and social changes, during which lifestyle behaviours such as sleep and dietary habits play a crucial role in physical health, emotional regulation, and academic functioning.

Sleep patterns in adolescents are particularly sensitive to environmental and social disruptions. Biological changes during adolescence predispose individuals to later sleep onset, and when combined with increased screen exposure, academic demands, and psychosocial stressors, adolescents are vulnerable to sleep disturbances. Disruptions in sleep

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have been linked to impaired cognitive functioning, emotional dysregulation, and poorer mental health outcomes.

Dietary habits are another essential component of adolescent health. Eating behaviours during adolescence are influenced by biological factors, emotional states, family practices, and broader social contexts. Changes in routine, stress, and access to food during lockdown periods have been associated with alterations in meal timing, snacking behaviour, and emotional eating. Importantly, sleep and dietary habits are interrelated; disrupted sleep may influence appetite regulation and food choices, while dietary patterns can affect sleep quality.

Significance of the study

Although several studies have examined the impact of the COVID-19 pandemic on adolescent lifestyle behaviours, relatively few have explored changes in sleep and dietary habits together within the same individuals. Moreover, limited research has focused on Indian adolescents during this period. The present study addresses this gap by examining retrospective within-subject changes in sleep patterns and dietary habits among Indian high school students before and during the COVID-19 lockdown.

Statement of the Problem

Limited research has explored how the lockdown specifically affected then Indian high school students (Classes 9 to 12). This study aims to examine the effects of COVID-19 on their sleep and dietary habits to better understand these changes and their impact.

Objectives

1. To examine changes in sleep patterns among Indian high school students during the COVID-19 lockdown compared to the pre-lockdown period.
2. To examine changes in dietary habits, including emotional, external, and restrained eating behaviours, during the COVID-19 lockdown compared to the pre-lockdown period.

Hypotheses

- The COVID 19 pandemic negatively impacted the sleep patterns of then Indian high school students causing increased insomnia-related problems like sleep time, wake time, number of awakenings in the middle of the night, etc.
- The COVID-19 pandemic altered the dietary habits of then Indian high school students causing increase in emotional, external and restrained eating behaviors and irregular meal patterns compared to pre-pandemic routines.

Variables:

Independent Variable:

- COVID-19 pandemic (considered as the external factor influencing lifestyle routines).

Dependent Variables:

- Sleep patterns
- Dietary habits

METHOD

Research Design

A quantitative, retrospective within-subject design was used. The same participants reported their sleep and dietary behaviours for two time periods: before the COVID-19 lockdown and during the lockdown. This design allowed for paired comparisons while controlling for individual differences.

Participants

The sample consisted of 127 participants who were enrolled in Indian high schools (Classes 9–12) during the COVID-19 lockdown. At the time of data collection, participants were aged between 18 and 23 years. The sample included 83 females and 44 males. Most participants resided in urban areas, with smaller representations from semi-urban and rural settings.

Tools

Athens Insomnia Scale (AIS). The AIS is an 8-item self-report measure assessing insomnia-related symptoms based on ICD-10 criteria. Responses are rated on a 4-point Likert scale, with higher scores indicating greater insomnia severity. The scale demonstrated good internal consistency in the present study.

Dutch Eating Behavior Questionnaire–Short Form (DEBQ-short). The DEBQ-short assesses three eating behaviour domains: emotional eating, external eating, and restrained eating. Items are rated on a 5-point Likert scale. The scale showed good to excellent reliability in the present sample.

Procedure

Participants were recruited through convenience sampling using online platforms. After providing informed consent, participants completed a Google Forms survey that included demographic questions followed by the AIS and DEBQ-short. Participants were instructed to respond separately for their behaviours before the COVID-19 lockdown and during the lockdown period. Participation was voluntary and anonymous.

Statistical Analysis

Data were analysed using JASP (Version 0.95). Descriptive statistics were computed for all variables. Normality was assessed using the Shapiro–Wilk test. Wilcoxon signed-rank tests were used for non-normally distributed variables, and paired-samples t-tests were used for variables meeting parametric assumptions. Statistical significance was set at $p < .05$.

RESULTS

Table 1

Variable	Test Used	Test Statistic	P-value
Sleep	Wilcoxon signed-rank	$z = -4.917$	$< .001$
Emotional Eating	Wilcoxon signed-rank	$z = -1.611$	.107
External Eating	Paired t-test	$t(126) = -0.479$	.633
Restrained Eating	Paired t-test	$t(126) = -1.621$	.108

Sleep Patterns

Results from the Wilcoxon signed-rank test indicated a significant increase in insomnia-related symptoms during the COVID-19 lockdown compared to the pre-lockdown period ($p < .001$). Median AIS scores were higher during the lockdown, suggesting poorer sleep quality and increased sleep disturbances.

Dietary Habits

Wilcoxon signed-rank analysis revealed no significant difference in emotional eating before and during the lockdown ($p > .05$). Paired-samples t-tests showed no significant differences in external eating or restrained eating behaviours across the two time periods ($p > .05$).

DISCUSSION

The present study examined retrospective within-subject changes in sleep patterns and dietary habits among Indian high school students during the COVID-19 lockdown. Findings indicated a significant deterioration in sleep patterns, while dietary habits remained relatively stable at the group level.

The observed increase in insomnia-related symptoms is consistent with previous research documenting disrupted sleep among adolescents during the pandemic. Factors such as increased screen time, reduced physical activity, altered daily schedules, and heightened stress may have contributed to poorer sleep quality. The findings highlight adolescents' vulnerability to sleep disturbances during periods of large-scale disruption.

In contrast, no significant changes were observed in emotional, external, or restrained eating behaviours. This stability may reflect the Indian cultural context, where family-based meal routines and home-cooked food are common. Lockdown conditions may have reinforced existing eating structures for many adolescents, thereby buffering against major dietary changes.

Together, these findings underscore the importance of addressing sleep health as a priority during crises, while also recognising the protective role of family and cultural practices in maintaining dietary stability.

CONCLUSION

The present study examined retrospective within-subject changes in sleep patterns and dietary habits among Indian high school students during the COVID-19 lockdown. Findings revealed a significant deterioration in sleep patterns during the lockdown period, while emotional, external, and restrained eating behaviours did not show significant changes. This suggests that adolescents' sleep routines were more vulnerable to disruption than their dietary habits during the lockdown.

The observed stability in eating behaviours may reflect the influence of family-based meal structures within the Indian context, whereas disrupted daily schedules, increased screen time, and psychosocial stress may have contributed to poorer sleep. Despite reliance on retrospective self-report data, the within-subject design strengthens the interpretation of changes observed within individuals. Overall, the study highlights the need to prioritise adolescent sleep health during periods of large-scale societal disruption and provides a basis for future longitudinal research.

Limitations

- The study relied on retrospective self-report data, which may be subject to recall bias.
- The use of convenience sampling and an urban-dominated sample limits generalisability.
- The cross-sectional nature of the data precludes causal inferences, and objective measures of sleep and diet were not included.
- The results obtained might not be affected only due to the 'COVID-19' pandemic/ lockdown.

Implications

The findings highlight the need for interventions promoting healthy sleep routines among adolescents during periods of disruption. Future research should employ longitudinal designs, include more diverse samples, and examine mediating factors such as stress, screen time, and physical activity. Exploring the bidirectional relationship between sleep and dietary habits may further inform holistic adolescent health interventions.

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Conflict of Interest

The author(s) declared no conflict of interest.

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